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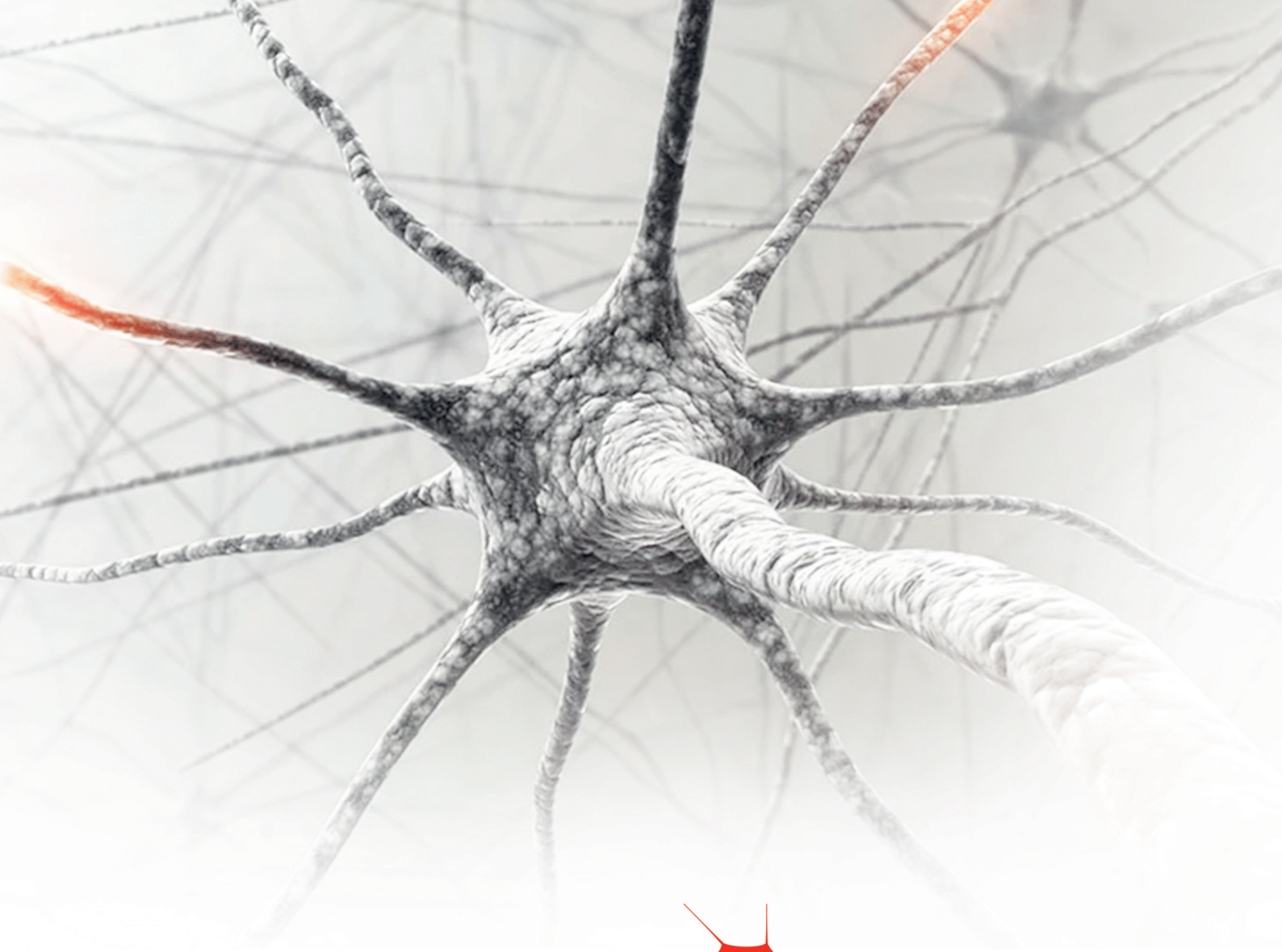

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Action of capsaicin in the degranulation of mast cells in dura mater of rats: literature review

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Introduction: Capsaicin is able to induce mast cell degranulation, an event probably related to the pathophysiology of a migraine attack.
Objectives: The present review study aimed to address the mechanisms of action of capsaicin and other chemical inducers in mast cell degranulation and an interaction of nerves and events that happen in the dura mater with the activation of mast cells.
Design: A survey was carried out in the literature, from 1980 to 2019, in different databases (SciELO, U.S. National Library of Medicine and the National Institutes Health (PubMed) and Web of Science) using the following terms: capsaicin, mast cell and dura mater.
Methods: 36 articles were selected for this review. The inclusion criteria were experimental model studies in rats that described the mechanisms of action of chemical inducers, including capsaicin.
Results: Studies indicate that the main mechanisms of action of capsaicin are chemical induction through the activation of TRPV1 channels, allowing calcium influx into neurons in the trigeminal ganglion of the dura mater, activating mast cell degranulation, releasing pro-inflammatory (e.g., histamine, oxide nitric) and vasoactive (e.g., CGRP and substance P) substances.
Conclusion: Therefore, the use of capsaicin may be a tool to be used in an animal model to better understand the pathophysiology of migraine.

https://doi.org/10.5327/1516-3180.002

Wilson's disease: neuroimaging features

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Background: Wilson's disease (DW) is a genetic disorder characterized by the accumulation of copper in the body. The copper accumulation is systemic and occurs in several tissues, with the central nervous system (CNS) being one of the most affected sites. The use of imaging tests is not necessary for the diagnosis. However, in the suspicion of neurological damage, Magnetic Resonance Imaging (MRI) plays an important role in the assessment of the metal deposit in the CNS and in the clinico-anatomical correlation in symptomatic patients.
Objectives: to identify the characteristic findings of DW in neuroimaging exams.
Methods: a narrative literature review.
Results: in MRI, the most affected sites in the CNS are the basal ganglia (mainly the outermost portion of the putamen), followed by the midbrain, the pons, and the thalamus. Alterations are bilaterally and symmetrically. T2 sequence reveals hyperintensity in putamen, the most common abnormality, as well as in the rest of the basal ganglia. Eventually, it is possible to identify the "panda sign" in the axial section of the midbrain, due to the involvement of the tegmental region associated with the normal signal of the red nuclei and hypointensity of the superior colliculus, characteristic of DW. In the T1 sequence, patients with neurological symptoms present hypointense images.
Conclusions: MRI has a diagnostic and prognostic role in DW. The putamen is the most affected structure, but abnormalities in the pons, midbrain, and thalamus are part of the neuroimaging spectrum of Wilson's disease. The "panda sign" is the classic MRI finding.

MeSH terms: Hepatolenticular Degeneration; Magnetic Resonance Imaging; Basal Ganglia; Copper.
Key words: Wilson's Disease; Panda Sign; Central Nervous System; Putamen.

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Depression and psychological distress in elders are influenced by the antioxidant enzyme SOD2

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Introduction: Depression and psychological stress have high prevalence and incidence rates, affecting the individual welfare and increasing the risks for non-infectious chronic diseases. Studies have shown relations between inflammation and oxidative stress. In genetics, the single nucleotide polymorphism (SNP), inside the superoxide dismutase gene (Val16Ala-SOD2), is an important study subject to comprehend the risks of developing depression because its different genotypes can impact the balance between superoxide and hydrogen peroxide. The genotype VV favors the superoxide, the AA favors the peroxide and the AV generates similar amounts.
Objectives: Evaluate the relation between oxidative unbalance, generated by Val16Ala-SOD2 SNP, and the rates of depression in elders.
Methods: The study, approved by the ethics committee of UFSM, was a case-control analysis to examine the association between Val16Ala-SOD2 SNP, depression and stress in elders. Genetical analysis was made by polymerase chain reactions. The sample had 612 elders from Gravataí (RS). Depression was diagnosed using the geriatric depression scale- 15 and the stress by self perception. Statistical analysis was made by SSPS.
Results: From the 612 elders (with similar ages and lifestyles), 115 were diagnosed with depression; the other 497 composed the control group. The analyses showed significantly higher frequency of the genotype VV in those who had depression, compared with the allele A.
Conclusion: The results indicate strong association of the Val16Ala-SOD2 SNP, the risks of depression and psychological stress, probably due to the increasing oxidative stress and inflammatory state associated with the recessive genotype, VV.

MeSH terms: depression, oxidative stress, superoxide dismutase.
Key words: elder, psychological stress, polymorphism, genetics.

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Presence of genetic polymorphisms may impact on predisposition to Parkinson's disease

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Introduction: Parkinson's disease (PD) is characterized by the degeneration and loss of dopaminergic neurons in the black substantia and the formation of Lewy bodies, thus being considered a neurodegenerative disease. Thus, the objective was to understand the impact of polymorphisms in the predisposition to PD.
Methods: It's a narrative review of literature in the PubMed and SciELO databases, using the descriptors: "Polymorphism, Single Nucleotide" and "Parkinson disease", registered in DeCS/MeSH, and using the Boolean operator AND. The inclusion criteria were: complete articles and made available free of charge, published in English, Spanish and Portuguese, between 2016 and January 2021.
Results: After the research, 167 publications were found and seven were included. The data from the first study indicate that the *rs33949390* of the *LRRK2* gene helps in predisposition to PD in Asian populations, mainly Chinese. The second study indicated that the *NFE2L2 rs6721961* allele was linked to a reduced risk of PD. The third study found that the *GSK3B rs1732170*, *STK11 rs8111699*, *SNCA rs356219* and *FCHSD1 rs456998* polymorphisms were linked to a high risk of PD. The fourth study found that the *SNCA* variants *rs7684318*, *rs356220*, *rs356203* and *rs2736990* were linked to the disease and were at high risk of developing PD in the Mexican population. The fifth and sixth study are meta-analyzes, the fifth confirming the lower allele *rs11558538* of *HNMT* is associated with a reduced risk of developing PD. And the sixth assumes a possible link between *CCDC62 rs12817488* and the risk of PD in the Chinese population.
Conclusion: However, the analyzed data indicate that the polymorphisms contributed to the susceptibility to PD, however further studies related to the polymorphisms and their relationship to PD are still needed for more ethnic groups, and thus early diagnosis is possible.

Key words: Nerve Degeneration, Parkinson Disease, Polymorphism, Single Nucleotide.

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Hemisferic encephalic involviment associated with sars- cov-2

Maria Clara Carvalho Silva de Amorim, Karla Oliveira Couto, Pedro José da Silva Júnior, Thiago Gonçalves Fukuda, Pedro Antônio Pereira de Jesus, Mateus Santana do Rosário
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Context: The novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) emerged in Wuhan, China and rapidly spread worldwide. Although the predominant clinical presentation is with respiratory disease, neurological manifestations are being recognised increasingly.
Case report: In this report, we demonstrate a case of hemispheric brain involvement as a neurological manifestation of Sars-cov-2 in a 74-year-old patient admitted to Hospital Santa Izabel (HSI) between May and July 2020.
Conclusion: In COVID-19, although the predominant clinical presentation is with respiratory disease, neurological complications have been reported. Severe neurological complications are either because of direct viral invasion, immunological reaction, or hypoxic metabolic changes. The patients with encephalitis are usually severely or critically ill.

Key words: COVID-19, encephalitis, SARS-CoV-2, pandemic

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Sleep quality of medical students at a college in the south of Minas Gerais

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Introduction: Sleep is a physiological state that occurs cyclically in many living beings, analyzing rest and activity behaviors, which make up a wake-sleep cycle. At the university, medical students are faced with a lack of time and exhaustion, since the course has a full workload, a fact that causes students to leave basic activities more and more towards the end of the day, thus developing disorders of the sleep.
Objective: The objective of this study is to analyze the quality of sleep and the incidence of sleep disorder in medical students. Design and setting: The research was carried out with students from a medical school in the south of Minas Gerais.
Methods: The Google Forms platform was used by students to answer two self-administered questionnaires. The first encompassed questions about gender and year of graduation and the second assessed sleep quality and is called the Pittsburgh Sleep Quality Index. The Bioestat 5 and Excel 365 were used for statistical analysis.
Results: The analysis of the PSQI results showed sleep disturbance in 20.5% of the students, presence of poor sleep quality in 47.2% of the students, 40.2% of students had poor or very poor subjective quality of sleep.
Conclusion: Through this research, it was observed that the sleep quality of medical students is lower than that of the general population, being related to the progression of the course. It was concluded that the students in this study also have, on average, fewer hours of sleep than the rest of Brazilians.

Key words: Medical Students, Sleep Deprivation, Sleep-Wake Disorders, Sleep Onset and Maintenance Disorders.

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Alzheimer in Brazil, epidemiology of the last 5 years

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Introduction: Alzheimer's disease (AD) is the most frequent neurodegenerative pathology associated with age, being progressive, insidious and irreversible, whose cognitive and neuropsychiatric manifestations result in an even-

tual disability. Thus, the interest in evaluating the epidemiological profile of hospitalizations in Brazil, according to age and sex in the period of 5 years.
Methods: Ecological and descriptive study. The data collection for this study was based on results obtained through the Health Information (TABNET) and the SUS Hospital Information System (SIH / SUS) in the period from 2016 to 2020.
Results: In the period of 5 years, 7,431 admissions for Alzheimer's were registered, with the highest prevalence in the Southeast, with 4,192 cases (56.41% of total admissions), followed by the South, with 1,727 cases (23.24%). The least incident region was in the North, with 199 cases. There was a predominance of females, with 4,842 cases (65.15%). The most affected age group was between 80 and over, with 4,398 cases, followed by between 70 and 79, with 2,117. From 2016 to 2020, there was a decrease of 19.25% in the number of hospitalizations, however it had a progressive increase until 2019, being the most incident year.
Conclusion: The profile was given by a female figure over 80 years old, from the Southeast. As for the progressive increase until 2019, it is necessary to implement measures and policies guiding and welcoming these patients and their families, promoting a better quality of life for the affected population.

MeSH terms: Alzheimer disease, Epidemiology, Neurology.
Key words: Degenerative neurologic disease, Medicine, Mental disorders.

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Panorama of hospitalizations for Parkinson's disease in Brazil in the period from 2016 to 2020

Caio Felipe Thomazin Panicio, Matheus Henrique Rodrigues Brito, Natalia Saez Duarte, Stella Caron Pessa, André Felipe Cortez Mendes, Lucas Rossato Pacheco, Karen Pompei Bruneri
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Introduction: Parkinson's disease (PD) is the second most common neurodegenerative disease in the population ≥65 years. The main findings are tremor, stiffness, bradykinesia/akinesia and postural instability. The objective is to assess the epidemiology of parkinson's in Brazil, according to age and gender, over a 5-year period.
Methods: Ecological and descriptive study. The data collection for this study was based on results obtained through the Health Information (TABNET) and the SUS Hospital Information System (SIH / SUS) in the period from 2016 to 2020.
Results: 4,637 hospitalizations were recorded, with the Southeast being the most prevalent region, with 2,210 cases (47.66%), followed by the South, with 1,292 cases (27.86%). There was a predominance of males, with 2,767 cases (59.67% of total cases). The most affected age group was between 70 and 79 years old, with 1,220 cases (26.31%). From 2016 to 2020 there was a 41.42% decline in the number of hospitalizations, with 2016 being the year with the highest records, with 1,154 cases. 2020 was the least incident year, with 676 hospitalizations.
Conclusion: The profile of hospitalizations in Brazil was given by a male figure between 70 and 79 years old, and from the Southeast. Taking into account the decrease in almost 50% of admissions for PD, it is assumed that effective measures and policies are being taken in the atention and care of this population, providing a better quality of life for the affected individuals. Evidencing the importance of primary care in prevention and the general health.

MeSH terms: Parkinson disease, Epidemiology, Neurology.
Key words: Degenerative neurologic disease, Medicine, Mental disorders.

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Overview of admissions for traumatic brain injury in Brazil in the last 5 years

Caio Felipe Thomazin Panicio, Ana Beatriz Tomiyoshi Koyama, André Felipe Cortez Mendes, Andressa Algazal, Angelo Luis Tonon Santana, Felipe Lisboa Falkoni de Morais, Karen Pompei Bruneri, Matheus Henrique Rodrigues Brito
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Introduction: Head trauma (TBI) is the main cause of morbidity and mortality in children and young adults. The most frequent causes involve: traffic accidents, falls and aggressions. The objective is to assess the epidemiology of TBI in Brazil according to age, sex and deaths over a 5-year period.
Methods: Ecological and descriptive study. The data collection for this study was based on results obtained through the Health Information (TABNET) and the SUS Hospital Information System (SIH / SUS) in the period from 2016 to 2020.
Results: There were 515,235 admissions due to TBI, with a higher prevalence in the Southeast, with 211,972 cases (41.14%), followed by the Northeast, with 136,705 (26.53%). There was a predominance of males, with 391,991 (76.08%). The age group most affected was between 20 and 29 years and 30 to 39 years, with 83,581 (16.22%) and 75,312 (14.61%), respectively. From 2016 to 2020 there was a decrease of 7.33% in the number of cases, 2016 being the most prevalent year, with 106,497, and 2020 the least incident year, with 98,690 hospitalizations. Of the 515,235 cases, 9.59% died, with its peak in 2016, with 10,364 deaths.
Conclusion: The profile was given by a male figure between 20 and 29 years old, from the Southeast region. Taking into account the progressive decline in incidence, it can be deduced that orientations are being made. However, the numbers are still high, requiring measures to raise awareness about risks and prevention, since, most cases can be preventable.

MeSH terms: Craniocerebral trauma; Epidemiology; Neurology.
Key words: Accidents, traffic; Emergency medical services; Medicine.

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Rabbit syndrome induced by the use of Risperidone: a case report

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Context: Risperidone is a selective monoaminergic antagonist, its main action as an antipsychotic is attributed to its affinity to dopamine D2 receptors. However, intervention in dopaminergic transmission by this medication can affect the motor control performed by the striatum, generating the so-called extrapyramidal syndromes. Among these syndromes, we have the rabbit syndrome (SC), which is manifested by the chronic use of antipsychotics and causes involuntary movements of the muscles of the jaw and tongue.
Case report: E. B. L., a 89- year-old woman undergoing neurological follow-up due to dementia. He started using risperidone 1mg at night to treat behavioral changes and aggressions. However, 4 months after the start of the medication, he started to have a tremor of the chin and stiffness in the upper limbs. These symptoms improved after switching from risperidone to olanzapine 5mg at night.

Conclusions: The present study emphasizes the importance of recognizing Rabbit Syndrome and the clinical repercussions of symptomatic variants, such as tardive dyskinesia, nocturnal bruxism and altered tongue motricity, in the differential diagnosis of drug-induced movement disorders. In this sense, neurological assessment includes an elucidating clinical history and targeted physical examination.

MeSH terms: Extrapyramidal syndromes. Neurology. Risperidone.

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Can the ketogenic diet help in the treatment of childhood epileptic encephalopathies? A literature review

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Introduction: Epileptic encephalopathies are entities where epileptic activity is so intense that it contributes to cognitive and behavioral impairment. There are several syndromes that fall into this category such as: West syndrome, Ohtahara syndrome, Dravet syndrome, Doose syndrome and Landau-Kleffner syndrome.
Objective: presentation of the clinical indications of the ketogenic diet (CD) as a therapeutic measure in childhood refractory epilepsies, demonstrating the efficacy and side effects expected from this practice.
Methodology: a narrative review of the scientific literature (PUBMED and SCIELO) was carried out, with a selection of articles published in the last ten years, also considering renowned magazines and newspapers in the areas of Clinical Neurology, Neuropediatrics and epilepsy.
Results: A randomized and controlled clinical trial, conducted in children aged 2 to 16 years with refractory epilepsy, demonstrated that after 3 months, 38% of patients using CD had more than 50% reduction in seizures, compared with four (6%) of the control group (p <00001). Corroborating this finding, a Brazilian study demonstrated that 60% of patients with refractory epilepsy and using CD had more than 50% reduction in seizure frequency and 10% were seizure-free.
Conclusions: The use of the ketogenic diet demonstrated a favorable result in children with epilepsy refractory to drug treatment. In cases of deficiency in the type 1 glucose transporter and deficiency of pyruvate dehydrogenase, CD should be the treatment of first choice. In casessuch as Dravet's Syndrome, West's Syndrome, Ohtahara's Syndrome, Lennox- Gastaut Syndrome and DC Dose Syndrome is part of the therapeutic arsenal.

MeSH terms: Childrens. Encephalopathies. Epilepsy. Ketogenic diet.

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Blurred Lines – Is the distinction between CIDP and CMT always clear?

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Introduction: Charcot-Marie-Tooth disease (CMT) is a group of inherited sensorymotor neuropathies with variable age of onset, clinical and neurophysiological patterns but often with a chronic slow progression. Chronic inflammatory demyelinating polyradiculoneuropathy (CIDP) is an immune-mediated neuropathy with a relapsing clinical course and typically good response to corticosteroids or other therapies. The distinction between these two conditions can be made with aid of clinical history, neurophysiological studies and genetic testing in the vast majority of cases. However, an overlap between them can occur.
Methods: We describe four Brazilian patients under clinical follow-up at our service with genetic diagnosis of CMT and clinical and neurophysiological features compatible with a concurrent CIDP diagnosis.
Results: Four cases of different CMT subtypes with co-occurrence of an immune-mediated neuropathy compatible with CIDP were reported. The patients were all unrelated, two males and two females, age range from 3 to 45 years. The genetic mutations were the following: hemizygous pathogenic variant c.514C>T (p.Pro172Ser) in GJB1 gene (CMT1X), duplication of PMP22 gene (CMT1A), simple heterozygous pathogenic variant c.188_190delCCT (p.Ser64del) in MPZ gene (CMT1B) and homozygous pathogenic variant c.122T>C (p.Ile41Thr) in FIG4 gene (CMT4J). All four patients presented with relapsing or subacute worsening of neurological symptoms, demyelinating non-uniform features in neurophysiological studies including conduction blocks and elevated cerebrospinal fluid (CSF) protein levels without pleocytosis. Three patients (3/4) improved after treatment with corticosteroids, immunoglobulin or cyclophosphamide with variable clinical response.
Conclusion: CMT and CIDP are different conditions involving the peripheral nervous system and the distinction between them usually is possible with the appropriate assessment. The overlap between them is possible and we report four cases with this association.

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Bobble Head Doll Syndrome: what have we described in the scientific literature?

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Introduction: The bobble head syndrome (BHDS) is described in the literature as a complex and rare syndrome with repetitive movements of the anteroposterior head. Furthermore, it is known that this movement disorder is due to the effect of pressure from the third dilated ventricle, which distorts the red dorsomedial nucleus and the dentatorubrotalamic pathways.
Objective: to evaluate the number of studies on the syndrome and, added to the findings, describe the manifestations about the Bobble Head Doll Syndrome, elucidating the main neurological exams, treatments used and reported prognoses, in order to make it a potential diagnosis in children who present a compatible clinic.
Methodology: a systematic review based on databases (SCIELO <LILACS and PUBMED), using the PRISMA method with the following descriptor: Bobble Head Doll Syndrome. The selection criteria included: studies made available in full, case reports, reviews and clinical trials. Exclusion criteria: articles not available in full, duplicates and works that only touched on the theme.
Results: it was found in the scientific literature, PUBMED: 52 studies and SCIELO: 0. SCIELO: 2.
Conclusions: the articles selected based on the established criteria showed a significant scientific scarcity around the Bobble Head Doll Syndrome. The dissemination of new studies and documentation of case reports is essential in understanding both the general syndrome and the specific knowledge of the procedures in which neurologists must take it. In this sense, the epidemiology is approximately between 2 and less than 5 years of age in children.

MeSH terms: Basal ganglia, bobble-head, thalamus.

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Effects of theanine on cognition

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Background: Theanine is an amino acid present in green tea capable of acting on certain neurological parameters. In this perspective, the literature points to possible effects of this amino acid on cognitive function.

Objectives: To investigate the effects of theanine on cognition.

Methods: A literature review was conducted on PubMed using the descriptors "Theanine" and "Cognition", as well as their variations obtained in MeSH. In addition, we selected studies carried out on humans in the last five years. In this process, 25 articles were found, of which three were chosen to compose the scope of this abstract.

Results: Evidences suggested that the administration of theanine sharply reduced the reaction time to visual stimuli - one of the main components tested in the attentional assessment. In addition, another study pointed out that, since the chemical structure of theanine is similar to glutamate, it is able to act decisively as a neurotransmitter linked to memory, potentiating it in healthy adults and in elderly people with cognitive decline. Finally, the third article correlated the use of theanine with greater accuracy in tasks of rapid information processing and the reduction of mental fatigue - factors that can reinforce the ability to concentrate.

Conclusions: Studies have shown that theanine acts positively on the parameters of attention, memory and concentration, contributing significantly to the improvement of cognitive function.

MeSH terms: Theanine; Cognition; Attention.

Key words: L-teanina; Atenção; Concentração; Função cognitiva; Chá verde.

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Influence of insomnia on cognition

Yves Henrique Faria Dias, Leonardo Moreira Dutra, Mariana Vanon Moreira, Bárbara Gomes Muffato, Ana Luíza Badini Tubenchlak, Maria Clara Lopes Rezende, Milla Giancristofaro Dutra, Bernardo Valle Zanetti, Leandro Véspoli Campos

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Background: Insomnia is a disorder characterized by difficulty in initiating and maintaining sleep, affecting about 20% of the world population. As a consequence, this disorder brings a significant loss of quality of life for the affected individuals, triggering the questioning about its influence on cognitive performance.

Objectives: To investigate the interference of insomnia on cognition.

Methods: During April of 2021, a literature review was carried out in the PubMed database, using the descriptors "Insomnia" and "Cognition", in addition to their respective variations in MeSH. We selected studies carried out in humans and published in the last five years.

Results: A total of 317 articles were found, of which four were selected to produce this abstract. The studies showed a significant relationship between sleep restriction caused by insomnia and worsening cognitive activity. In this sense, the fragmentation of rest and the difficulty of reaching deeper stages of sleep altered the cognitive efficiency of the affected patients, causing impaired performance in aspects such as attention, memory, learning capacity, perception and ability to solve problems. Performance was assessed through subjective and objective tests - composed of patient reports and practical tests, respectively. Despite the negative relationship established, one of the studies reports that certain domains of cognition were preserved, such as psychomotor and verbal functions.

Conclusions: Insomnia adversely affects individuals' cognitive performance, resulting in losses in the patient's life.

MeSH terms: Insomnia; Cognition; Attention.

Key words: Insônia; Concentração; Memória; Função cognitiva.

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Expanding the neurological and imaging phenotype of women with adult-onset X- linked Adrenoleukodystrophy.

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Background: X-linked Adrenoleukodystrophy (X-ALD) represents a key inherited metabolic disorder in neurological practice, representing an important differential diagnosis in different neurological contexts. Symptomatic female patients have been scarcely studied in large cohorts.

Objectives: Evaluation of clinical, laboratory and genetic findings from a Brazilian cohort of women with X-ALD.

Methods, design and setting: We performed a retrospective observational study of clinical, biochemical, genetic, neuroimaging and neurophysiological aspects of 10 Brazilian female patients with X-linked Adrenoleukodystrophy under clinical follow-up at the Neurometabolic Unit, Division of Neuromuscular Diseases, Federal University of São Paulo (UNIFESP), São Paulo, Brazil.

Results: Mean age at diagnosis was 46.2 years and at symptom-onset was 39 years. Female patients presented with spastic paraparesis and neurogenic bladder (60%), cognitive decline (50%), demyelinating sensorimotor polyneuropathy (40%), cerebellar ataxia (30%), epilepsy (20%), apraxia and psychotic symptoms (10%). The most common misdiagnosis were Primary Progressive Multiple Sclerosis and Hereditary Spastic Paraplegia. The main neuroimaging findings were corticospinal tract hyperintensity and cervical and thoracic spinal cord atrophy (60%), unspecific white matter changes (40%) and typical parieto-occipital leukodystrophy. All patients had abnormal profiles of plasma very-long chain fatty acids, all with elevated C26 levels and 80% with elevated C24 levels, but all with abnormally raised C26:C22 and C26:C24 ratio. The most common pathogenic variant observed was c.311G>A (p.Arg104His) (60%).

Conclusions: Female patients with *ABCD1* pathogenic variants must be carefully evaluated for neuropsychiatric disturbances and followed-up until elderly due to the common occurrence of variable motor, autonomic and sensory compromise.

MeSH terms: Adrenoleukodystrophy; Inborn Errors of Metabolism; Leukoencephalopathies.

Key words: Neurometabolic Disorders; Spastic Paraplegia; Neurogenetics; X Chromosome Inactivation; Spinal Cord Diseases; Inherited Metabolic Disorders.

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Clinical treatment of Idiopathic Benign Intracranial Hypertension (IIH): case report

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Introduction: Headache is one of the most common complaints in medicine, being divided into primary or secondary. Idiopathic Benign Intracranial Hypertension (IBIH) is one of the causes of secondary headache, where there is an increase in intracranial pressure in the absence of an expansive process.
Goals: To present the management of IBIH refractory to conventional treatment.
Methodology: Clinical evaluation of the patient, review of her medical record and review of literature related to the topic.
Case report: RMC, female, 55 years old, short stature, BMI 48, presented in 2018 repetitive pictures of severe headache, without improvement factors, associated with visual disturbances that evolved to amausore, sporadic loss of balance and slowing pupillary reflexes, mood disorders and easy cry. Magnetic resonance and fundscopy were inconclusive, and CSF puncture found an opening pressure of 20 cm of water.
After CSF puncture, the patient showed instantaneous vision improvement, and therapy with Acetazolamide was introduced, which controlled and kept her ophthalmological symptoms stable. Angina conditions were only resolved with the introduction of Lamotrigine.
RESULTS: The most commonly prescribed medication for IBIH, Acetazolamide, controlled the reported patient's ophthalmological condition, but not the pain episodes. When this medication alone cannot control the condition, the association of other medications or surgical conduct is indicated. The association of Acetazolamide with Lamotrigine was extremely important to solve the patient's pain episodes, making her clinical management positive.
Conclusion: The combination of Lamotrigine and Acetazolamide has been shown to be an excellent form of outpatient treatment for IBIH.

MESH-TERMS: Headache syndrome, alternative therapies, neurological disorders
KEY WORDS : Secondary headache, Outpatient treatment, Lamotrigine, Acetazolamide, IBIH

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Emerging therapies for amyotrophic lateral sclerosis applied to drug discovery

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Background: Amyotrophic Lateral Sclerosis (ALS) is a progressive neuromuscular disease mainly caused by genetic disorders. This progressive disorder involves the degeneration of motor neurons at various levels. Drugs have been studied, and they show improvement in survival and reduced progression of the disease, they are riluzole and edaravone.
Objectives: Investigate emerging therapies for the treatment of ALS.
Methods: The Pubmed database was used to conduct the research, and the keywords were "Amyotrophic Lateral Sclerosis", "Emerging", "Therapies","Drugs", all present in Mesh. Articles from 2016 to 2021 were used. And the survey was conducted on May 2, 2021.
Results: Only two drugs have been approved yet by the Food and Drug Administration for the treatment of ALS, riluzole and edaravone, and each one offers modest benefits in mortality and/or function. On the other hand, 88 studies of clinical intervention trials are active using different drugs. Current therapies under development include oral tyrosine kinase inhibitors (masitinib, trametinib); the antisense oligonucleotide (tofersen); the human monoclonal antibody inhibitor (ravulizumab); and mesenchymal stem cells (MSC); among others (RT001, Enoxacin, Engensis, ANX005, Deferiprone).
Conclusions: Due to gaps in the knowledge of the specific pathophysiology of ALS, the definitive treatment is still a mystery. The drugs currently in use, riluzole and edaravone, are the most promising in terms of delaying the progression of the disease.

MeSH terms: Amyotrophic Lateral Sclerosis, Emerging, Therapies, Drugs.
Key words: Genetic disorders, Neuromuscular disease, Clinical trials, Motor neurons, ALS disease.

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iPSC therapies applied to rehabilitation in parkinson's disease

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Background: Parkinson's disease (PD) is a neurological disorder that affects movement, mainly due to damage and degeneration of the nigrostriatal dopaminergic pathway. The diagnosis is made through a clinical neurological analysis where motor characteristics are considered. There is still no cure, and treatment strategies are focused on symptoms control. Cell replacement therapies emerge as an alternative.
Objective: This review focused on current techniques of induced pluripotent stem cells (iPSCs).
Methods: The search terms used were: "Parkinson's Disease", "Stem cells" and "iPSC". Open articles written in English, from 2016-21 were selected in the Pubmed database, 10 publications were identified.
Results: With the modernization of iPSC, it was possible to reprogram pluripotent human somatic cells and generate dopaminergic neurons and individual-specific glial cells. To understand the molecular basis, cell and animal models of neurons and organelles are currently being employed. Organoids are derived from stem cells in a three-dimensional matrix, such as matrigel or hydrogels derived from animals. The neuronal models are: α-synuclein (SNCA), leucine-rich repeat kinase2 (LRRK2), PARK2, putative kinase1 induced by phosphatase and tensin homolog (PINK1), DJ-1. Both models offer opportunities to investigate pathogenic mechanisms of PD and test compounds on human neurons.
Conclusions: Cell replacement therapy is promising and has great capacity for the treatment of neurodegenerative diseases. Studies using iPSC neuron and PD organoid modeling is highly valuable in elucidating rel-

evants neuronal pathways and therapeutic targets, moreover providing important models for testing future therapies.

MeSH terms: Parkinson's Disease; Stem cells; iPSC.
Key words: Neurological disorder; Dopamine; Neurotransmission.

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Comparative analysis between the profile of cerebrospinal liquid (CSF) and clinical evolution in patients with bacterial meningitis

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Background: Bacterial meningitis is a serious infection that occurs in the Central Nervous System, which presents important morbidity and mortality, mainly in children. The main bacterial agents causing meningitis in the community are *Haemophilus influenzae, Neisseria meningitidis* and *Streptococcus pneumoniae*. Specific signs and symptoms suggest meningitis and cerebrospinal fluid analysis is the main exam leading to diagnosis.
Objectives: To analyze the behavior of cerebrospinal fluid during the evolution of the patient with bacterial meningitis.
Methods: A retrospective study revised the medical records of patients with bacterial meningitis confirmed by cerebrospinal fluid examination in the Base Hospital of São José do Rio Preto from January 1996 to December 2002.
Results: in the 63 Patients, there were 18 cases (28.6%) of S. pneumoniae, 20 cases (31.7%) of H. influenzae, 12 cases (19%) of N.meningitides B and 13 (20.6%) cases of N. meningitidis C. In the 18 patients with pneumococcus, 10 (55.6%) were discharged and 8 (44.4%) died. In the 20 patients with HIB, only 3 (15%) died, there was no death patients with meningococcus B and C.
Conclusion: There was no difference statistics in the cerebrospinal fluid of the patients who were discharged and those who died.

Descriptors: bacterial meningitidis, cerebrospinal fluid, clinical evidence.

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Trigeminal rhizotomies in the treatment of trigemium neuralgia

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Background: Rhizotomy is a procedure that seeks to interrupt, the pain function of sensitive nerves. Trigeminal Neuralgia (TN) is a disease that can benefit from a trigeminal rhizotomy. Currently, percutaneous trigeminal radiofrequency rhizotomy and balloon microcompression techniques are widely used.
Objective: To expose therapeutic experience of TN by trigeminal rhizotomy therapy.
Methods: Retrospective study of TN patients undergoing trigeminal rhizotomy in a reference service in endovascular neurosurgery in Blumenau, Santa Catarina, from 2009 to 2019. The variables analyzed were gender, age, symptoms, comorbidities and procedural characteristics.
Results: 39 patients were analyzed, 24 were women (61.5%) aged between 33 and 84 years and a mean of 62.8 years old. Regarding the symptoms presented, the most prevalent was headache (69.2%), followed by paresthesia (10.2%), tinnitus (7.7%) and dizziness (5.1%). For comorbidities, 25.6% had systemic arterial hypertension and 15.4% had dyslipidemia. The trigeminal branches most involved in rhizotomies were V2-V3 (56.4%), followed by V2 (28.2%), V1 (7.7%), V1-V2 (5.1%) and V3 (2.5%). The left side was more affected (56.4%). The percutaneous approach was performed in all patients, in 92.3% the balloon technique was performed and in 7.7% radiofrequency was used. In 79,5% of the cases, it was possible to accomplish the treatment with only one session.
Conclusion: The approach of TN through rhizotomy proved to be a technique with low morbidity, reaffirming the good results of therapy. The monitoring of cases is essential to allow a better assessment of the long-term effectivenes of the treatment.

MeSH terms: Trigeminal Neuralgia, Endovascular, Pain
Key words: Rhizotomies, Sensitive Nerves, Tinnitus

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Primary Central Nervous System Lymphoma of the Posterior Fossa in Immunocompetent Patient: A Case Report and Review of Literature

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Context: Primary central nervous system lymphomas (PCNSL) are a rare but very aggressive subtype of extranodal non-Hodgkin lymphomas. They represent only 4% of primary central nervous system lesions and are more common in patients with aggressive non-Hodgkin lymphomas, who are HIV positive. Moreover, PCNSL, usually presents as intraparenchymal supratentorial expansive lesions, while secondary CNS lymphomas tend to present as metastases in the leptomeninges. Although they are more common in immunocompromised patients, their incidence has increased with advancing age. Due to its uniqueness in findings, rarity, and severity of the case, we present an immunocompetent elderly patient with a primary lesion of the posterior fossa.
Case report: A 85-year-old female was admitted to the emergency room with incoercible vomiting for 48 hours. Initial clinical examination showed dysmetry, and dysbasia. There was no clinical history compatible with immunosuppression. The initial magnetic resonance imaging revealed two non-enhancing contrast lesions in T1 and hyperintense in T2/Flair in the left caudate nucleus, and at the right cerebellar hemisphere near the fourth ventricle and a third parafalcine lesion with homogenous contrast-enhancing on T1 compatible with an incidental meningioma. PET scan, thyroid and breast ultrasonography, and abdominal MRI were done to rule out metastasis, and all results were negative. The histopathological analysis after a stereotactic biopsy performed on the caudate nucleus lesion confirmed the presence of primary central nervous system lymphoma.

Conclusions: The pattern of PCNSL is changing due to aging. Knowing this is indispensable for the correct diagnosis and management.

MeSH terms: Infratentorial Neoplasms; Lymphoma, Non-Hodgkin; Central Nervous System Neoplasms
Key words: Extranodal lymphoma; Immunocompetent Patient; Posterior Fossa; Primary Central Nervous System Lymphoma

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Artery of Percheron territory infarct in a young patient with thrombophilia

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Context: Stroke, when affecting territories dependent on posterior circulation, affects the thalamus and mesencephalic structures, regions irrigated by the paramedian arteries and perforating arteries of the posterior communicating artery and posterior cerebral artery. However, there is an anatomical variant of the paramedian arteries, the Percheron artery, when occluded causes bilateral thalamic infarction.
Case report: a 53-year-old woman who presented blurred vision, holocranial headache, hypertensive peak, decreased level of consciousness, anisocoria, conjugate eye deviation. Tomography was normal and after 48 hours there was periventricular hypodensity of white matter, corona radiate and bilateral thalamic. Cerebral angiography confirmed moderate stenosis in the cavernous segments of the internal carotid arteries. In the investigation, a heterozygous mutation for factor V of Leiden was found. The patient evolved well, after blood pressure control and secondary prophylaxis. Clinical picture brings the classic triad of Percheron Artery infarction: decreased level of consciousness, vertical changes in the look and cognitive changes in memory and learning. Other symptoms could be found hypersomnia, oculomotor paralysis and ataxia. The diagnosis is clinical and radiological by visualizing bilateral thalamic involvement. Predisposing factors should be investigated, suchas the Leiden factor V mutation, which increases thromboembolic events. **Conclusion:** It is important to research risk factors and execute an early diagnosisfor acute intervention and prophylaxis of stroke.

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Huntington's disease in a young patient: case report

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Context: Huntington's disease (HD) is characterized by a progressive, autosomal neurodegenerative disease dominant, characterized by motor, psychiatric manifestations and cognitive decline due to a genetic alteration with 36 to 121 CAG repetitions on chromosome 4, which leads to the mutation of the huntingtin protein and its nuclear accumulation with formations of cytoplasmic inclusions of the affected neurons. It being more common between the third and fifth decade of life. The aim of this study was to report the case of a young patient with HD.
Case report: Female patient, 6 years old. Mother reports seizures for 3 years, associated with abnormal lower limb posture, as well as rapid shock-like limbs, lasting a few minutes, eye upwards, loss of consciousness, difficulties in swallowing and loss of ability to walk at 5 years of age. Mother reports family history of involuntary motor shocks. The neurological examination showed a vigil, global epasticity; Global hyperreflexia; Bilateral aquilean inexhaustible clonus; Plantar skin reflex in bilateral extension. Upon examination of the cranial nerves, presented isochoric and photoreactive pupils, preserved extrinsic ocular motricity, symmetrical face, tongue and palate symmetrical, trophism and neurovegetative functions without changes. Magnetic resonance imaging was requested, showing atrophy of the caudate nucleus, and research for Huntington's disease, confirming the diagnosis.
Conclusions: the reported case brings to light the rarity of the disease manifestation in younger patients and supposed correlation with family history, corroborating with the evidence of the factor disease as the main risk factor for the development of HD.

MeSH terms: Huntington Chorea; Genetic Association Studies; Neurodegenerative Diseases.
Key words: Nervous System Diseases; Neurologic Examination; Heredity.

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Acute Disseminated Encephalomyelitis after endophthalmitis in immunosuppresed patient

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Context: Acute Disseminated Encephalomyelitis (ADEM) usually happens after an infectious event, vaccination reaction and with history of immunosuppression. Clinical features can be varied: headache, fever, seizure, blurred vision, ataxia, motor deficits and mental confusion. **Case report:** A 35-years-old woman, in a social risk situation, complained about pain and blurred vision, history of cocaine abuse, victim of sexual and physical abuse and recent Measles vaccination. She had corneal ulcer with bilateral endophthalmitis and optic nerve infection. Despite intravitreal injections of Vancomycin + Ceftazidime, patient had to eviscerate the left eye. After surgery, patient evolved with mental confusion and paraparesis, CSF cell 69, lymphomonocyte, proteins 257, MRI showed central bulbar hyperintensity, lesions in the dentate nucleus and periaqueductal of gray substance in T2 / FLAIR, thoracic and lumbar spine with demyelinating pattern, extensive longitudinal myelitis. Patient obtained clinical improvement after treatment with Methylprednisolone 1gr for 5 days. It is important to discard other hypothesis: transverse myelitis, neuromyelitis optica, multiple sclerosis and systemic lupus erythematosus. The diagnosis is clinical and radiological with multifocal and confluent areas of hypersignal on MRI, CSF analysis reveals high protein and lymphocytic pleocytosis. Treatment with Methylprednisolone is the first choice and then Plasmapheresis. **Conclusion:** there are several risk factors for the development of ADEM correlated with a rapid and aggressive evolution in this patient.

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Leprosy prevalence, grade II rate of physical disability and proportion of multibacillary cases: A paradox that shows late diagnosis and hidden prevalence?

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Introduction: In the last decades the number of leprosy cases has been decreasing in the world. This reduction has been questioned by researchers who believe there are more patients.
Objectives: To analyze the temporal evolution of three epidemiological indicators (prevalence rate, grade II rate of physical disability and proportion of multibacillary cases) in order to find evidence of late diagnosis and hidden prevalence of leprosy in the state of Bahia, Brazil.
Design and setting: This is an ecological study of time series. The unit of analysis was Bahia, Brazil.
Methods: The data were obtained the DATASUS platform (http://datasus.saude.gov.br/). The inflection point regression model (joinpoint) was applied to assess the trend of the indicators from 2001 to 2015. The significance level of 5% and 95% confidence interval(95% CI).
Results: There was a tendency to reduce the prevalence (AAPC -5.5%;p<0.001) accompanied by an increase in the rate of grade II (AAPC 2.7%; p <0.001). The presence of disabled individuals in the diagnosis, in addition to signaling for the late detection of the case, reflects the transcendence of the disease, that is, its social value. Finally, there was an increase in the proportion of multibacillary cases, increasing from 48.8% at the beginning of the time series to 66.5% at the end of it (AAPC 2.2%;p <0.001).
Conclusions: This paradox suggests the existence of a late diagnosis and hidden prevalence in the state. Thus, the need to implement actions that make the diagnosis of new cases, reinforcing the hidden burden of leprosy and transmission, is reinforced.

MeSH terms: Leprosy. Neglected diseases. Prevalence.
Key words: Bahia. Multibacillary. Brazil. Hanseníase.

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Post-COVID-19 mononeuritis multiplex: a potential complication in severe SARS-CoV- 2 infection survivors

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Background: Neuromuscular involvement has been identified in acute and early stages of severe COVID-19. Guillain-Barre syndrome and variants, rhabdomyolysis and prone position-related neuropathy represent early complications. Mononeuritis multiplex is rarely a post-infectious complication.
Objectives: Characterization of patients with mononeuritis multiplex after severe COVID-19.
Methods, design and setting: We performed a retrospective observational study of clinical, laboratorial and neurophysiological aspects of nine Brazilian patients with mononeuritis multiplex after severe COVID-19 at the Division of Neuromuscular Diseases, Federal University of São Paulo (UNIFESP), São Paulo, Brazil.
Results: Nine patients (4 male, 5 female) had mean age at diagnosis of 60.6 years. 78% had at least one risk factor for severe COVID-19. Dyspnea, cough, fever, headache, anosmia, odynophagia, and myalgia were the most common SARS-CoV-2 symptoms. Most patients had large length of stay in intensive care (35.8 days), with orotracheal intubation and the need of prone positioning and tracheostomy. 44% had venous or arterial thromboembolic complications. Mononeuritis multiplex symptoms started after 45.7 days (23-71) of first COVID-19 symptoms. Sensorimotor multifocal axonal mononeuritis multiplex was the most common pattern (78%) with moderate to severe (89%) and lower limb-dominant compromise (67%). 33% with LANSS pain scale >12 and 67% with high fatigue scores on Fatigue Severity Scale. Two patients developed moderate titles of positive antinuclear antibody for nuclear membrane compounds (titin) during diagnostic work-up. Three patients were treated with oral corticosteroids with moderate disease control. **Conclusions**: Mononeuritis multiplex may be a late neuromuscular complication after severe COVID-19. Vasculitis and endotheliopathy seem to mediate its pathophysiology.

MeSH terms: COVID-19; Mononeuropathy Multiplex; Neuromuscular Diseases.
Key words: Neuropathy; Vasculitis; SARS-CoV-2; Coronavirus; Mononeuropathies; Mononeuritis Multiplex.

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SARS-CoV-2 infection during pregnancy and risk of neurodevelopmental disorders in neonatals: a literature review

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Introduction: With the emergence of SARS-CoV-2 and its rapid spread, a concern with the pregnant women have increased, since viruses have a wide range of obstetric and neonatal issues. Recent findings indicate that the gestational period and the postpartum period make mothers and their offspring more susceptible to COVID-19 and the rapid progression to the critical stage of the disease.

Objectives: To carry out a bibliographic study on SARS-CoV- 2 during pregnancy and the potential risk of neurodevelopmental disorders in neonates.
Methods: A review, developed from articles selected on the following bases: PubMed, Web of Science and Scopus. In the search, articles indexed until March 2021 and published in English, using the descriptors: "COVID-19"; "Pregnancy"; "Offspring"; "Neonatal"; "Neurodevelopment"; "Anomalies" and "Complications". Exclusion criteria: duplicates and articles outside the scope of the study.
Results: The initial search resulted in 533 articles, 498 from PubMed, 2 from Web of Science and 33 from Scopus. After reading the title and abstract, the application of the inclusion and exclusion criteria, the sample of 48 documents were included. In the studies, 89.0% of all patients had cesarean delivery (n = 201), 33.3% had gestational complications, 35.3% had premature delivery and about 2.5% were stillborn or had neonatal death. Among those tested, 6.45% of neonates diagnosed positive for COVID-19. In another study, the newborn showed neurological issues similar to the adult patients and transient neurological complications due to cerebral vasculitis.
Conclusions: The results demonstrate that further investigations are needed to determine the potential for vertical intrauterine transmission in pregnant women with COVID-19 and possibles fetal and neonatal consequences.

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Rehabilitation in traumatic brain injury due to automobile accident

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Background: Automobile accidents (AA) stand as public health issue, being the second most prevalent cause of preventable unnatural death in Brazil. Traumatic brain injury (TBI) has a strong relationship with AA, with a high incidence of morbidity and mortality. Due to the wide spectrum of possible sequel, rehabilitation is essential to help patients to restore functionality and improve quality of life.
Objectives: We sought to evaluate and characterize rehabilitation in cases of TBI, resulting from AA. Design and setting: This is an integrative literature review carried out by medical students from the University of Pernambuco.
Methods: The databases BVS, PubMed and SciELO were used in this research together with the following descriptors: "Prognosis", "Accidents, Traffic", "Brain Injuries, Traumatic" and "Rehabilitation". The focus was on articles published in Portuguese, Spanish and English between the years 2011 and 2021. Among the 44 articles found, only 06 were suitable to the research.
Results: When compared the results of rehabilitation in specialized unit and those in non-specialized unit there were notable difference. Despite the longer hospital stay, the specialized units allowed for better recovery and greater functional independence for their patients. It was made clear that, even in cases of mild TBI, rehabilitation minimized functional impairments and improved recovering patient's quality of life.
Conclusions: It is necessary to expand the specialized units for better rehabilitation of patients withTBI, due to the treatment place being a major component in the process. The specialized units demonstrated considerable efficiency when compared to the non-specialized units.

MeSH terms: Brain Injuries, Traumatic; Accidents, Traffic; Rehabilitation; Glasgow Coma Scale.
Key words: Traumatology; Cranioencephalic injury; Automobile Accidents; Rehabilitation Centers; Hospitals, Rehabilitation; Prognosis.

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Fibrinolytic therapy in the treatment of pediatric ischemic stroke

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Introduction: Pediatric stroke is a disorder that can result in morbidity and mortality. The ischemic type is the most common and has thrombolytics as the preferred therapy.
Objective: To evaluate the therapeutic management and efficacy of fibrinolytics in pediatric patients with ischemic stroke.
Methodology: The literature review was carried out in PUBMED, MEDLINE, Embase databases, with the descriptors "Fibrinolytic Agents", "Thrombolytic Therapy", "Ischemic Stroke", "Stroke", "Pediatrics" and "Treatment". Included were clinical trials, randomized controlled trials, cohort, case- control, and case series in English or Portuguese published in the last 5 years. It gathered 8 articles.
Results: Treatment in the acute phase and for secondary prevention in the chronic phase of pediatric stroke are antithrombotic therapies and platelet antiaggregants, commonly aspirin. Comparing the latter and low molecular weight heparin, neither has shown superiority in preventing stroke recurrence. Without good evidence, however, aspirin is indicated for idiopathic stroke and anticoagulants in cardioembolic stroke by some guidelines. In recombinant tissue plasminogen activator therapy in one paper it was suggested there is more risk for conversion to hemorrhagic events compared to untreated, but in another paper hemorrhage was not seen. There was high mortality with this therapy and higher chances of being discharged to short term hospital, skilled nursing facility or intermediate care facility. In endovascular therapy, delay in diagnosis limits its use and stroke complications did not differ between patients who did or did not undergo this therapy.
Conclusion: Further studies are needed to evaluate the efficacy of fibrinolytics.

Key words: Stroke. Thrombolytic Therapy. Therapeutics.

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Study of underreporting of cases of meningitis during a Covid-19 pandemic in the state of São Paulo

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Introduction: In 2020, the World Health Organization declared the COVID-19 pandemic, which brought an overload on the health system. This also impacted the care of other diseases such as meningitis. Meningitis is classified into infectious and non-infectious meningitis, and its prognosis changes with the etiology.
Objective: To assess notifications of meningitis in São Paulo compared to the country before and during the COVID-19 pandemic.
Methods: An analytical epidemiological study was carried out, from the DATASUS platform, of meningitis notifications, from 2016 to September

2020 in the state of São Paulo in comparison to the country.
Results: In 2020 there was a drop in meningitis notifications in São Paulo regarding the average of cases between 2016-2019, where 1,837 cases were reported in 2020, while the average of 2016-2019 was 6,800 notifications, a decrease of approximately 27%. What was also observed in the country, where in 2020, 4,718 cases were reported compared to the 2016-2019 average of 16,603 cases, a drop of 28.4%. There was a slight increase in the mortality from meningitis in the state from 6% to 7%.
Conclusions: Knowing that there was a significant drop in notifications of cases of meningitis in the state of São Paulo and in the country, we can suspect a correlation with the coronavirus pandemic. Therefore, there are some possibilities for this phenomenon: the population with meningitis, for fear of becoming infected, did not seek health services or the overload of health services to monitor patients with COVID-19 led to underreporting of meningitis cases.

MeSH terms: Coronavirus, meningitis, disease notification

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Burkitt Lymphoma in a HIV infected patient with involvement of cranial nerves

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Context: Burkitt Lymphoma (BL) is a highly aggressive type of non-Hodgkin's (NHL) B-cell lymphoma and it's rare in adults. The incidence is increased in those infected with the Human Immunodeficiency Virus (HIV). Endemic, sporadic, and associated with immunodeficiency are its subtypes. The disorder manifests with adenomegalies in several regions, including the Nervous System, and, when cranial nerves are affected, III and VII pairs are more involved. This study aimed to report on a rare case of IV and V cranial nerves pairs involvement caused by BL in a patient with immunosuppression due to HIV infection.
Case report: S.A.R., 57 years old, female, diagnosed with HIV and in antiretroviral therapy sought assistance at a public hospital in Joinville. Right axillary lymph node enlargement since 03/20 with biopsy showing atypical lymphocytic infiltrate. On 09/20, she started with perioral paresthesia followed by crises of throbbing right hemicranial headache with dental arch irradiation. Later, she was admitted to the hospital with diplopia for 3 days, night sweats, and unintentional weight loss (2 kg). Skull Magnetic Resonance showed a small periventricular gliosis area and mastoiditis on the right. Main diagnostic hypothesis of BL with trigeminal neuralgia and trochlear palsy on the right. Referred to the intensive care unit, she entered in cardiorespiratory arrest and died.
Conclusion: LB evolves rapidly and represents $^{1}/_{3}$ of NHL cases in HIV patients. Despite being an uncommon disease in adults, it's important to be included in differential diagnosis in clinical presentations, as in the case reported.

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Epidemiological profile of childhood deaths caused by intercurrences of epilepsy in Brazil between 2010 and 2019

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Background: Epilepsy is one of the most common neurologic disorders among children, with a higher incidence in the first year of life. An accurate epilepsy diagnosis is essential for a proper treatment.
Objectives: To assess the rates of childhood deaths from epilepsy in Brazil. DESIGN AND SETTING: Descriptive documentary study based on data from 2010 to 2019 in Brazil.
Methods: Evaluating data provided by DATASUS, the information department ofBrazil's publicly funded health care system (SUS).
Results: 238 infant deaths due to epilepsy were documented in Brazil during the studied period. The Southeast region had the highest rates, representing 31.51% of the total deaths, followed by the Northeast region, 29.83%, the South region, 18.91%, and the North region, 11.34%. Considering the population in each region, the North had thehighest relative rates, followed by the Midwest, Northeast, South and Southeast regions.In the years 2017, 2018 and 2019 the highest death rates were documented, a total of 93 (39.08%). Regarding gender, boys had more deaths, 142 (59.66%) and girls 96 (40.34%). The most affected color / race was white, 133 deaths (55.88%), followed by brown, 79 (33.19%). Blacks and Indians registered the lowest rates, 2.52% each.
Conclusion: A predominance of infant deaths due to epilepsy is noticed in the North, which points to the need for greater investment in health in this region, since there was a progressive increase in mortality. It was also found that the male gender and white color are risk factors for complications of the disease.

MeSH terms: Epilepsy, Child, Brazil, Epidemiologic Studies.
Key words: Epilepsy in children, neurology, neurologic disorder, child mortality, infant, seizure.

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Acute Vogt-Koyanagi-Harada: a case report

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Context: Vogt-Koyanagi-Harada disease is an inflammatory disorder, which presents with intraocular, auditory and central nervous system involvement. It has two distinct courses: acute onset and chronic recurrence, whose differential diagnoses are, respectively, diseases of the optic neuromyelitis spectrum, and chronic meningitis. The diagnostic criteria developed by the international disease committee in 2001 classify patients into: probable disease (ocular findings only), incomplete (ocular plus cutaneous system or neurological manifestations) and complete (when the three forms occur together).

Methods: Report the case of a patient seen at the emergency room of Santa Casa de São Paulo, diagnosed with Vogt-Koyanagi-Harada disease.
Case report: 43-year-old woman, reporting occipital headache, with irradiation to the retro-orbital region, progressed to sudden bilateral amaurosis, in addition to conjunctival hyperemia. Neurological physical examination presented bilateral visual acuity (Snellen)> 20/200, poorly delimited optical discs. Uveitis and scleritis were also found. Brain and orbit MRI showed: bilateral retinal detachment, with small subretinal collections; regular thickening and impregnation of the choroid; tenuous episcleral impregnation; alteration of the sign of the inner ears, more evident in the cochleae; tenuous linear leptomeningeal impregnation at the level of the cerebellobulbar cistern. Liquor: 21 cells (99% lymphocytes), 31 proteins and 47 glucose, negative culture for bacteria. We proceeded to infusion 1000mg of methylprednisolone for 3 days, with daily use, subsequently, of prednisone 60mg, with significant improvement of the condition.
Conclusions: It is a rare disease, but it must be recognized by every neurologist, since it is treatable and can leave serious visual sequelae.

MeSH terms/Key words: Disease, Vogt-Koyanagi-Harada; Uveomeningoencephalitis; VKH Syndrome

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Analysis of hospitalizations for Parkinson's disease and the role of primary health care in patient care

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Introduction: Parkinson's disease (PD) is a neurological disorder that affects the dopamine-producing neurons and affects the patient's movements. According to the World Health Organization, about 1% of the world's population aged 65 years or older has PD. The study aims to analyze the hospitalizations for Parkinson's disease in Brazil and highlight the importance of primary health care (PHC) in the care of these patients.
Methods: This is an integrative literature review, using articles from the Pubmed and Medline databases, as well as the DATASUS database from January 2017 to January 2021. The descriptors used were: "Parkinson's Disease"; **"**Comprehensive Health Care"; "Patient-Centered Care".
Results: In the period analyzed there were 3.536 hospitalizations for PD in Brazil with spending of R$14,937,372.3 highlighting the Southeast region that represents 49% of the total of these. Regarding sex, age and self-reported color/race, the most affected are men with 60.6%, individuals between 60 and 69 years (26.3%) and whites (49.9%). A total of 218 deaths were registered, with a mortality rate of 6.1%.
Discussion: The PHC is responsible for part of the diagnosis and monitoring of patients with PD, being a central part in the coordination of care. It acts through the levels of care and improves the quality of life of its users through health actions, thus improving their quality of life. **Conclusion:** Basic health units must improve themselves through the continuous training of the professionals involved, thus resulting in a decrease in the mortality rate.

Key words: Parkinson's Disease, Integrality, Primary Care, Resolutivity.

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Multisystem atrophy: a case report with clinical and functional findings relevant to functional Physiotherapy

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Introduction: Multiple System Atrophy (MSA) is a severe neurodegenerative disease that has parkinsonian, autonomic, cerebellar, and pyramidal features. It is prevalent at 3.4 to 4.9 cases per 100,000 population, and is most common after the age of 60. It is called Striatonigral Degeneration, with a predominance of parkinsonian symptoms; it is known as Olivopontocerebellar Atrophy, with cerebellar symptoms, and Shy-Drager syndrome with autonomic symptoms. Physiotherapy plays an important role in the rehabilitation of kinetic- functional impairments.
Objective: To report the case of a volunteer with SMA in order to highlight the neurological findings for neurofunctional rehabilitation.
Methods: This is an observational, cross-sectional case report study that was conducted at the Clínica Escola de Fisioterapia da Universidade de Franca (UNIFRAN), with the approval of the CEP (CAAE 83164918.2.0000.5495), of a 55-year-old male individual, referred to physiotherapy, diagnosed with SMA. Neurological evaluation was performed in the sector, of sensitivity, movement, tone, reflexes, motor coordination, balance, gait and function.
Results: The individual reports that 4 years ago he started having difficulty walking and talking. He was diagnosed with Parkinson's disease. He underwent a new evaluation, arriving at the current diagnosis. In the physical therapy evaluation dysautonomia, dysarthria, dysdiadochokinesia, dysmetria, hypertonia by rigidity, akinesia and bradykinesia, trunk flexion posture, balance deficit, tetraparesis and fetinated gait were observed.
Conclusion: The impairments found impair the patient's ability to perform several ADLs. This study emphasizes the value of neurofunctional physiotherapeutic semiology for an effective therapeutic treatment that promotes independence and quality of life possible for the individual with SMA.

Key words: Multiple system atrophy; Physical therapy; Syndrome.

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Trigonocephaly associated with myelomeningocele in infant: Case report

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Context: Trigonocephaly is a type of craniostenosis due to the early closure of the metopic suture. His diagnosis is eminently clinical, but imaging tests are essential. The recommended treatment is surgical and should preferably be performed at the age of 3 to 9 months. Association between craniosynostosis and neural tube defect (NTDs) is rare and was sometimes considered as mere coincidence. However, Martinez-Lage *et al.* hypothesize that there is a causal relationship between these malformations since myelomeningocele reduces intracranial pulse pressure,

which stimulates the early closure of cranial sutures. For Graham *et al.* the restriction of fetal movements in NTD carriers predisposes to craniosynostosis, as they are likely to keep the skull fixed against the mother's pelvic bones.

Case report: Male patient, 11 months, with West Syndrome. He congenitally presented myelomeningocele, and this deformity was corrected on his first day of life. He subsequently developed a keel-shaped forehead, protrusion of metopic suture, and hypertelorism. The diagnosis of trigonocephaly was ratified by computed tomography of the skull with three-dimensional reconstruction. Surgery was performed at 11 months. The access chosen was coronal and there was a wide exposure of the calvarium. Then all the metopic suture was removed through a bifrontal craniotomy, which allowed the remodeling of the frontal bone.

Conclusions: It is necessary to make a diagnosis and early treatment of both comorbidities since delays in the conduct can result in disastrous consequences. In addition, there is a need to conduct more research to elucidate the interrelationship between craniosynostosis and NTD.

MeSH terms: Neurosurgery; Craniosynostoses; Meningomyelocele.
Key words: Neural tube defect; Trigonocephaly; Pediatric neurosurgery; Metopic suture.

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Tourette's syndrome associated with Attention Deficit Hyperactivity Disorder: a case report

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Context: The treatment of Giles de la Tourette Syndrome associated with Attention Deficit Hyperactivity Disorder (ADHD) has little scientific evidence.

Case report: 7- year-old child, who started motor tics and vocalizations, compatible with Tourette Syndrome, 6 months after starting the treatment of ADHD with psychostimulant, methylphenidate 20mg/day. He used imipramine, quetiapine and haloperidol, but only showed control of ADHD and tics using Ritalin LAR 30mg/day and risperidone. The hypothesis of a cause-effect relationship of the use of methylphenidate with the appearance of tremors and tics was considered. Theoretical survey and discussion on the syndrome and its clinical management associated with comorbidity, the lack of studies on the long-term effects of methylphenidate and the importance of treating comorbidities taking into account side effects of medications and not just resolution of symptoms, so that effects do not outweigh the benefits compromising neurodevelopment and learning in childhood and adolescence.

Conclusions: This case showed no improvement with the use of the atypical antipsychotic (quetiapine), but corroborates the findings of treatment of inattention, hyperactivity and impulsivity with the use of methylphenidate (Ritalin LA^{R}) and motor tics and screams with haloperidol (partial improvement) and risperidone (complete cessation).

MeSH terms: Tourette Syndrome. Attention Deficit Disorder with Hyperactivity.Methylphenidate.

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The epidemiological study of migraine and other headache syndromes in southern Brazil: hospitalizations and average length of stay in 2020.

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Introduction: Migraine is one of the most common headaches and a frequent population complaint, presenting different symptoms and intensities.

Objective: The objective is to carry out an epidemiological survey and the average length of hospital stay in the southern states of Brazil.

Methodology: This is an epidemiological, descriptive and cross-sectional study.

Design and setting: Is a carried out using data collected from DATASUS, during 2020 year in southern Brazil.

Results: In the proposed period, there were 2,662 hospitalizations, with the state of PR the largest number (1,760). As for the average hospitalization, the RS stands out with 4 days, SC presents 2.8 and PR with 2.3. Regarding the age group, in PR it is between 40-49 years old, SC between 30-39 and in RS 50-59. As for gender, the prevalence is higher among women, with 63.11% of the total.

Conclusion: The data are in agreement with the literature, confirming that women are more affected, being justified by numerous factors, from hormonal variations to different responses to the perception of stress and pain. The high average length of hospitalizations indicates the need to develop policies to discuss the issue, providing adequate prophylaxis and therapy, reducing the number of the cases, the intensity of crises and hospitalizations.

MeSH terms: epidemiology, headache, migraine, pain, women.
Key words: age, gender, SUS.

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Meningitis: etiological and outcome panorama in Rio Grande do Sul in the 2019-2020 biennium

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Background: Meningitis is the inflammation of the meninges and its outcome varies between etiologies. It is an endemic disease in Brazil with mandatory notification.

Objectives: To analyze the number of diagnoses and outcomes of meningitis in Rio Grande do Sul (RS) in the 2019-2020 biennium.

Design and setting: Cross-sectional epidemiological study using DATASUS database.

Methods: Data from notified diagnosed meningitis in RS from 2019 to 2020 were included. The meningitis etiology was correlated with its outcome.

Results: There was a 70% reduction in the absolute number of reported diagnoses of meningitis in the year 2020 (302) compared to 2019 (1,000). The most prevalent specified cause, in both

years, was "viral meningitis", corresponding to 29.9% in 2019 and 27.1% in 2020. There was no great variation in the incidence of etiologies from one year to another. Mortality was the outcome of 7% of patients in 2020 and 6.6% in 2019. Pneumococcus was the most related etiology to "death from meningitis", responsible for 38% in 2020 and 28.7% in 2019. **Conclusions**: The number of meningitis diagnoses in RS fell from 2019 to 2020. The fall may be related to the COVID-19 pandemic. Besides that, even with the reduction in the number of diagnoses, mortality had increased.

MeSH terms: Delayed Diagnosis, Outcome Assessment, Developing Countries
Key words: COVID-19, Unified Health System, Health Services Accessibility

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Progressive thoracolumbar scoliosis culminating in the diagnosis of young pompe disease: case report

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Introduction: Pompe's disease is a neuromuscular condition caused by a metabolic disorder of autosomal recessive inheritance. The deficit of acid alpha-glucosidase causes accumulation of glycogen in the lysosomes of the striated and cardiac muscle. It presents in childhood: hypotonia and cardiorespiratory impairment; but at late-onset: axial and waist muscle weakness.
Case report: Patient, female, 20 years old, non-consanguineous parents, with good intra-uterus fetal mobility, was born by cesarean delivery weighing 3.7 kilograms and 51 centimeters. She first walked without support and spoke her first words at 13 months of age. By the age of 12, she started progressive thoracolumbar scoliosis and underwent posterior spinal arthrodesis two years later. During the follow-up, muscle weakness was found. Furthermore, she presented macrocephaly, high myopia, fusion of cervical vertebrae, progressive scoliosis, dolichostenomelia and joint hypermobility. Extensive investigation was carried out with laboratory tests that showed CPK elevation, imaging tests and mutation research for facio-scapular-humeral muscular dystrophy and type 2A waistband muscular dystrophy. The incisional biopsy found mixed muscle changes with deposit of amorphous material. Pompe's disease was confirmed by a significant reduction in alpha-glucosidase activity. The patient evolved with weakness in the legs and fatigue on moderate efforts, but also weakness in the lower limbs, detachable on the right and hyporeflexia, on physical examination.
Conclusions: Progressive thoracolumbar scoliosis, refractory to postural and surgical corrections, should be an alert for differential diagnoses. Changes in axial musculature can be suggested and Pompe's disease, a potentially treatable condition, must become relevant.

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Possible mechanisms of action of cannabidiol in the epilepsies: a review

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Background: Cannabidiol (CBD) is a compound of *Cannabis Sativa* plant that has been studied since the 1970s for its effectiveness in the treatment of refractory epilepsies. With the discovery of the endocannabinoid system, most recent studies have been dedicated to elucidating its mechanisms of action.
Objective: To review scientific articles in order to enlightening the antiepileptic cannabidiol's mechanisms of action.
Methods: Literature review on both PubMed and Google Scholar searching for the terms: "epilepsy", "cannabidiol" and "mechanism of action".
Results: We found that cannabidiol has a lot of mechanisms of action which can explain its effectiveness, among which stand out: endocannabinoid system facilitation, by inhibition of recaption and hydrolysis of anandamide as well as by the facilitation of its synthesis and release. These processes must result in the indirect activation of CB1 and CB2 receptors. Furthermore, CBD promotes the activation of mTOR and PI3K proteins intracellular pathway, with subsequent reduction of glutamatergic release.
Conclusions: The general hypothesis is that cannabidiol has antiepileptic effectiveness, even in cases of refractory epilepsies, precisely for showing several mechanisms of action. We emphasize, however, the necessity of more researches in this area for further enlightenment of theses possible mechanisms of action and the applicability in the treatment of epilepsies.

MeSH terms: "epilepsy drug treatment"; "cannabidiol pharmacology"; "endocannabinoids pharmacology"
Key words: "refractory epilepsies"; "cannabidiol"; "mechanisms of action"; "neuropharmacology"

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Analysis of the impact of Tominersen (IONIS-HTTRX/RG6042) in the treatment of Huntington's disease: A systematic review

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Introduction: Huntington's disease (HD) is a congenital pathology of a hereditary, neurodegenerative and progressive character, with a high mortality rate. This pathology is caused by repeated expansions of a single CAG codon in the gene encoding huntingtin. To date, several attempts to prevent and delay such a mutation have been carried out in patients. However, a promising drug, Tominersen, formerly called IONIS HTTRx/RG6042, is in the testing phase and has shown a favorable therapeutic response, which acts directly on the messenger RNA of the gene encoding huntingtin (HTT). The drug, whose route of administration is intrathecal in bolus, intercepts and destroys the messenger before the corrupted protein can work. The present study aims to analyze the impact of Tominersen in the treatment of patients with HD and to evaluate its prognosis.
Methods: The present study is a systematic literature review, in which an electronic search was performed in the PubMed, SciELO, Web of Science and Google Scholar databases.
Results: In one of the double-blind randomized clinical trials (n = 46), 34 were assigned to receive the drug. The group that received Tominersen showed a decrease in the concentration of mutant HTT in cerebrospinal fluid after 28 days. In another study (n = 791), the GENERATION HD1 clinical trial is currently taking place and will last for 25 months.

Conclusion: Tominersen decreases the concentration of HTT, that is, it suppressed the protein responsible for HD. Studies related to the drug are still very recent and require extra attention.

https://clinicaltrials.gov/ct2/show/NCT02519036 Unique Identifier: NCT02519036

MeSH terms: Huntingtin, Treatment, Clinical Trial

Key words: Huntington's disease, Tominersen, IONIS-HTTRx

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Analysis of mortality for brain infarction in Brazil between the years 2015 and 2019

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Background: Cerebrovascular diseases are the second leading cause of death in Brazil, with cerebral infarction being one of the most prevalent conditions. A further development about the profile of people who die from this disease is required for the scenario.

Objectives: Analyze the geographical distribution, age, and gender of mortality from cerebral infarction in Brazil, between the years 2015 and 2019.

Design and setting It is a cross-sectional study in Brazil.

Methods: The study was based on the gathering of secondary data, present in a mortality indicator available on DATASUS.

Results: According to data collection, a total of 38,603 death cases from cerebral infarction were found between the years 2015 and 2019. As for the geographical distribution, the Southeast presented 47.5% of the cases, followed by the South (28.4%), North (8.3%), Center-West (8.0%) and Northeast (7.7%). Regarding the age group, the most affected were people over 80 years old (39.5%), 70 to 79 years old (27.7%) and 60 to 69 years old (18.8%). As for gender, a female population correspond to 50,26% while men to 49,71%.

Conclusions: It can be concluded that factors correlate with cerebral infarction mortality, and this data analysis is important for the understanding of risk factors to the disease.

MeSH terms: "infarction" AND "death" AND "cerebrovascular".

Key words: "brain", "analysis" and "Brazil".

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Deaths from stroke in Brazilian regions between the years 2016 and 2019

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Background: Stroke are caused by changes in blood flow causing neurological symptoms.

Objectives: To analyze the number of deaths due to stroke in the regions of Brazil in the years 2016 to 2019.

Design and setting: Cross-sectional observational study.

Methods: Information collected from the SIH/SUS mortality database, regarding deaths by year/region of the Federation, from 2016 to 2019, at the Informatics Department of the Unified Health System.

Results: In the period from 2016 to 2019, the Brazil recorded 405.138 deaths due to stroke, with the year 2016 being responsible for the highest occurrence of cases (n=102.965). The Southeast region had the highest death rate (n=173.205), with the State of São Paulo reporting 50.53% (n=87.525). Second, the Northeast region (n=114.372), followed by the South region (n=61.455). The Midwest region had the lowest index (n=25.538). The age group with the most deaths was over 80 years old (n=152.224), followed by the age group from 70 to 79 years old (n=107.259). **Conclusions:** The Southeastern region recorded the highest number of deaths due to stroke and the age group older than 80 years had the highest rates.

Mesh- Terms: Stroke; Mortality; Epidemiology.

Key words: Brazil; Cerebrovascular diseases; Elderly.

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Safety and Improved Efficacy Outcomes in Children With AADC Deficiency Treated With Eladocagene Exuparvovec Gene Therapy: Results From Three Clinical Trials

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Introduction: aromatic L-amino acid decarboxylase (AADC) deficiency, a rare genetic disorder of neurotransmitter synthesis, is characterized by motor developmental deficits and clinical features associated with the autonomic nervous system, including dyskinesia, and oculogyric crisis.

Objective: To evaluate clinical outcomes in children with AADC deficiency treated with eladocagene exuparvovec, a recombinant adeno-associated virus vector containing the human cDNA encoding the AADC enzyme.

Methods: In 3 open-label clinical studies, children with AADC deficiency who had no full head control and no ability to sit, stand, or walk received eladocagene exuparvovec as bilateral, intraputaminal, stereotactic infusions during a single operative session (total dose, 1.8 x 1011vg). Body weight, oculogyric crisis episodes, and adverse events (AE) were recorded.

Results: In the 3 studies, patients aged 21 months to 8.5 years (N=26) received eladocagene exuparvovec, constituting the safety population. In the intent-to- treat population (N=21), mean body weight at baseline was 12.0 kg (median 10.5 kg) and increased to 15.2 kg (median 13.2 kg) at 12 months posttreatment. Frequency of oculogyric crises was improved at 12 months posttreatment. Dyskinesia was recorded as an AE in 23 patients in the safety population; most events were mild or moderate, occurred within 3 months after eladocagene exuparvovec treatment, generally responded to standard pharmacotherapy, and resolved in all patients by 10 months.

Conclusions: In children with AADC deficiency who received eladocagene exuparvovec gene therapy, body weight increased and oculogyric crises and dyskinesia improved.

URL: https://clinicaltrials.gov/ct2/show/NCT01395641 (Identifier: NCT01395641)
MeSH terms: Gene Therapy. Genetic Diseases. Neurological Disorders
Key words: AADC Deficiency. Neurotransmitter Disorder. Oculogyric Crisis. Gene Therapy.

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Importance of individualized diagnosis and treatment in refractory epilepsy associated with intellectual disability

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Background: Epilepsy is a complex neurological disorder, that affects 0.5 to 1% of the population, with a diversified etiology, but with emphasis on its relation with genetics. Despite there are several therapies to treat it, in some cases, this variety is still insuficiente, featuring refractory epilepsy, frequent in people with intelectual disabilities (ID).
Objectives: To analyze the scientific production about refractory epilepsy and ID.
Methods: Integrative literature review that searched for international articles in the Virtual Health Library (VHL), using the keywords "Intellectual disability" AND "Refractory epilepsy" with the filter: "full text".
Results: From the 27 articles found, 2 were excluded for escaping the theme, having 25 articles as a final corpus and 2 thematic axes identified: (I) Genetic aspects related to ID and refractory epilepsy and (II) Therapeutic interventions in these patients. According to studies, refractory epilepsy in people with ID is related to mutations in some genes, such as: PCDH19, FMR1, TDP2, GABRB2 and SLC9A6. As for therapies for these patients, drugs such as stiripentol, lacosamide and benzodiazepines have been used, in addition to other interventions such as vagus nerve therapies, responsive neural stimulation, ketogenic diet, immunotherapy and resection surgery.
Conclusions: The ID association with refractory epilepsy is strongly linked to genetic mutations, being essencial the genetic diagnosid to individualize the treatment and overcome insuficiente therapies for this epilepsy, especially in patients with associated ID, who tend to have a reduced life quality, having as primary objective the improvement of it.

MeSH terms: Deficiency; Drug Resistant Epilepsy; Neurology.

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Pain and dysfunction in amiotrophic side sclerosis

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Background: Amyotrophic Lateral Sclerosis (ALS) is a progressive disease characterized by degenerative symptoms of motor neurons. Pain has been described as a frequent symptom and is associated with a negative impact on the life of the person with ALS, however it is often neglected in clinical practice. There is a need for a better understanding of its characteristics and its relationship with the clinical and functional aspects of ALS.
Objective: To investigate the occurrence and characteristics of pain in individuals with sporadic ALS and to verify the association between pain and clinical, functional and mobility aspects. Design and setting: This is an exploratory cross-sectional study carried out at the Neuromuscular Diseases Clinic of HC / UFMG, located in Belo Horizonte, Minas Gerais, Brazil.
Methods: Aspects about pain (occurrence, intensity, duration and location), mobility (turning in bed, sitting and standing, standing and walking) and functionality (ALSFRS-R) were evaluated. A descriptive and comparative analysis was carried out between the groups and a binary logistic regression analysis. SPSS was used and the significance level was 5%.
Result: 51 people (56.9 ± 11.3 years) were evaluated. A total of 62.7% reported pain. Predominant characteristics of pain: chronic (n = 29; 90.6%), moderate intensity (n = 20; 62.5%), in the leg (n = 12; 37.5%), 50% in more than one location . The population in pain was composed of: women (p = 0.038), longer illness time (p = 0.001), worse results in the ability to sit and stand (p = 0.033), stand up (p = 0.024) and walk (p = 0.001) and worse score in the ALSFRS-R (p = 0.021). In the present study, regression showed that the inability to walk functionally increases the chance of pain in ALS patients by 5.3 times.
Conclusion: Pain is a frequent symptom among people with ALS, and a greater functional limitation seems to be associated with its presence. It is important that future studies investigate this relationship better.

MeSH terms: pain, Amyotrophic Lateral Sclerosis, functional Palavras chave: disease, neurodegenerative, clinical

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Management of low-grade gliomas

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Background: Gliomas are the most aggressive and prevalent primary malignant tumors of the central nervous system. For better mapping, they are subclassified into degrees in proportion to their malignancy. Although low-grade patients have a better prognosis, they are extremely heterogeneous. Since the high variability in the outcomes of the condition, it is essential to investigate the current therapeutic strategies available.
Objective: Analyze the management of low-grade gliomas.
Methods: In April 2021, a literature review was conducted on MEDLINE using the descriptors: "Glioma", "Low Grade"; "Treatment"; as well as their variations obtained in MeSH. Controlled and randomized clinical trials carried out on humans in the last five years were included.
Results: 63 articles were found and 10 of them were analyzed in this review. The research has shown that total tumor resection is the therapeutic modality that causes the greatest drop in the mortality rates. Furthermore, the greater the extraction, the greater the progression-free

survival. In this way, for greater safety of large-scale surgeries, several intraoperative techniques have been developed. An example is the waking approach, which presents favorable long-term functional results and low failure rates. However, the isolated surgery is often not sufficiently curative. Therefore, it is necessary to complement radiotherapy and chemotherapy with temozolomide, associated with a 5 to 10 year survival rate when combined.

Conclusions: Studies have shown that total resection of the tumor is the best way to manage low-grade gliomas, but it is often combined with temozolamide chemotherapy and radiotherapy for a better prognosis.

MeSH terms: Glioma; Malignant primary brain tumors; Treatment.
Key words: Baixo grau; Gliomas; Manejo; Radioterapia; Ressecção tumoral total; Temozolomida.

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Use of atorvastatin on pacients with chronic subdural haematoma: an integrative review

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Background: Chronic subdural hematoma (CSDH) tends to occur more commonly in elderly patients, usually develops after mild head trauma and the common treatment is surgical.

Objective: To evaluate the effect of treatment with atorvastatin compared to surgical intervention in elderly people with CSDH. Design and setting: we performed an integrative review of studies available in four databases from 2010 to 2020.

Methods: Studies were considered eligible for this review if they were randomized controlled trials comparing the use of atorvastatin treatment to surgical treatment associated with drainage trepanation in elderly patients diagnosed with CSDH.

Results: titles and abstracts were screened and 20 articles of those were selected to be fully read, of which 4 remained. To Sheng Qui et al (2017) and Chan et al (2016), the use of atorvastatin may be beneficial in the management of CSDH, so that the volume of the hematoma reduced from 48.70 ± 20.38 to 16.64 ± 14.28mL with a sample size of 22 in the first month of oral atorvastatin. Min Xu et al. (2016) and Wang et al. (2013), with a sample of 22, found improvements in 85.7% and 95.7% of patients with CSDH in terms of volume and neurological deficits presented.

Conclusion: The treatment with atorvastatin appears to be safe and effective for CSDH compared to surgical intervention in the elderly. However, further studies are necessary to validate the results and, thus, to put the evidence into practice.

Key words: Trauma, elderly, statins
MeSH terms: Hematoma, Subdural, Chronic/ therapy Atorvastatin Drainage

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Clinical and genetic profile of Brazilian patients with dysferlinopathies – A retrospective study

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Introduction: Dysferlinopathies are a group of conditions that are caused by mutations in the dysferlin gene.

Objectives: To characterize the clinical phenotypes and genotypic spectrum of dysferlinopathies patients and to estimate the progression of functional and motor decline.

Design and setting: Retrospective analysis of the medical records of patients followed up at our institution between 1995 and 2020.

Methods: Patients were selected based on the following inclusion criteria:(i) Identification of a mutation defined as pathogenic in homozygosis or compound heterozygosis in the *Dysf* gene;or (ii)compatible clinical manifestations and decreased expression of dysferlin in immunohistochemistry on muscle biopsy. Classification of the phenotype was based on the first symptoms. Functionality was defined by the Gardner–Medwin & Walton(GMW) scale modified for dysferlinopathy.

Results: 23 patients were included in the study. 16 were classified as limb-girdle muscular dystrophy autosomal recessive 2 (LGMDR2), 4 as Miyoshi muscular dystrophy, 2 as proximo-distal onset and 1 as asymptomatic hyperCKemia. Thighs adduction was the most affected movement in the first evaluation (mean strength=3). Plantar flexion was the movement with the greatest decline in strength(mean=-0.10 points on MRC/year;p<0.001). The average functional decline was 0.2987 points on GMW/year;(p<0.001). Most commonly found mutations were c.6124C>T, Arg2042Cys and c.2643+1G>A, p.?(*splicing*), found 3 times each. There was no statistical difference in muscle strength in the first evaluation, motor and functional decline between the phenotypes.

Conclusion: While LGMDR2 was the most common phenotype at onset, with the exception of asymptomatic hyperCKemia, there were not a clear difference in the pattern of progression between them.

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Fetal surgery in the context of myelomeningocele: repercussions and prognosis

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Background: Myelomeningocele (MMC) is a congenital malformation of neural tube closure. The clinical picture comprises sensory and motor deficits at the point of spinal cord injury and below, in addition to ventriculomegaly, which requires ventriculo-peritoneal drains (DVP). Exposure of nervous tissue to

amniotic fluid and trauma to the uterine wall, generates secondary damage. Intrauterine correction is the gold standard for MMC and aims to reduce organic and functional sequelae, improving the patient's neurological prognosis.

Objectives: The objective of this work is to identify the impact of fetal surgery against MMC.

Methods: An integrative literature review was carried out based on articles selected from the Google Scholar and Scientific Eletronic Library Online databases. **Results:** The benefits of intrauterine neurosurgery outweigh the harm, based on maternal complications. Such maternal risks are: oligohydramnios, spontaneous rupture of the membrane, uterine dehiscence, premature birth, infections, blood transfusion, acute lung edema and contraindication for vaginal delivery due to uterine scarring. For the child, all the studies analyzed showed the same gains, extremely significant when compared to postnatal surgery: better cognitive development, greater probability of walking without using orthoses, less need for DVP. The gains from the fetal surgery technique go beyond the postnatal intervention.

Conclusions: Therefore, the importance of early intrauterine treatment, in a properly equipped place and by qualified professionals, is reiterated, offering comprehensive care to pregnant women, preventing potential impasses and aiming at a better prognosis and quality of life for the child.

MeSH terms: Menigomyelocele. Nervous System Malformations. Fetal Medicine.

Key words: Spina bifida. Congenital abnormalities. Intrauterine surgery.

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Garcin syndrome by giant cell lung tumor

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Context: Garcin syndrome is the presence of at least seven ipsilateral cranial nerves palsy, absence of long tract motor or sensory disturbance and intracranial hypertension, and skull base osteoclastic injury.

Case report: A 46-year-old woman presented left hypoesthesia. One week later she developed left palsy peripheral facial, the Bell's palsy. Then, she manifested left deafness and diplopia. The MRI revealed an extra axial lesion in left pre-pontine area. She reported weight loss of 11 kg in 4 months and denied smoking. Palpable lymph nodes were noted on left cervical chain. Neurological examination revealed left cranial nerves V, VI, VII, VIII, IX, X, XI and XII paralysis. Tonus, strength and sensitivity were normal in 4 limbs. After four months, another MRI exhibited an extra axial tumor along the meninges. Chest CT showed an ill-defined left lower lobe lesion. The biopsy revealed a giant cell lung carcinoma (GCC), with cervical bones and encephalus metastasis. She underwent a WBRT radiotherapy. After seven sessions, she presented a cardiorespiratory arrest with death.

Conclusion: We can conclude that Garcin syndrome rare condition can have a GCC metastasis involvement. GCC is common um male and smokers. This is the first report of Bell's palsy as a primary manifestation of GCC, and is also the first case that GCC have Garcin syndrome association. We can assume GCC is a etiology of Garcin syndrome and Bell's palsy, including in non-smokers.

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Use of glucocorticoids in acute spinal cord injuries: a last decade analysis

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Introduction: The early use of methylprednisolone (MP) pulse represents the only treatment suggested to stop neurological outcomes in non-operable acute spinal cord injuries (ASCI). The protocol of the drug use dates from the 1990s and results of the NASCIS 2 randomized clinical trial. However, such conduct is still an issue for discussion, due to limited evidence.

Objective: To compare the results of the main studies about the use of MP in theASCI published in the last decade.

Methods: This is a narrative review of the use of MP in the ASCI. A search was carried out using the keywords "acute spinal cord injury" and "methylprednisolone" on PubMed and Cochrane, in April 2021. Indexed meta- analysis from 2011 to 2020 were used as filters. All studies (3) were selected for analysis and comparison of their results.

Results: Cochrane meta-analysis, in 2012 concluded that MP administration results in an improvement of the neurological outcome and presents good safety margin. Although it agrees with the drug harmless, a Canadian study in 2017 pointed out the MP offers a poor motor function benefit in the long term. Recently, in 2019, a meta-analysis from the American Academy of Neurology, did not recommend the use of MP in the ASCI, because of the lack of benefit in neurological function and increased occurrence of complications after the adoption of the therapy.

Conclusion: Data from the last ten years of analysis demonstrates a progressive decrease in the evidence in favor of the use of MP in the ASCI.

Keywords (MeSH Terms): "spinal cord injury" – "treatment" – "glucocorticoid" – "methylprednisolone" – "review"

Keywords (author): "traumatic spinal injury" – "non-operable" – "treatment" – "drugs" – "glucocorticoid" – "update"

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Shistosomal myelitis and its diagnostic complexity: report of two cases in Alagoas

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Context: In Brazil, schistosomal myelitis is the third most common cause of myelopathy. The diagnosis of neuroschistosomiasis is not easy to make. In a study published in 2001, the author proposed a classification for the diagnosis of schistosomal myelorradiculopathy: Proven Diagnosis; Probable Diagnosis and Possible Diagnosis.

Case Reports: Case 1, admitted in 2021 with 40 days of paraparesis and ascending paraesthesia, urinary retention and severe low back pain. He had proximal and distal grade 1 paraparesis, eosinophilia at blood count, CSF with hyperproteinorrhachia, normal cellularity and indirect immunofluorescence (IFI) for reactive schistosomiasis, as well as stool parasitology (EPF) and spine MRI with hypersignal in the spinal cord. Case 2, admitted in

2020 with 20 days of constipation and urinary retention followed by paraparesis and ascending paresthesia and sexual impotence. He presented proximal and distal grade 3 paraparesis and CSF with protein-cytological dissociation. Both had abolished deep reflexes and hypoaesthesia with levels in L2 and T10, respectively. As a result of the other exams and MRI with hypersignal of D6 to medullary cone with contrast impregnation and cauda equina roots, despite case 2 having EPF and IFI for schistosomiasis in the CSF negative, for presenting positive epidemiology for schistosomiasis, both were treated with solumedrol for 5 days, praziquantel and oral prednisone, with improvement afterwards.
Conclusion: The outcome of schistosomal myelitis is directly related to early diagnosis and treatment. It is necessary to value all clinical, laboratory and epidemiological findings in patients living in an endemic area.

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Creutzfeldt-Jakob disease: case report strongly suspicious with 14-3-3 protein missing

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Context: The Creutzfeldt-Jakob disease (CJd) is a rare spongiform encephalopathy caused by a prion. In clinical practice the presence of 14-3-3 protein can be a insensitive marker of sporadic CJd, well as absent for genetic CJd and new variantes, being susceptible to false negatives.
Case report: V.L, male, 57 years old, previously rigid, who presented na insidious picture of memory loss and a progressive functional decline for one month and a half. On admission, he was alert, non-contacting, with evidente myoclonus in the upper and lower members and spasticity in lower members. The picture is compatible with rapidly progressive dementia, and the hypothesis of CJd was suggested. The skull CT showed microangiopathy. Clean looking CSF, negative bacteroscopy, non-reactive VDRL, negative nanquim exam and missing 14-3-3 protein search. EEG recorded abnormal rhythm secondary to moderate diffuse and persistente encouragement of fund activity, indicating mild diffuse brain dysfunction, possibly encephalopatic. Skull MRI, signs of restriction and diffusion compromising the caudate nucleus of the putamen bilaterally and symmetrically, and the parietal córtex, predominantly the left, compatible with CJd. Patient had normal thyroid function and hypovitaminosis of mild B12, corrected with intramuscular injection. Evolved in 25 days to akinetic mutism and died in one month due to bronchial aspiration pneumonia.
Conclusions: The CJd is a pathology difficult to diagnose, the 14-3-3 protein research is subject to bias, the clinical and radiological findings strongly indicate CJd.

MeSH terms: encephalopathy; prion; dementia.
Key words: Creutzfeldt-Jakob Disease; 14-3-3 protein missing; neurodegenerative.

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Relationship between sleep disorders and headache in adolescents

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Introduction: Headache is a frequent neurological complaint among adolescents, reducing quality of life in this age group. This study aims to evaluate the prevalence of headache, its characteristics and association with sleep disorders in adolescents from the 2004 Pelotas Birth Cohort.
Methods: Data from the perinatal and 15-year-old follow-up of the 2004 Birth Cohort were used to define the occurrence of headache and its characteristics (intensity, location and type). Sleep disorders were used as exposure and referred to frequency in the month prior to the interview, including: long sleep latency, insomnia and nightmares. Statistical analysis was performed calculating crude and adjusted prevalence ratios to assess the relationship between sleep disorders and headache. **Results:** The occurrence of headache was reported by 51.7% of the adolescents. More than a third of them reported severe or disabling pain. More than two thirds of adolescents with long sleep latency or insomnia classified their sleep as bad or very bad, and 64.6% of these reported headache. Adolescents with long sleep latency or insomnia ≥3 times/week were 42% more likely to have headache than those who didn't report difficulty falling asleep. Among adolescents who rated their sleep as bad and very bad, the probability of headache was 33% higher compared to those who rated sleep as very good.
Conclusion: The prevalence of headache is high in adolescents and it's associated with sleep disorders. Thus, sleep hygiene measures and clinical evaluation are essential to identify and treat these comorbidities, ensuring improvement of headache.

MeSH terms: headache, sleep, adolescent, cephalalgia, sleep disorders
Key words: headache, sleep disorders, adolescents

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Persistent headache after infection with the new coronavirus (COVID- 19): A Systematic Review

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Introduction: The new evidence has shown that infection with the new coronavirus is responsible for a series of neurological sequelae, which can persist even after the patient's recovery, with headache being one of them.
Objective: To assess the current evidence on the persistent headache after the infection with the new coronavirus.
Design and setting: A systematic review conducted at the Pontifical Catholic University of Goiás.
Methods: Systematic review. After filtering the duplicate studies and reading

the title, abstract and full text of the remaining articles, studies that did not meet the objectives were excluded.

Results: After the infiltration of the virus in the Central Nervous System, it can be observed that systemic disturbances occur, which lead to headaches with mild to intense intensity, with sudden and bilateral onset and frontotemporal localization being its most frequent presentation. Patients with a previous history of migraine were more susceptible to headache during COVID-19 infection, noting differences in the form of manifestation. In addition, several studies have concluded that this symptom can persist for more than 80 days and predispose to chronic headache.

Conclusion: In view of the analysis of the articles exposed in this study, we can infer that headache is present as a clinical manifestation of great importance in cases of infection with the new coronavirus, and future multicenter randomized studies may clarify the possibility of a chronification of this symptom after this disease.

Systematic Review Registration: ID=254476; https://www.crd.york.ac.uk/PROSPERO/

MeSH terms: Headache; Headache Disorders; Coronavirus Infections.
Key words: COVID-19; Persistent headache; Neurological sequelae.

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Successful Endovascular Treatment of Trigeminal Neuralgia Caused by a Carotid-Cavernous Fistula: Case Report

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Context: Dural arteriovenous fistulas (DAVFs) of the cavernous sinus are arteriovenous connections located in the dura mater leaflets of this region. DAVFs usually present with ocular symptoms such as diplopia, conjunctival hyperemia, involvement of cranial nerves III/IV/VI, etc. Trigeminal neuralgia caused by a cavernous DAVF is rare, being reported only three times in the literature.

Case report: A 46-year-old female smoker sought care with a complaint of multiple daily episodes of shock-like right temporal headache and facial pain in the V1/V2 dermatomes, of 2 years' duration. A clinical diagnosis of trigeminal neuralgia was established.

Magnetic resonance (MR) imaging of the brain and MR angiography of the cerebral and cervical vessels were both normal. Conservative treatment and balloon compression of the trigeminal ganglion were ineffective. Therefore, we chose to perform an angiography for diagnostic clarification, which demonstrated a DAVF of the right cavernous sinus, fed by branches of the external carotid artery. We decided to catheterize the fistula and complete obliteration was achieved. Soon after the procedure the patient reported pain relief. At 3-month follow-up the patient remained pain free and required no analgesia.

Conclusion: Trigeminal neuralgia caused by a cavernous DAVF is rare. The fistula in this case was only diagnosed after an angiography was performed, so clinicians must be aware that not all vascular conditions can be identified non invasively, and that cavernous DAVFs may be an underdiagnosed cause of trigeminal neuralgia.

MeSH terms: Trigeminal Neuralgia; Carotid-Cavernous Sinus Fistula; Cerebral Angiography.
Key Words: Embolization; DAVF; Headache.

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Self-mutilation as a clinical manifestation of Cerebrotendinous Xanthomatosis

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Introduction: Cerebrotendinous xanthomatosis (CTX) is a rare neurological entity, which consists of an autosomal recessive inherited disorder of bile acid biosynthesis due to CYP27A1 variants, with variable systemic and neurological clinical presentation. Psychiatric signs are also observed at early adulthood and includes behavioral and personality changes, depression and psychosis. However, self-mutilation has not been previously described.

Case report: We attend to two sisters with a unique clinical presentation. The first patient, 33 years old, presented epilepsy at 17, in addition to cognitive impairment and tendon xanthomas. A severe depressive condition was established at 25. A year ago, she had frequent bites on his lips and tongue. The second patient, 28 years old, had chronic diarrhea and juvenile cataract in childhood. Axial ataxia has been observed since age 18. After 3 years, she presented psychiatric decline marked by visual, auditory hallucinations and persecutory delirium. Four months ago she showed signs of self-mutilation with a sting in the phalanges of his hands. Both patients had elevated plasma cholestanol and 7-dehydro-cholesterol. The genetic test showed a homozygous *c.1183 C>T* (*p.Arg395Cys*) variant in the CYP27A1 gene.

Conclusion: The reports illustrate the relevance of self-mutilation in CTX, an unprecedented clinical presentation that should be remembered as another differential diagnosis with this phenomenology.

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Açaí: potential anticonvulsant agent

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Background: Convulsion is an involuntary contraction of skeletal muscles. When considering vulnerable populations exposed to the mentioned pathophysiological situation, it is recognized that many of them will not have access to the indicated pharmacological treatment. Therefore, the ingestion of açai, *Euterpe oleracea* (EO) attenuates the problem, acting as an anticonvulsant.

Objectives: evaluate the EO as an anticonvulsant agent.

Design and setting: It is a bibliographic research and the data collection was done from the PubMed and Scielo databases.

Methods: The descriptor used was "Euterpe oleracea" and the inclusion criteria adopted were: articles published in the last five years, available in full and publications related to epilepsy.

Results: The EO acts on the GABAergic system when interacting occurs with the GABA receptor of cortical neurons and, above all, of astrocytes in an inhibitory mechanism for the uptake of the neurotransmitter GABA, that accumulates in the synaptic cleft, preventing the exaggerated neurotransmission that causes convulsions. In pentylenetetrazol-induced seizure (PTZ), EO showed some results similar

to diazepam: reduced duration of tonic-clonic convulsion and increased latencies for the first myoclonic spasm and for the first generalized tonic-clonic seizure.
Conclusions: Studies suggest that EO can be classified as an anticonvulsant, considering its inhibitory activity during synapses. Furthermore, the consumption of EO is more viable at a socioeconomic level compared to traditional drug treatments.

MeSH terms: Seizures; Euterpe; Anticonvulsants.
Key words: Phytotherapy; Therapeutics; Pharmacology.

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Epidemiological profile of hospitalizations in Brazil for malignant brain neoplasm among 2017 and 2020

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Introduction: The malignant brain neoplasm is the cerebral tumor constituted by primitives cells with neuronal and glial diferentiation.
Objective: To evaluate the profile of hospitalizations due to malignant brain neoplasm registered in Brazil among 2017 and 2020.
Methods: We performed a cross secctional study from public health system database of hospitalar morbity related to hospitalizations by year and federative unit among 2017 and 2020.
Results: In the period from 2017 to 2020, Brazil registered a total of 58.177 admissions for Malignant Neoplasm of the Brain. The Southeast region had highest rate of hospitalizations in that time interval, with a total of 25,266 cases (highest rate was 2019, with 6.636 cases). South region was the second place, with 13.738 hospitalizations (highest rate was 2020, with 3.613 cases). Third, Northeast region with 11,197 hospitalizations (the highest rate was 2018, with 2,837 hospitalizations). Fourth, the Central-West region, where 5.586 were hospitalizaed (with highest number of hospitalizations in 2018, 1.469 cases). The North region has the lowest incidence, with 2,390 hospitalizations (highest rate was 2019, with 665 hospitalizations). In relation to the total result of hospitalizations, the year 2019 has the highest rate of hospitalizations (n = 14.966) and the year 2020 the lowest rate (n = 14.235).
Conclusion: The Southeast region had the highest rates of hospitalizations due to malignant brain câncer and the year of 2019 had the higher prevalence of hospitalized.

MeSH terms: neoplasia; brain; regions.
Key words: epidemiology; Brazil; cancer.

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Transcranial Direct current Stimulation (tDCS) in Treatment of Chronic Migraine

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Introduction: tDCS is a method of low intensity direct current electrical stimulation, modulating neuronal depolarization.
Objective: to evaluate the efficacy of tDCS in the treatment of chronic migraine.
Method: monitoring 4 women with ages varying from 27 to 46 years (mean 37.5 years), with chronic migraine according to ICHD-3 beta criteria. Randomized into 2 groups. Group 1, two patients with a mean age of 37.6 years, with pains 7 to 10 on the AVS (analogic visual scale). They received anodal tDCS, 2 mA for 20 minutes, in a primary motor area (M1), daily for 5 consecutive days, followed by a weekly stimulus for the next 3 weeks. Group 2 had two patients, with a mean age of 36 years, with pains ranging from 7 to 10 on AVS. They received SHAM, at the same frequency.
Results: the patients in tDCS group had a reduction of 77% and 88% in pain intensity, in addition to a reduction of 53.3% and 46.6% in the frequency of crises. The sham group, on the other hand, had a 20% and 12.5% reduction in pain intensity, 20% and 13.3% in frequency.
Conclusion: tDCS showed good efficacy in patients with chronic migraine when compared to simulated stimulation. The method proved to be safe, with no side effects in the cases monitored.

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Main neurological changes in patients infected with Covid- 19: literature review

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Background: The world is experiencing a pandemic caused by COVID-19, which has already led to the death of 3.5 million individuals. In this context, the scientific community has made several discoveries, above all, that COVID-19 can promote other disorders, in addition to respiratory, such as the impairment of the nervous system.
Objectives: To analyze the main neurological changes resulting from the infection by COVID-19.
Design and setting: Cross-sectional observational study**.**
Methods: Literature review with articles published in 2020, in journals indexed in the PubMed and Scielo databases, using the descriptors "Neurologic Manifestations" AND "covid-19, including articles in Portuguese and English.
Results: Neurological symptoms have become increasingly recurrent in patients with COVID-19. SARS-CoV-2 reaches the Central Nervous System (CNS) through hematogenous or retrograde neuronal dissemination. Peripheral neuropathies and cerebrovascular events are associated with the severity of the disease. The elevation of D-dimer in critically ill patients triggers cerebrovasculares events, especially the development of ischemic stroke (stroke), which becomes more evident due to its risk factors. Changes in mental status are not limited to severe cases, and can occur at any stage of the disease, especially neuropsychiatric syndromes, such as anxiety, depression and post- traumatic stress.
Conclusion: COVID-19, in an advanced stage, promotes peripheral neuropathies and cerebrovascular events. Furthermore, regardless of the severity stage, it can lead to changes in mental status.

Mesh-terms: déficits neurologic, coronavirus infection and avc protocol.
Key words: coronavirus, neurological manifestations and neuropsychiatry.

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Epidemiology of Spinal Cord Trauma in Brazil: a review of the literature

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Background: Spinal cord trauma (SCT) is an injury that affects any region of the spinal cord, bringing not only organic implications, but also an important socioeconomic impact due to its high morbidity and mortality. Thus, it is relevant to evaluate the distribution of risk factors that contribute to its prevalence in Brazil.
Objectives: To evaluate the risk factors that contribute to the prevalence of SCT in Brazil.
Design and setting: Review of the literature in Catholic University of Pernambuco
Methods: Searches were performed in the databases PUBMED, BVS and Scielo, with the descriptors: "epidemiology" and "spinal cord trauma" and "Brazil". Included were articles published from 2015 to 2021. 63 results found and 5 selected.
Results: The analysis showed that the epidemiology of spinal cord trauma in Brazil is predominantly male, with ages ranging from 35.2 to 44 years, with the cervical spine being the most affected segment and traffic accidents as the major causal factor.
Conclusions: The socioeconomic damages deeply impact the quality of life of the individual affected by spinal cord injury, so understanding the epidemiology is essential to plan preventive actions and treatments. We emphasize the need for further studies, considering the low number of articles on.

MeSH terms: Epidemiology, Spinal Cord Injuries, Brazil
Key words: Risk factors. Traffic Accidents. Prevention

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Clinical and neurological findings of a patient with type 2 neurofibromatosis

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Context: Neurofibromatosis type 2 (NF2) is an autosomal dominant genetic disease that predisposes to tumors development, especially schwannomas involving vestibular nerves.
Case report: A 13-year-old girl, a couple's daughter with no cases of genetic diseases in the family, had photophobia and recurrent left eye paralysis since she was 5 years old. At 11, she had dizziness at rest and on moving. Physical exam showed a lack of balance, weakness in the legs and bilateral papilledema. Cranial computed tomography revealed a bilateral vestibular nerve schwannoma. The increase in tumor volume led to obstructive hydrocephalus and hypertensive signs. She evolved with vision loss and magnetic resonance imaging showed ventricular dilation, thus she underwent endoscopic third ventriculostomy. The patient reported a gradual worsening of balance when walking and episodes of sporadic headache, progressing to seizures treated with valproic acid. Ophthalmological evaluation revealed vision loss and small bilateral scotoma in campimetry. She reported occasional ear pain and audiometry showed mild bilateral hearing loss. A surgery plan was performed for tumor resection.
Conclusions: The clinical findings and complementary exams were compatible with the diagnosis of NF2, which required ventricular shunt and indication for tumor removal, according to disease progression. Thus, these patients must be monitored, due to symptoms progression as well as oriented to family recurrence possibility.

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Multiple contractures and their relationship with congenital amyoplasia

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Context: Congenital amyoplasia is characterized by contractures (arthrogryposis) involving multiple large joints.
Case report: The patient is a couple's first daughter and no history of similar cases in the family. She was born at term, by cesarean delivery, weighing 3080 grams and with Apgar scores of 8 and 9. Gestational ultrasound revealed fetal akinesia, oligodramnia, and altered fetal skeletal musculature with shortening of the four limbs. During delivery, she suffered a fracture of the right femur. The patient evolved with a delay in neuropsychomotor development. On physical examination, hypotonia, nevus flammeus on the forehead, contractures involving several joints (including fingers, elbows, hips, knees and feet) were observed as well as pits in elbows and knees. Computed tomography scan of the skull showed cortical hypoplasia. Radiographic evaluation showed levoconvex thoracolumbar scoliosis and congenital changes in vertebral bodies of the thoracic spine, and thinning bone structures of the upper limbs. In addition, there were dysplastic acetabular, signs of constriction or tissue band in distal third of the right and middle thighs of the left, intense muscular hypotrophy, thinning of diaphysis of the femurs and echinovirus feet. Abdominal ultrasound and karyotype were normal.
Conclusions: The clinical findings were compatible with those of congenital amyoplasia. Fetal akinesia or hypokinesia is a finding widely reported by mothers of children with this condition, as occurred in our case. Therefore, early interventions are very important, in order to avoid, in particular, greatest atrophy of the affected limbs, in addition to osteopenia.

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Neurological findings in a patient with mosaic chromosome 8 trisomy

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Context: Mosaic chromosome 8 trisomy is a rare genetic disease that can develop with neurological abnormalities.

Case report: A male patient had a deficit in weight gain since his first month of life, in addition to delayed speech and neuropsychomotor. At 2 years old, the family noticed that he did not see well, and then began an ophthalmological investigation that resulted in the diagnosis of bilateral congenital cataract. Moreover, it was observed that the child had microcephaly, epicanthus, and strabismus converging to the right. Abdominal ultrasound showed hepatosplenomegaly and asymmetric kidneys. Computed tomography scan of the skull was normal. Chest radiography showed an increase in cardiac volume. Bone scintigraphy revealed heterogeneous uptake of the tracer radius in the projection of the femoral diaphyses, in addition to bilateral distal femoral hypertension, with central hypoactivity being more evident on the left. Blood karyotype exhibited a mosaic chromosome 8 trisomy (mos 47, XY, + 8 [10] / 46, XY [12]). His first medullogram had been normal; however, the new test showed myelodysplasia.

Conclusions: Mosaic chromosome 8 trisomy is a chromosomal abnormality characterized by quite varied clinical manifestations. Neurological changes may be present, among which are seizures. There is also a description of agenesis of the corpus callosum. In our case, speech and neuropsychomotor delay was noteworthy.

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Neurological findings of a patient with Patau syndrome and a non-usual clinical presentation

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Context: Chromosome 13 trisomy, or Patau syndrome (PS), is a genetic condition characterized by multiple findings and usually poor survival rate. However, its clinical presentation can be variable.

Case report: A male patient was referred for evaluation due to a syndromic aspect. He was born by normal delivery, at term, weighing 4700 g. On physical exam, at 2 months, two areas of scaly aplasia on the scalp were shown as well as left coloboma of the iris, bulbous nose with small nostrils, ears with oversized helices, micrognathia, umbilical hernia, clinodactyly of the index finger of the hand left and the 4th and 5th toes of the left foot. Echocardiography revealed tetralogy of Fallot. The karyotype showed a free trisomy of chromosome 13 (47, XY, + 13), compatible with the diagnosis of PS. The patient died at 9 months of age due to complications from bronchopneumonia and had evolved with a delay in neuropsychomotor development at that moment.

Conclusions: There are findings that stand out among patients with PS and that very often lead to diagnosis, such as micro/anophthalmia, bilateral cleft lip/palate and polydactyly. It is interesting in our case that the patient did not have any of them, which made it difficult to identify. In addition, from a neurological point of view, the findings were quite common; however, in our patient, there was only a delay in neuropsychomotor development, pointing out that the neurological findings can also be quite variable.

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Neurological findings of a series of patients with chromosome 18 trisomy (Edwards syndrome) in mosaic

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Introduction: Chromosome 18 trisomy or Edwards syndrome (ED) is characterized by wide clinical manifestations, usually associated with neurological symptoms and a poor prognosis.

Objective, materials and methods: Describe the clinical findings, especially the neurological ones, of a sample of patients with mosaic chromosome 18 trisomy. These were evaluated at a Clinical Genetics Service from 1975 to 2008.

Results: During the study, 50 patients with ED were diagnosed, 5 of them (10%) in mosaic. The average number of cells analyzed in these cases was 27,8. Three of the 5 patients (60%) were male. The age at evaluation ranged from 14 to 5926 days (median 93 days). The small number of clinical findings described was noteworthy, both in the dysmorphological evaluation and complementary exams. The main changes were micrognathia (n = 3), low ears implanted (n = 2), retroverted ears (n = 3), clenched fists with overlapping toes (n = 2) and clubfoot (n = 1). As for internal organs, congenital heart disease was reported in 2 cases (40%). All patients had a history of delayed neuropsychomotor development. The older patient also had a description of cognitive impairment and seizures.

Conclusions: The clinical presentation of our patients is consistent with what is described in the literature, since they point out due to small number of changes. However, the delay in neuropsychomotor development and neurological symptoms are constant findings. Thus, pediatricians and neurologists should be aware of this possibility.

MeSH terms: trysome 18 syndromes; neurological manifestations; mosaic trisomy 18 syndrome, trisomy 18; Edwards syndrome;

Key words: chromosome 18 trisomy; mosaicism; Edwards syndrome; neurological findings; clubfoot; delayed neuropsychomotor development; neuropsychomotor; neurological symptoms

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Therapeutic methods for lipomyelomeningocele: literature review

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Introduction: Lipomyelomeningocele is a congenital malformation in which the neural plate lies outside the spinal canal. Patients younger than 6 months of age are neurologically asymptomatic. However, if not diagnosed, the disease evolves with deterioration of bowel and bladder functions and, later, with motor deficits (paralysis) and loss of sensation. Accordingly, a literature review was developed about the therapeutic methods that enable a better

quality of life and prevent or control disease progression.

Objectives: This literature review aims to elucidate leading updates in the literature regarding the therapy for lipomyelomeningocele, a rare form of spinal dysraphism.

Methods: Searches were performed in the LILACS e PubMed database and in the health descriptors (DeCs/MeSH), to establish the descriptors. Of the 6,292 articles found, 20 were selected, since only they presented relevant information about this topic.

Results: From reading the articles, it was concluded that surgery is the recommended treatment for cases of lipomyelomeningocele. The main goal of surgery is to prevent future damage or further neurological deterioration and also to preserve or improve current neurological function. The widespread use of advanced prenatal ultrasonography can show neural development and suggest congenital malformations and progressive neurological deterioration.

Conclusions: Although surgery is the best treatment, it may also be accompanied by outcomes such as meningitis, CSF leakage, neurological deterioration as a result of tethered cord or secondary to nerve injury, and incomplete healing or wound breakdown. Prenatal ultrasound is necessary to identify the malformation and support early diagnosis of lipomyelomeningocele and may open doors for future care and treatment.

MeSH terms: Lipomyelomeningocele, Neurosurgery, Treatment Outcome, Spinal Dysraphism.

Key words: spina bifida occulta, spinal dysraphism, Embryology, malformation.

Palavras-chave: espinha bífida oculta, disrafismo espinhal, embriologia, malformações congênitas.

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Report of a family affected by fragile X syndrome and type 1 diabetes mellitus

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Context: The fragile X syndrome is characterized by intellectual deficit and some physical characteristics, which become more evident during growth, especially craniofacial and macroorchidism.

Case report: A 22 year-old male patient with diabetes mellitus type 1 (DM1) diagnosed at 7 years of age is following-up with ophthalmology due to low visual acuity. On physical exam, he did not maintain eye contact and performed repetitive movements. In addition, he had an elongated face and upward slanting eyelid clefts, a high palate and prognathism, large and prominent ears. In the family history, 3 of his siblings, one male and two female, also had

intellectual deficit, and two of them had concomitant DM1. One brother had only DM1 and the other none of the diseases. The parents had consanguinity (they were cousins in the 3rd degree). The patient's karyotype, using the chromosomal breaks technique after cultivation in medium-low folic acid, showed the presence of fragility on the X chromosome in the region q27.3 [46, XY, fra (x) (q27.3)], compatible with the diagnosis of fragile X syndrome. This result was confirmed using the PCR-multiplex technique.

Conclusions: In this family, the concomitant presence in several individuals of the fragile X syndrome and DM1 stands out. However, although both conditions are not related, they are frequent, which could justify their simultaneous occurrence.

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Type 1 neurofibromatosis and its relation to the occurrence of cerebral vascular accident

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Context: Neurofibromatosis type 1 (NF1) is characterized by "café-au-lait" (CAL) spots, ephelids, cutaneous neurofibromas and iris Lisch nodules.

Case report: A 63 year-old female patient came to evaluation due to NF1. She had a history of CAL spots, nodules on the skin, cognitive deficit and seizures. Chest X-ray showed several small nodules scattered in soft tissues of the thoracic wall. Magnetic resonance imaging of the skull demonstrated a possible increase in intracranial pressure. Computed tomography scan of the skull showed a hypodense area in the left hemisphere, consistent with a recent ischemic stroke. At the consultation, the patient reported episodes of headache, dizziness, nausea, vomiting, walking difficulty and pain in the thighs. On physical exam, she presented macrocephaly and diffuse nodular lesions. She also had masses in the abdominal and pelvic regions. On neurological exam, therewas a pyramidal syndrome with right release pathway; ataxic gait; grade IV strength and Babinski sign. The patient was referred for surgical removal of the neurofibromasand died due to perioperative complications.

Conclusions: Among patients with NF1,stroke is more common and occurs at a younger age than in the general population. The vasculopathy seen in NF1 involves the anterior and middle cerebral arteries, whichcan have serious or even fatal consequences. Anatomical vascular variants and intracranial aneurysms also occur more frequently in individuals with NF1.

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Unilateral ocular ptosis in a patient with type 1 neurofibromatosis

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Context: Neurofibromatosis type 1 (NF1) is a genetic condition characterized by "café au lait" spots, axillary and inguinal ephelides and cutaneous neurofibromas.

Case report: A 16 year-old famele patient with description that her father and other family members had the "café au lait" spots. From the age of 5, she started with slight facial asymmetry, which increased over time. On physical exam at 16 years old, she had facial asymmetry, convergent strabismus with a left lower eyelid cleft than the contralateral cleft, in addition to left eyelid ptosis and left eye proptosis. There were also "café au lait" spots and ephelides on the body. Computerized tomography scan of the skull showed an important architecture distortion of the skull base's bones of the anterior and middle fossa of the skull, sphenoid dysplasia and left orbital encephalocele. In the ophthalmological evaluation, corneal opacity and ocular proptosis involving the left eye were found. At the age of 17, she underwent a complex craniotomy with craniofacial reconstruction due to temporo-fronto-orbital dysplasia.

Conclusions: The clinical findings and the patient's family history were compatible with the diagnosis of NF1. Bone changes, such as sphenoid dysplasia, may be present and lead to symptoms. In this case, bone changes in the skull led to the occurrence of an encephalocele, which in turn caused an ocular proptosis.

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Epidemiological profile of bacterial meningitis in the state of São Paulo

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Introduction: Meningitis is an inflammatory process of the meninges, which can be of infectious cause or not. Among the infectious, the bacterial is the most alarming for society, since it has a much higher rate of morbidity and mortality.

Objectives: Analyze and describe the epidemiological profile of bacterial meningitis in the State of São Paulo.

Methods: Descriptive epidemiological study of cases of bacterial meningitis in the State of São Paulo, carried out through the DATASUS platform, in the period from 2016 to 2020.

Results: The State of São Paulo registered 4013 cases of bacterial meningitis, 67.1% of the cases in the Southeast (5977), being responsible for 53% of the cases of this disease in Brazil. The most affected age group in the State was 0 to 4 years, 33.7% of the total, while elderly people aged 80 and over were the least affected (2.3%). As for deaths, São Paulo recorded 862 and a mortality rate of 21.4%, higher than the country average (20.5%), representing 64% of deaths in the Southeast region. In addition, males were the most affected, registering 58.1% of the total, while females registered 41.8%.

Conclusions: São Paulo has the majority of cases and deaths from bacterial meningitis in its region, with a mortality rate that exceeds Brazilian averages and which contributes to the Southeast having more than half of the cases of meningitis in Brazil. More active epidemiological surveillance and greater dissemination of information on meningitis and its signs and symptoms is necessary.

Mesh-terms: Meningitis. Epidemiology. Death.

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Clinical and neurological findings of a patient with a complex chromosome 5 alteration

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Context: Inversion-duplication-deletion (invdupdel) involving the short arm of chromosome 5 is considered a complex and extremely rare alteration.

Case report: A female patient was born prematurely at 32 weeks and was delivered by cesarean section, weighing 2,086 grams, with an Apgar score in the fifth minute of 7. After birth, she needed invasive mechanical ventilation. A nasofibrolaryngoscopy was performed, which revealed the rear projection of the tongue base. The speech-language evaluation showed a swallowing disorder. The patient needed to be tracheostomized and evolved with episodes of cardiorespiratory arrest. A zone 2 of immaturity was identified in both eyes. Then, gastroesophageal reflux was also diagnosed. Cerebral ultrasound showed moderate lateral ventricles dilation. High resolution GTG-banding karyotype identified an inverted and partial duplication of the chromosome's 5 short arm, with a probable deletion of its distal segment: 46,XX,invdup(5)(p13.3->p15.33:: p15.33->qter) [23]. The parents' karyotype was normal. At 2 months, the patient had dolichocephaly; bitemporal narrowing; hypertelorism; and down slanting palpebral fissures with blepharophimosis; low-set and posteriorly rotated ears; leftover skin at neck and bilateral plantar creases between the first, second and third toes.

Conclusions: Invdupdel of the short arm of chromosome 5 is a very rare chromosomal alteration. Neurological findings seem to be part of its clinical manifestations, especially dilated lateral ventricles. More reports will be essential for understanding its clinical spectrum.

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The future in glioblastoma treatment

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Introduction: Glioblastoma multiforme (GBM) is the most aggressive tumor that affects humans. Surgical treatment based on cytoreduction presents serious limitations. Consequently, treatments that use selective measures, in order to define relevant antigens that retard growth and recurrences, acquire a prominent position. The complex tumor microenvironment and the infiltration into adjacent tissues make surgical therapies, radiotherapy and chemotherapy, approaches still unsatisfactory when the increase in survival rate is evaluated. Studies on central nervous system immunovigilance have found the presence of lymphatic vessels and the perivascular system that allows the presentation of antigens to T4 cells bringing with it great relevance of immunotherapy, and the creation of active immune responses, recruiting the immune system itself to fight the tumor locally or systemically.

Objectives: Determine the effectiveness of combining immunotherapy with conventional therapies of treatments in order to prolong the survival of patients with GBM.

Methodology: Databases of Springer Link, Oxford academic, PubMed, Biblioteca USP.

Results: For an active immunotherapy to be well-defined, it is necessary to have a strong and efficient antigen presentation breaking the state of tumor immune tolerance and activating effector lymphocytes. The use of dendritic cells for this presentation may be a good strategy. Finally, the antitumor response requires coordination between various local and systemic components.

Conclusion: The use of immunotherapy in the treatment of GBM continues to expand. Despite several problems, due to immunosuppression mediated by the tumor itself, the immunotherapy brings a hope regarding to the possibility of to increase the immunogenicity and, thus, prolonging patient survival.

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Recurrent aseptic mollaret's meningitis

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Context: Mollaret's meningitis is a rare disease, where there are recurrent episodes of aseptic meningitis, characterized by fever, headache, meningitis, and cerebrospinal fluid pleocytosis with Mollaret cells, and without neurological sequelae. It is characterized by episodes of illness and episodes of remission, with no detectable etiologic agent.

Case report: 38-year-old man, previously healthy, with repeated cases of severe holocranial headache, associated with nausea and vomiting, without fever and with neck pain and stiff neck. The condition was repeated 9 times during the period of 1 and a half years. In the neurological examination (during the symptoms), he presented normal fundus examination, neck stiffness present, without other meningeal signs and focal motor deficits or associated cranial nerves. Extensive serum investigation (including serology, autoimmune markers, and sputum BK test) was performed, all negative. Skull CT and MRI of the skull and cervical spine with contrast during events without abnormalities. Lumbar punctures performed during this period did not show an increase in intracranial pressure on spinal manometry; CSF analyzes showed a clear and colorless appearance, pleocytosis (higher cell count 255 cells), lymphomononuclear predominance, hyperproteinorrhachia(higher value of 100 mg/dl), with normal glucose and lactate. In the CSF samples, extensive etiological investigation (broad viral panel, general bacteria search, syphilis and Mycobacterium tuberculosis, fungi and neoplastic cells) was carried out, all negative. Cisternoscintigraphy performed excluding cerebrospinal fluid fistulas. The patient evolved without neurological sequelae.

Conclusions: Mollaret's recurrent aseptic meningitis is associated with social impairment and functional limitations. Thus, further discussions on conduct and prognosis are needed.

MeSH terms: Meningitis Aseptic, Intracranial Pressure, Spinal Puncture, Rare Diseases.

Key words: Mollaret, neurological examination, CSF, Meningitis.

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Motor and cognitive evaluations of rats exposed to the larvicide pyriproxifem in the prenatal period

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Background: In 2015 and 2016, there was an increase in microcephaly cases in Brazil, which were attributed to maternal contamination by Zika virus. However, the spread of this virus in the Brazilian states was not accompanied by an increase in the registers of this malformation. Thus, the use of the larvicide pyriproxifem to the control of mosquito Aedes Aegypt is being questioned.
Objectives: Investigate the motor and cognitive function of rats exposed to piriproxifem in prenatal period.
Design and setting: The study was developed at the Universidade Estadual do Oeste do Paraná, in the Cascavel campus.
Methods: Three experimental groups were used: Negative control (CT-) - offspring of rats which consumed water during pregnancy; Positive control (CT+) - offspring of rats which consumed water containing retinoic acid during pregnancy; Piriproxifem (PIR) - offspring of rats which consumed water containing Sumilarv®, larvicide whose active substance is the pyriproxifem, during pregnancy. The gait quality was assessed using the Basso, Beattie and Bresnahan scale (1995). Object-Placement Recognition Task was used to the spatial memory evaluation (Pizza et al., 2011).
Results: There were no statistical differences between the groups in relation to the gait quality and the preference for the relocated object. Nevertheless, two animals in the PIR and five animals in the CT+ group had external rotation of the hindlimbs during locomotion or deficits in motor coordination. **Conclusion:** The mild motor deficits found indicate the need for studies to confirm a possible deleterious effect of this larvicide on the nervous system development.

MeSH terms: Microcephaly, Gait analysis, Spatial Memory
Key words: Ratos Wistar, Agentes Teratogênicos, Qualidade da marcha, Tarefa de reconhecimento da posição de objetos.

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Complete Ramsay Hunt Syndrome: a rare case

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Background: Ramsay Hunt syndrome or herpes zoster oticus is a disorder caused by the reactivation of the varicella zoster virus in the geniculate ganglion, a bundle of nerve cells in the facial nerve. Symptoms include acute facial nerve palsy, otalgia, loss of taste in the anterior 2/3 of the tongue, dry mouth and eyes, and erythematous vesicular rash in the ear canal, tongue and / or palate.
Objectives and Methods: Describe the case of a male patient, 26 years old, with complete Ramsay Hunt syndrome, reporting pain in the right ear with tinnitus, difficult to close his right eye, odynophagia and pain in the anterior 2/3 of the tongue at right side.
Results: On examination, the presence of vesicles with erythema was observed in the region of the right external auditory canal and the ear, as well as on the right palate and tongue. Upon inspection, he had peripheral facial paralysis on the right, associated with loss of taste in the anterior 2/3 of the tongue. The patient was treated with antiviral and corticosteroids, followed for 3 months, obtaining partial recovery from facial paralysis. The anatomy of the facial nerve and its pathophysiology due to the involvement of herpes zoster will be discussed.
Conclusion: Ramsay Hunt syndrome is often described as the presence of peripheral facial paralysis and vesicles in the auditory canal and the ear. However, this rare case presented the complete condition with the presence of vesicles on the palate and the tongue.

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SARS-CoV-2 and neurology: characteristics of patients with Covid-19 affected by CVA

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Introduction: Since the beginning of the pandemic in December 2019, COVID-19 caused by the infection of the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2), in addition to the clinical manifestations already, can develop changes in the rate of blood clotting, where there are already notifications of Cerebrovascular Accident (CVA) associated with the virus.
Objective: To know the characteristics of patients with COVID-19 affected by CVA, documented in the scientific literature. Method: A systematic literature review was carried out, using the MeSH Brower platform descriptors, namely: Stroke and Coronavirus, with an AND expression. The articles were searched in scientific databases: PubMed, MEDLINE Complete and SCIELO. 217 studies were found, of which 04 publications were included in this research.
Results: Parallel studies on patient characteristics: elderly, male and comorbidities, such as hypertension, diabetes, heart disease and obesity, all risk factors for stroke. However, there were cases of young patients affected by CVA after the diagnosis of COVID-19. With regard to neurological changes, the researched articles state that most patients have symptoms such as deviation of the labial commissure on the right, dysarthria, aphasia, hemiplegia and hemianesthesia on the left.
Conclusion: Although this incidence is not known, CVA is emerging as a complication of the COVID-19 pandemic. In this sense, further studies on the subject are necessary, since the elucidation of thrombotic mechanisms in patients with COVID- 19 can generate complications to prevent complications such as Cerebrovascular Accident.

MeSH terms: Stroke; CVA (Cerebrovascular Accident); Coronavirus; COVID-19.
Key words: SARS Coronavirus 2; Neurologic Manifestation; Characteristics.

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Epidemiological, neurofunctional profile and prevalence of factors associated with the occurrence of physical disabilities due to leprosy in a reference center in Northeast Brazil: a sectional study

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Background: Leprosy is an infectious disease that is associated with functional limitation.

Objective: Describe the epidemiological, neurofunctional profile and the prevalence of factors associated with the occurrence of physical disabilities due to leprosy in a reference center in Northeast Brazil.

Design and setting: Cross-sectional observational study carried out at the reference center Dr. Altino Lemos Santiago, in Juazeiro / Bahia. In 2018, the municipality recorded an annual average of 95 new cases of leprosy.

Methods: Study including 50 leprosy patients. Variables analyzed: gender, age, history of leprosy in the family, time to diagnosis, clinical form, operational classification, degree of disability, OMP score, peripheral nerve function, muscle strength and sensitivity. Descriptive statistics and inferential statistics (chi-square test or Fisher's exact, Poisson regression with robust estimation and PR-prevalence reason) were used. Significance of 5%.

Results: it was verified an equal distribution was found between men and women, economically active age, low education, multibacillary forms in men (64.0%) and paucibacillary forms in women (60.0%). 78% of individuals had some degree of disability. 64.0% had a compromised ulnar nerve. Plantar sensitivity was decreased in 66% of patients. The predictors of disability were: age ≥45 years (PR 1.44; p=0.005), no education (PR 1.21; p=0.013) and OMP score ≥6 (PR 1.29; p<0.001).

Conclusions: The findings show the importance of monitoring neural functions and the development of measures that allow the early diagnosis, the opportune method and the prevention of disabilities, especially in the male population.

MeSH terms: Leprosy. Neurology. Disability and Health. Disabled Persons. Health Profile.

Key words: Multibacillary, Paucibacillary, Public health, Degree of Physical Disability.

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Hyperacute tetraparesis with fasciculations as an initial manifestation of secondary hyperkalemic paralysis: a case report

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Context: Acute flaccid paralysis (AFP) is characterized by progressive weakness with signs of impairment of the lower motoneuron. Secondary hyperkalemic paralysis is a cause of AFP that must be quickly recognized to prevent cardiac and neurological deterioration.

Case report: We present a 69-years-old man admitted to the emergency department due to hyperacute weakness. The patient walked normally to the hospital's laboratory, where he sat down to wait for the collection of laboratory exams for the investigation of a thrombocytopenia. He was unable to get up from his chair when he was asked to collect the exams. The neurological examination showed symmetrical tetraparesis. Weakness was proximal grade II and distal grade III in the lower limbs. Upper limb weakness was grade IV. Reflexes were abolished in lower limbs and hypoactive in upper limbs. The sensitivity and cranial pairs were normal. Our patient denied bladder or bowel complaints. He also presented intense fasciculations in the cervical region and in the proximal muscles of the upper limbs. Initial laboratory showed potassium of 9.3 mEq/dL. The correction of hyperkalemia led to a complete reversal of weakness and fasciculations. During hospitalization, the patient was diagnosed with systemic lupus erythematosus. Renal impairment led to hyperkalemia.

Conclusions: Characterization of the motor examination, sensitivity and of reflexes allow the topographic diagnosis in AFPs. Secondary hyperkalemic paralysis manifests as symmetrical tetraparesis with a proximal predominance with hypoactive and abolished reflexes. Sensory examination is normal. The hyperacute manifestation and the presence of fasciculations reinforce this diagnosis as the cause of AFP.

MeSH terms: Flaccid tetraplegia, Hyperkalemia, Muscle Weakness

Key words: Paralysis, Case report, Secondary hyperkalemic paralysis, Fasciculation

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Three cases of Pontine Ischemic Syndrome Analysis (Millard-Gubler)

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Background: Millard-Gubler syndrome is characterized by crossed paralysis affecting the members on one side of the body and the face on the opposite side. It results from the lesion of the medioinferior (base) region of the pons, compromising the corticospinal tract and the facial nerve fibers. This disorder can also be associated with abducens nerve palsy. The finding of this syndrome in patients with a diagnosis of Ischemic Stroke is uncommon.

Objectives and Methods: Report the syndrome in 03 patients diagnosed with ischemic stroke in the territory of branches of the basilar artery due to involvement of the circumferential pontine artery that irrigates the tegumentary territory of the VI and VII nerves.

Results: The patients presented with facial weakness with deviation of the labial commissure, with convergent strabismus of the eye bulb on the same side, in addition to contralateral motor deficit. A computed tomography revealed a hypodense lesion located anterior to the pons, suggesting ischemic stroke. In the evolution of the cases, one patient developed coma, with brainstem infarction due to thrombosis of the basilar artery, while the other 2 cases evolved without sequelae. The risk factors that led to this event will be discussed and compared.

Conclusions: These cases reports have their importance justified by the unusualpresentation of this pons stroke, and it reinforces the fundamental role of neurological semiology, assessment of risk factors and image, for correct early diagnostic suspicion and treatment.

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Changes in deglutition in patients with neoplasms of the central nervous system interned in the general hospital and maternity of Cuiabá – MT

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Introduction: Tumors of the central nervous system are considered rare, belonging to the types of tumors that cause functional deficits and whose symptoms are often overlooked. Dysphagia is the most frequent manifestation in these patients, resulting in malnutrition, dehydration, pulmonary complications and even a cause of death, causing great impact on public health.

Objective: to identify early the risk of dysphagia in patients in the postoperative period of neurosurgery.

Design and setting: prospective and descriptive study carried out in the neurosurgery service with individuals in the postoperative period of neoplasms of the Central Nervous System of the General Hospital and Maternity of Cuiabá.

Method: Twenty patients participated in the research, aged 18 years or over and of both sexes. The Phonoaudiological Protocol for Risk Assessment for Dysphagia was used for data collection, by means of the swallowing test of water, soft foods, classification, degree of dysphagia and conduct. This study was submitted to and approved by the Research Ethics Committee under number 4,196,826.

Results: The participants in this study are on average 56 years old, 60% male, 55% from the interior of Mato Grosso and in relation to the proposed treatment, 100% of the participants were referred for neurosurgery.

Conclusion: The study contributed to the characterization of patients, of which 70% had the International Classification of Diseases D430 and 80% maintained normal swallowing in the postoperative period, with important findings regarding the functionality of swallowing and food safety of the sample.

MeSH terms: Deglutition Disorders, Deglutition, Central nervous system neoplasms. **Key words:** Swallowing disorders, Dysphagia, Neoplasms of the central nervous system.

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Glioblastoma and Palliative Care

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Background: Glioblastoma is a primary malignant tumor of the central nervous system with 12 to 15 month survival. Its prognosis, considering the initial diagnosis, equals to stage 4 of other types of cancer, being recommended to consider palliative care, with advanced care planning, at an early stage of the disease. Such care is complex due to the significant symptoms, being necessary to reduce the symptomatic charge to maintain the patient's quality of life. **Objective:** Analyze the early practice of palliation in patients with glioblastoma.

Methods: A literature review was carried out on the PubMed, BVS and Scielo platforms using the descriptors: "Glioblastoma" AND "Palliative Care." 7 articles were selected in the english language, published in the last 5 years.

Results: The quality of life of patients with glioblastoma gradually reduces. In that sense, cognitive decline compromises end-of-life care with relation to patient autonomy. However, antecipate guidelines were found completed late to the course of the disease, possibly after loss of decision-making capacity. Moreover, despite the proven benefits of palliation, early involvement of palliative care is rare in neuro- oncology, with the excessive use of chemotherapy among terminal patients.

Conclusions: The late practice of palliation and of early guidelines in patients with glioblastoma affect the management of symptoms and quality of life of those patients.

MeSH terms: Glioblastomas; Terminal Care; Palliative Care **Key words:** Brain neoplasms; Death; Hospice Care

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The relationship between apolipoprotein e4 and blood-brain barrier dysfunction in Alzheimer Disease

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Background: Alzheimer disease(AD) is a progressive neurodegenerative dysfunction with a cognitive deficit and amyloid-β(Aβ) accumulation. That said, the apolipoprotein E (ApoE) has 4 variants, with E4 being linked to decreased cerebral blood flow and fragile blood-brain barrier (BBB). In this way, the BBB has an important role in removing substances that are toxic to the brain such as βA protein.

Objective: Demonstrate the relationship of ApoE4 and BBB dysfunction in the pathophysiology of AD.

Methods: Bibliographic review using the CAPES journals portal, in the last 5 years.

Results: After analyzing the studies, it is inferred that in cases of homozygosity for ApoE4 in relation to ApoE3 there is a 15 fold increased chance of developing AD and 3 fold heterozygosity. It is concluded that the mechanism that probably explain is related to the secretion of ApoE by the pericytes that lining brain vessels in the BBB, whilst the subtype E4 exacerbates cyclophilinA, which promotes the activation of metalloproteinase-9, causing junctions rupture between adjacent endothelial cells, promoting the loss of βA homeostasis.

Conclusion: It can be inferred, that ApoE has great importance in the regulation of the integrity of BBB's integrity, is undeniable that such protein has a significant contribution in the pathophysiology of AD, hereupon, it's urgent that these studies need to be continued to develop new therapies in individuals who express ApoE4.

MeSH terms: Alzheimer Disease, apolipoprotein E4, Blood-Brain Barrier

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Congenital anomalies of the central nervous system: prevalence in a fetal medicine service in the Brazilian Midwest

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Introduction: Approximately 21% of congenital anomalies (CA) involve the Central Nervous System (CNS), constituting one of the most common birth defects, affecting 1 to 10: 1,000 of live births.
Objective: To analyze the prevalence of CNS anomalies diagnosed by obstetric ultrasound.
Methods: Prospective longitudinal cohort study carried out in a public fetal medicine service in Goiânia with pregnant women who were attended in high-risk prenatal care. The patients were followed up during the ultrasound exams from March 2018 to March 2019.
Results: 225 cases of pregnant women with ultrasound diagnoses of CA were surveyed during the investigated period. CNS anomalies were the most prevalent, being present in 34.22% (77/225) of the cases. The mean maternal age of pregnant women was 25.55 years and mean gestational age was 28.84 weeks. Hydrocephalus was identified in 23 pregnant women (29.87%), being the most prevalent CNS anomalie. Anencephaly was present in 24.68% (19/77) and holoprosencephaly in 18.18% (14/77). Other CA were also diagnosed (21/77), such as meningocele, spina bifida, acrania, among others. However, they showed a lower prevalence in relation to hydrocephalus, anencephaly and holoprosencephaly.
Conclusion: The findings are essential for the planning and allocation of hospital resources and investment in health. Besides that, to adequate and specific prenatal care, is indispensable in the search for reducing the incidence of these malformations, morbidity and improving survival rates of the affected population.

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Epidemiology of Cerebrovascular Disease Mortality in Brazil (1996-2015): temporal modeling using inflection point regression

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Background: cerebrovascular diseases (CVD) are the second leading cause of death in the world.
Objective: to analyze the trend of mortality from CVD in Brazil (1996-2015) and its association with the human development index (HDI) and the social vulnerability index (IVS).
Methods: this is an ecological study involving mortality rates standardized by CVDD. Death data were obtained from the Mortality Information System and population data from the Brazilian Institute of Geography and Statistics. For temporal analyzes, the inflection point regression model was used, with the annual percentage change (APC) and average annual percent change (AAPC), with a confidence interval of 95% and significance of 5%. The trends were classified as increasing, decreasing or stationary. The multivariate regression model was used to test the association between mortality from CVD, HDI and IVS.
Results: 1,850,811 deaths due to CVD were recorded in the studied period. There was a reduction in the national mortality rate (APC:-2.4; p=0.001). Twenty federative units showed significant trends, 13 of which were decreasing, including all from the Midwest (n=4), Southeast (n=4) and South (n=3) regions. The HDI had a positive association and the IVS, a negative association with mortality (p=0.046 and p=0.026, respectively).
Conclusion: the study showed an unequal epidemiological behavior of mortality among the regions, being higher in the states of the Southeast and South, but with a significant tendency to decrease, and lower in the states of the North and Northeast, but with a significant trend of growth. HDI and IVS were associated with mortality.

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Implication of COVID-19 in Guillain-Barre Syndrome: a systematic review

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Introduction: The SARS-CoV-2 virus, responsible for COVID-19, was declared in 2020 as a pandemic by the WHO. Due to the new scientific discoveries, correlations between SARS- CoV-2 and neurological manifestations were established. Among them, the Guillain-Barre Syndrome (GBS) is a concern, since it culminates in patient debility. The study has the relevance of knowing the impacts and complications of COVID 19 associated with GBS. In this context, the study presents the guiding question: What are the complications of Covid 19 with GBS?
Objectives: To review the literature, highlighting the relationship between COVID- 19 and neurological complications, mainly GBS.
Methodology: The study is a literature review, using the PubMed database. The descriptors "Guillain Barre" and "Covid 19" and "Complications" from the last year were used and 56 articles (free, of the type Books and documents; Clinical trial; Controlled and randomized testing; and Analysis) were selected.
Results: The studies have shown the existence of an association between GBS and SARS-CoV-2. GBS associated with Covid-19 resulted in manifestations such as facial weakness, limb paresthesia, pain and weakness in the extremities with areflexia. The onset time of neurological symptoms was 6.5 to 11 days after respiratory or systemic characteristics. The liquor is normocellular, hyperproteinorchy, absence of anti-ganglioside antibodies and no SARS-CoV-2 was detected in the sample, showing that there is no direct root infection or viral replication.
Conclusion: It is concluded that there are neurological complications associated with COVID- 19, emphasizing the GBS, which highlights the need for measures of initial interventions.

Key words: Guillain Barre; Covid-19; Neurology.

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Cost of hospitalizations for stroke in the elderly in Brazil, 2008-2019: a time series study.

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Background: Stroke is the second leading cause of death in the world, causing thousands of hospital admissions and whose morbidity and health care costs are high.
Objectives: To analyze the temporal behavior of hospitalization of elderly people due to stroke in Brazil, regions and Federation Units (UF), 2008- 2019.
Design and setting: Ecological study. The space units were Brazil, its regions and Federation Units.
Methods: Data were collected on the DATASUS online platform: number of admissions, number of Hospitalization Authorizations approved (AIH), total AIH value (R$), average AIH value (R$), and average value hospitalizations (R$). Was used the joinpoint regression model to calculate the Annual Percentage Change (APC) and the Average Annual Percent Change (AAPC) with 95% confidence interval and a 5% significance level.
Results: Approximately 1.4 million hospitalizations were identified in Brazil, with a total cost of R$ 1.6 billion reais and an average of 1.1 thousand reais. The Southeast region stood out in the number of hospitalizations (n = 574399; 42.1%), approved AIH (n = 574625; 42.1%) and total amount (R $ 677,444,257.54; 43.4%). Throughout the time series, the number of hospitalizations increased by 52.3% and the number of approved AIH increased by 52.4%. The mean values of hospitalizations and AIH increased, respectively, 55.4% (AAPC: 3.9; CI: 3.2; 4.5) and 55.3% (AAPC: 3.9; CI: 3, 2; 4.5), while the total value of hospitalizations increased by 134.9% (AAPC 8.0; CI: 6.9; 9.1).
Conclusions: There was an increase in variables related to hospitalization and stroke costs in the elderly in Brazil.

MeSH terms: Stroke, Epidemiology, Retrospective studies.
Key words: Stroke, Epidemiology, Retrospective studies.

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New pharmacological strategies for the treatment of alzheimer's disease

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Introduction: Alzheimer's disease (AD) is seen as the most important dementia, prevalent in the elderly over 60 years old. There is still no cure, and the pharmacological strategies are to delay the symptoms and development of the pathology. The pathophysiological mechanisms are: hyperphosphorylation of the tau protein and aggregation of amyloid-β. Update studies of the tested therapies target the main pathological mechanisms: accumulation of β amyloid (inhibitors and modulators of β-secretase and γ-secretase and active and passive anti-Aβ immunotherapies), tau protein (inhibition of abnormal hyperphosphorylation with GSK-3 inhibitors, passive and active immunotherapies and the use of intrathecal antisense oligonucleotides (ASOs) and correction of the ApoE protein (increase lipidation, correct structure, clearance of non-lipid ApoE and reduction of ApoE expression).
Objectives and methodology: To develop a bibliographic review in order to address new drugs in the treatment of Alzheimer's. Qualitative and descriptive study carried out by literary review with research on PubMed.
Results: Several drugs have been tested in clinical trials, however, due to lack of effectiveness, none have been approved. Therefore, it's important to understand the limitations of the tests developed as flaws in the methodology, insufficient understanding of the mechanisms involved and inclusion of patients in different stages of AD, so that future investigations can overcome these gaps.
Conclusion: It's important to investigate new pathophysiological mechanisms, as well as the factors that trigger AD. Diagnosis is essential, with further studies to identify new biomarkers of the disease that will also have an impact on the conduct of clinical trials.

MeSH terms: Alzheimer, Disease, Pharmaceuticals **Key words:** Cognitive, Hippocampus, Neurobehavioral

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The risks of sleep fragmentation on cognitive skills: a systematic review

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Background: The sleep fragmentation may conduct to breakdown in neutral networks, which tends to affect cognitive abilities or cognitive skills (CS) and bring notable deficits to the subject's typical neuronal functioning.
Objectives: Analyze the academic discussion of this theme and how this sleep deprivation can incapacitate the CS elemental to properly functioning circadian rhythm, as well as its multifactorial causes may be related to the subject's complaint.
Methods: To this article, it has been accomplished a systematic review on PubMed and Virtual Health Library database, using the descriptors "Sleep" and " Cognitive abilities", using articlesfrom the last two years. Nine articles were used to guide this study.
Results: It was possible to analyze that there are multifactorial complements related to sleep disturbance - neurodegenerative disorders, lack of sleep, prescription stimulants. The studies show that it is essential to elaborate a therapeutic plan, to define which CS is affected and what is going to be done about it, since the existing especifities may be present in neural correlates or in different CS, which makes indispensable the therapeutic plan.
Conclusion: After all, it is indispensable the continuity of studies that research affected neural correlates in front of sleep deprivation, in order to understand sleep dysregulation for cognitive skills and provide an effective therapy for society, which permeates, consequently, a better quality of life.

Descriptors: " Sleep"; "Cognitive disorders"; " Circadian Rhythm".
Key words: "Insomnia"; " Cognitive abilities"; "Sleep Disorders"; " Cognition".

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Chorea in a Non-Ketotic Hyperglycemic State: Case Report

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Context: Non-ketotic hyperglycemia is a rare cause of chorea. Clinical findings are usually unilateral and potentially reversible after treatment for hyperglycemia. Hyperglycemia leads to asymmetric multifocal petechial hemorrhages of the basal ganglia, leading to a dysfunction of neuronal networks that connect the basal ganglia and the motor cortical areas, mainly affecting the subthalamic nucleus and contralateral striatum, which is highlighted by typical hyperdense lesions of the basal ganglia in computed tomography (CT) of the brain. This study aimed to report a case of a patient with choreiform movements due to a rare etiology of hyperglycemia nonketotic in a Hospital Public of Joinville, SC. The study was carried out through the collection and analysis of a patient's medical record.
Case report: Female patient, 54 years old, who presented for 6 days choreiform movements in the face, left upper limb and, discreetly, in the left lower limb. Snake tongue sign and milkmaid's grip positive, without dysarthria. In the laboratory exam, glucose of 600 mg / dL; without further changes. Cranial tomography showed hyperdensity in the putamen region on the right. The treatment was started to obtain better glycemic control and Risperidone 3 mg / day.
Conclusions: It is concluded, then, that non-ketotic hyperglycemia is an uncommon, but reversible cause of chorea, and may manifest itself due to an uncontrolled non-ketotic diabetes mellitus. Its pathogenic mechanism remains to be clarified. In addition, clinical, epidemiological, imaging and laboratory findings, together, corroborate for early diagnosis and proper management.

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Non-motor clinical manifestations of Parkinson's disease and its relevance in early diagnosis

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Introduction: Parkinson's disease is a progressive neurodegenerative disease that affects millions of people worldwide. Although Parkinson's disease has traditionally been described as a disorder of the motor system, it is now recognized as a complex disease with several clinical features that include neuropsychiatric and non-motor manifestations. Studies show that 97% of patients with Parkinson's disease report non-motor symptoms, in addition to motor symptoms, and some non-motor characteristics may appear before classic motor signs.
Objectives: To list the main non-motor clinical manifestations of Parkinson's disease and analyze its importance in establishing an accurate and early clinical diagnosis.
Methods: This is an integrative review, carried out based on the search of scientific publications indexed in the datebase MEDLINE via PubMed, Lilacs and SciELO. At the end of the searches, 66 publications met the eligibility criteria and were selected to compose the study.
Results: Within the non-motor clinical manifestations, there may be present: cognitive dysfunction and dementia, psychosis and hallucinations, mood disorders, sleep disorders, fatigue, autonomic dysfunction, olfactory dysfunction, gastrointestinal dysfunction, pain, sensory disorders and dermatological manifestations. Of these, olfactory dysfunction, constipation, depression and sleep disorders stand out because they often precede the motor symptoms of Parkinson's disease.
Conclusion: In this perspective, it is up to the general practitioner and the neurologist or geriatrician to carry out, whenever possible, screening tests to identify early changes that may precede Parkinson's disease, guaranteeing patients an early multiprofessional treatment and consequently a better prognosis in the course of the disease.

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Efficacy of deep brain stimulation in the treatment of obsessive-compulsive disorder: a systematic review

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Backgroud: In cases of severe treatment refractory obsessive-compulsive disorder (OCD), neurosurgical therapy can be applied, in two possible ways: anterior capsulotomy (AC) or deep brain stimulation (DBS). **Objectives:** This study aims to clarify whether surgical intervention is able to reduce obsessions and compulsions, using the Yale-Brown obsessive-compulsive scale (Y-BOCS). Design and setting: we performed a systematic review of studies available in four databases from 2000 to 2020.
Methods: the serch was performed using variations of descriptors: "OCD", "DBS" and "anterior capsulotomy"; only studies that respect the eligibility criteria predefined were included.
Results: After online research, 9 eligible articles were identified, containing a total of 129 patients. Global Y-BOCS score reduction percentage was 47,81% and global responders percentage at 68,1%. The Y-BOCS reduction percentage by DBS was 43,18% and clinical response rate was 62,33%, with two remission cases. In comparison, AC led to a reduction of 52.25%; a response rate of 73.88% and 5 remission cases. The adverse effects seen were varied and depend on the type of procedure and each individual.
Conclusion: The data collected support the hypothesis that surgical intervention reduces the Y-BOCS scale and consequently the symptoms of OCD; it also generates a significant clinical response. DBS showed less clinical response and remission, but it has the advantage of being a reversible therapy and producing fewer adverse effects; but it does have some relative disadvantages in relation to AC, which may be overcome by technological advances.

Key words: DBS, OCD, systematic-review.
MeSH terms: Brain Stimulations, Deep Disorder, Obsessive-Compulsive Neurology

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Neurosciences and aging: determinants of healthy aging

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Introduction: Neuroscience is an area of knowledge that has been an important ally in the study, prevention and understanding of brain mechanisms and their influence on neurodegenerative diseases. In this tuning fork, the neuroscience of aging is concerned with studying important aspects in the life of the elderly, so that it becomes valuable to study the determinants of healthy aging. The present study aims to understand the aspects that involve healthy aging and how neuroscience can beneficially influence the aging process.
Method: This research is a bibliographic review, of a qualitative nature, where the analysis of articles and authors was sought in the Scielo, Pubmed, Redalic databases. The study is justified because population aging is a reality where there is a forecast that, in 2025, Brazil will be the sixth country in the world in population of people over 60 years of age.
Results: Through this study it was possible to understand that the determinants of health in aging are related to important factors such as the presence of diabetes, high blood pressure, the practice of regular physical activities, mental illness, healthy lifestyle, social interaction, leisure, and volunteer work.
Conclusion: Neuroscience demonstrates relevant advances, as it considers the brain's ability to restructure, recover damaged parts, develop and create new connections in aging. Knowing these factors can mean a long-term and quality- of-life future for the elderly with the prevention of diseases present in this phase of life.

Key words: Neuroscience; Aging; Brain.

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The cost-effectiveness of the treatment of acute ischemic stroke with the use of thrombolytics in Brazil

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Introduction: Ischemic stroke causes major impacts on morbidity and mortality and intravenous thrombolysis is one of the main treatments. However, it has important temporal limitations, which justifies the study of other techniques.
Objectives: Analyze the cost-effectiveness of treatments for acute stroke with the use of thrombolytics.
Methodology: Epidemiological study with data from the *Sistema de Informações Hospitalares do Ministério da Saúde*, between 2015 and 2020 in Brazil.
Results: There were 16488 hospitalizations, with an average cost of R$ 2687.70 (±379.40) and an average stay of 8.80 (±0.99) days. From 2015 to 2017, these values were, on average, 1829.67 (±917.46) hospitalizations, R$ 2715.50 (±190.86) and 9.80 (±1.62) days. Between 2018 and 2020, there are 3666.33 (±437.58), R$ 2773.22 (±108.86) and 8.13 (±0.29) days. The Northeast, Southeast and South of the country predominated with 36.09% (±0.73), 27.15% (±0.68) and 32.02% (±0.71) of occurrences, respectively. Average investments per hospitalization, for these regions, were R$ 2397.89 (±82.45), R$ 3178.29 (±38.89) and R$ 2806.16 (±56.33). As for the average stay, it was 7.30 (±1.11), 9.11 (±0.89) and 9.40 (±0.78) days. In public systems, 65.09% (±2.97) of registered treatments, the average cost was R$ 2815.09 (±122.34) and the average stay was 12.00 (±1.33) days. In private institutions these values were R$ 2747.14 (±98.13), and 8.90 (±0.92) days.
Conclusions: There were increases in hospitalizations and costs with a reduction in length of stay. In addition, there were pronounced disparities between the regions of the country and public and private systems, which undermine equity in the health system.

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Neurocryptococcosis in immunocompetent patient: Case report.

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Context: Cryptococcosis is a systemic fungal infection, which can affect the central nervous system, caused by fungi of the Cryptococcus complex, having as main representatives the species C. neoformans and C. gatti; despite the similarities, these species compose distinct pathologies from the clinical and epidemiological point of view.
Objective: To highlight possible diagnosis of cryptococcosis with inferior airway co-infection and CNS in order to elucidate early diagnosis and better clinical outcome.
Case Report: A 43-year-old man, healthy, sought emergency care for flu-like symptoms associated with headache. Chest X-ray was performed with findings compatible with pneumonia associated with a single pulmonary nodule on the right base. He evolved with fever, neck stiffness, tonic-clonic seizure and lowering of consciousness level. Magnetic Resonance imaging of the skull was performed with numerous parenchymatic lesions of cystic aspect, perilesional edema and gadolinium ring enhancement. Lumbar puncture with xanthochromic liquor, high opening pressure associated with pleocytosis and cryptococcus gatti growth in culture. The patient progresses with intracranial hypertension associated with cryptococcal meningitis refractory to serial cerequaric punctures with excessive liquoric emptying. Performed external ventricle bypass associated with pharmacological therapy with venous antifungals, without clinical improvement progressing with bacterial meningitis; neurologic intervention was performed with contralateral PVD, without success, with evolution to death.
Result: Dramatic evolution even with antibiotic optimization and neurosurgical procedures.
Conclusion: There are few case reports about the severity and lethality of c. gattii infections in immunocompetent patients.

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Epstein-Barr virus meningoencephalitis in a immunocompetent child

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Introduction: Meningoencephalitis caused by the Epstein-Barr virus (EBV) is a rare neurological entity, most often related to the latent reactivation of the

virus associated with immunosuppression. The clinic varies between encephalitis, meningitis, cerebellitis, neuritis and transverse myelitis. The prognosis is good, with 85% of patients returning to baseline levels.

Case report: We attend to a 11-month-old male patient, proper neuropsychomotor development, with reports of fever and odynophagia, without improvement with antibiotic therapy. He had a focal epileptic seizure. Upon admission, he presented a new similar event, with control after use of diazepam and intravenous phenobarbital. At the neurological examination carried out after improving the level of consciousness, the patient was alert. He presented axial hypotonia, dystonic posture in flexion of the right upper limb, with preserved strength. He showed no meningeal signs. The cerebrospinal fluid revealed 61 mg/dL of glucose, 57 mg/dL of proteins and 65/mm^3 of leukocytes (90% of lymphocytes). Acyclovir, ceftriaxone, and dexamethasone were started, with improvement. Magnetic resonance imaging revealed: FLAIR hyper signal injury, with diffusion restriction, in the left caudate nucleus, left lentiform and ipsilateral anterior midbrain region. Electroencephalogram with diffuse attenuation of baseline electrical activity. The main diagnostic hypothesis was meningoencephalitis secondary to EBV infection, with confirmatory PCR-DNA.

Conclusion: The report illustrates the need for attention to a rare infectious etiology in atypical presentation of meningoencephalitis.

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Teleregulation in Neurology: A decision-making process for neurology evaluation in a large Brazilian city

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Background: There is an increasing demand for neurological consultations. However, geographical and economic barriers and the long waiting lines limit the access. Teleregulation (TR), an asynchronous evaluation made by the neurologist, could optimize the need for presential evaluation.

Objectives: The aim of this study was to analyze TR for neurological referral of patients, regarding the information provided, the main reasons for consultation, and the teleneurologist's final decision.

Design and setting: Observational cross-sectional study in Complexo Hospital de Clínicas in Curitiba-PR.

Methods: The study selected neurological referrals for evaluation by TR between October 2018 and February 2020. The referrals who had incomplete information were excluded. The main variables analyzed were age, sex, reasons for TR, and final decision by the teleneurologist.

Results: Of the 1035 included referrals, 56% were women and the mean age was 50±19.6 years old. The main reasons for TR were therapeutic conduct (32%), diagnosis (31%), and test request (13%) and the main specific clinical reasons were headache (30%), epilepsy (19%), dementia (16%), cerebrovascular diseases (11%), and neuromuscular disorders (10%). More information was requested in 427 (41%) of the consults and no need for in-person consultation occurred in 713 (68%) of cases.

Conclusions: The main reasons for TR were management and diagnosis. The study showed that TR can reduce the need for presential assessment by a neurologist in more than two-thirds of cases. However, a great part of the consultations needed additional data. Thus, the optimization of the referrals could further improve this system, reducing its overhead.

MeSH terms: telemedicine, telehealth, primary health care, neurology

Key words: teleregulation, teleneurologist, teleneurology, outpatient care, remote consultation, teleconsulting

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The cost-effectiveness of investments made in the treatment of nervous system disorders in HIV patients in Brazil

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Introduction: Neurological manifestations in patients with the human immunodeficiency virus (HIV) occur from contamination to advanced levels of immunosuppression. In approximately 15% of cases, neurological complications are observed as initial manifestations and in about 85%, central nervous system involvement is detected.

Objectives: Analyze the cost-effectiveness of investments made in the treatment of nervous system disorders in HIV patients in Brazil.

Methodology: Epidemiological study with data from the *Sistema de Informações Hospitalares do Ministério da Saúde*, between 2011 and 2020 in Brazil.

Results: There were 16665 hospitalizations, with an average stay of 17.74 (±2.71) days, an average cost of R$ 1473.70 (±142.88) and a mortality rate of 14.23% (±2.23). The average costs, length of stay and mortality rate from 2011 to 2014 were R$ 1291.11 (±97.51), 18.83 (±0.52) days and 15.20% (±1.83). Between 2017 and 2020, R$ 1599.61 (±56.79), 16.85 (±0.62) days and 12.09% (±1.39). By region, there are 29.77% (±0.69), 11.60% (±0.49), 29.37% (±0.69), 19.57% (±0.60), 9.70% (±0.44) of the treatments in the North, Northeast, Southeast, South and Midwest, respectively. The average investment was higher in the Northeast, R$ 1754.26 (±76.54), and lower in the Midwest, R$ 1335.16 (±49.23). For these sites, mortality rates were 17.38% (±1.21) and 13.92% (±0.87), with mean stays of 21.90 (±2.30) and 13.81 (±1.86) days, respectively.

Conclusions: There was an increase in investments, a reduction in the mortality rate and average stay over the period. In addition, significant disparities were noted when comparing national regions, a fact that may be associated with deficiencies in infrastructure.

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The impact of child sexual violence on the neurobiological field: a literature review

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Molecular Neurology, neuronal patterns, child assault.

Introduction: Sexual violence during childhood and adolescence can impact on neurobiological development, since in this period the maturation of the brain occurs. This research aims to relate trumas as a result of abuse, and examines the lasting neurobiological and behavioral consequences.

Methods: Articles were researched in journals specialized in the area on Scielo, Pubmed, LLACs and Medline platforms, using publications between 2010 to 2020. The descriptors used were "sexual violence", "cellular neurobiology" and "child abuse". The articles were selected through the descriptors, publication period, portuguese or english works, number of citations and relevance of the work.
Results: The research prove that sexual violence in childhood has several consequences for neurobiological development. Cognitive aspects are damaged resulting in negative impact on intellgence, attention, sensory motor functioning, language, memory and, among others, as well as psychiatric symptoms, decrease sense of coherence and increased cortizol concentrations. Neuroimaging studies also show structural changes that can affect various areas of the brain such as the cortex and reduce myelination.
Conclusion: All tipes of violence or trauma has consequences, mainly when they are sexual, since brain areas such as the hippocampus, corpus callosum, prefrontal cortex and the anterior cingulate cortex suffer evident changes detected by neuroimaging, having far reaching negative effects to the growth and development of these children.

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Integrative review, XIII Paulista Congress of Neurology, May 2021; São Paulo (SP). Efficacy of cannabidiol in improving the quality of life of Parkinson´s Patient; ITPAC-Palmas (TO); 2021

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Introduction: Parkinson's disease (PD) is a neurodegenerative disease, caused by an imbalance between the inhibitory action of dopamine and the excitatory action of acetylcholine due to dopamine restriction, characterized by motor and non-motor symptoms. The phytocannabinoid cannabidiol (CBD) may be effective for the treatment of symptoms in PD, offering better quality of life. **Objectives:** To verify the evidence for the efficacy of cannabidiol in the treatment of patients with PD about the improvement of quality of life. To analyze its applicability in controlling involuntary movements in PD patients.
Methods: A search in the databases LILACS, BIREME, SCIELO, SCIENCE, EBSCO, PUBMED, using the bibliographic research method, and by means of integrative review. The descriptor cannabidiol was associated with the words: therapeutic use, parkinsonism, and quality of life. The selection included articles published between 2000 and 2020, in Portuguese, English and German languages.
Results: Therapeutic effects of cannabidiol were promising in PD, such as neuroprotective action, reduction of motor symptoms, cognitive and quality of life improvement with few relevant adverse effects. Among the 16 articles, 8 demonstrate an improvement in symptoms and the others cite improvement in psychiatric and cognitive symptoms, thus reflecting that cannabidiol is a promising for quality of life improvement.
Conclusion: Although cannabidiol has shown efficacy in the therapy of Parkinson's patients in clinical and preclinical studies, there is still a need for further studies and investigations on the therapeutic effects of this compound. Thus, cannabidiol may become a first choice treatment for PD, promote patients and families a better living with the disease, and positive reflexes.

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Fahr's Syndrome: A Case Report

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Context: Fahr's syndrome is a clinical entity of primary or secondary causes characterized by neurological and/or psychiatric symptoms associated with abnormal calcifications in basal ganglia, cerebellum and cerebral cortex.
Case report: G.M.A, female, 49 years-old, presented athetosis in the distal extremity of the right upper limb (RUL) in December 2020, without seeking for medical help. Known to be diabetic, hypertensive and with diastolic heart failure (HF), in February 2021 she presented decompensated HF associated with worsening of involuntary movements in the RUL. During investigation, abnormalities in serum levels of parathormone (PTH) and calcium were observed, in addition to bilateral calcifications in basal ganglia and thalamus in brain computed tomography (CT) without contrast. In March 2021, she was admitted to the University Hospital of the Federal University of Piauí, with maintenance of athetosis at the distal extremity of the RUL, in addition to oromandibular dyskinesia. Laboratory profile compatible with primary hypoparathyroidism and new brain CT without contrast with calcifications in basal ganglia and pulvinar of the thalamus, bilaterally, were confirmed. Intravenous calcium replacement and use of calcitriol were performed, with partial clinical improvement.
Conclusions: Fahr's syndrome is characterized by the presence of movement disorders (with highlights for parkinsonism and athetosis) and psychiatric symptoms (depression most commonly). Possible etiologies are primary (genetic) and secondary (mainly idiopathic or secondary hypoparathyroidism). Classic finding of symmetrical calcifications in base nuclei is seen on brain CT. Treatment is symptomatic and control of the underlying disease.

MeSH terms: Fahr's disease, Basal Ganglia Diseases, Calcinosis
Author's **Key words:** Hypothyroidism, Athetosis, Movement Disorders

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L-dopa: main drug induced dyskinesia

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Introduction: 3,4-dihydroxy-L-phenylalanine (L-dopa) is the gold standard drug for the treatment of Parkinson's disease (PD). This disease causes degeneration of dopaminergic cells, L-dopa supplies the lack of dopamine, being effective in its treatment. The average time for the onset of this hyperkinetic disorder is usually 6.5 years and the young age at the beginning of the disease. This pathology may present with chorea, dystonia, myoclonus and stereotypes. Diskinesia-inducing L-dopa (LID) remains one of the most challenging unmet needs in the treatment of PD and other neurodegenerative diseases.
Methodology: This is an integrative review, using the MedLine, Cochrane and PubMed databases with the descriptors "drug induced", "dyskinesia" and "L- dopa". Articles published in the last 10 years; in English; clinical trial articles and original articles were included.

Results: The prevalence for the development of LID was 50% for those who started PD at 40-59 years of age, compared to 16% at 70 years of age. The incidence of LID is about 90% after 9 years, but the main cause is related to the dose of levodopa and the duration of the disease. The risk factors for the development of LID are modifiable (levoodopa dose and body weight) and non- modifiable (age, sex, duration, progress and severity of the disease).
Conclusion: With this, it can be concluded that doctors who deal with PD need to be aware of the risk factors for LID and know how to manage it.

MeSH terms: levodopa, dyskinesia, drug induced.
Key words: dopamine, Parkinson, chorea, risk factors.

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Hospitalization and deaths from ischemic and hemorrhagic stroke in adults in Brazil in the last 10 years

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Background: The cerebrovascular accident (CVA) is an obstruction or rupture of brain irrigating vessels, causing reduction of the tecidual oxigenation, which may result in after-effects and death.
Objectives: To analyze the number of hospitalizations and deaths from ischemic and hemorrhagic CVA in Brazil in the last decade.
Design and setting: Transversal descriptive epidemiological study based in Brazil.
Methods: Study based on DATASUS data, from February 2011 to February 2021.
Results: Brazil registered 417.950 hospitalizations, of which
19.493 occurred in the North region, 86.626 in the North East, 205.356 in the Southeast, 85.201 in the South and 21.274 in the Midwest. The 60 to 79 age registered 213.255 hospitalizations; the 40 to 59, 99.993; the 80 or more, 88.184; and the 20 to 39, 16.518. The male gender registered 216.454 hospitalizations; the female, 201.496. The deaths registered 64.552, of which 3.111 happened in the North region, 13.483 in the North East, 33.455 in the Southeast, 11.119 in the South and 3.384 in the Midwest. The 80 above age range represented 19.803 deaths; the 60 to 79, 18.339; the 40 to 59, 11.867; and the 20 to 39, 1.543. The male gender registered 32.336 cases; the female, 32.216. **Conclusions:** Brazil had an anual average of 41.795 hospitalizations and 6.455,2 deaths due to stroke in last decade. The South region showed the highest incidence of hospitalizations (0,28%), while the North had the lowest (0,10%). The lethality of the disease was similar in all regions (15%), except for the South, with a 13% lethality.

MeSH terms: cerebrovascular disorder, cerebrovascular stroke, hospitalizations.
Author Key words: hemorrhagic CVA, ischemic CVA, brazilian regions, age comparison.

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Evaluation of procedures for treating polyneuropathy in the state of São Paulo for 13 years

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Background: Polyneuropathy is the simultaneous dysfunction of several peripheral nerves that normally occurs as a result of diabetes.
Objectives: To analyze the current panorama of treatment of polyneuropathies performed in the State of São Paulo and to correlate with the epidemiology.
Methods: literature review and observational, descriptive and transversal data collect on treatment of polyneuropathies, available at DATASUS from January 2008 to December 2020, assessing the number of hospitalizations, the amount of public spending, complexity, mortality rate, deaths, permanence and character of service, and articles available in Scielo, Lilacs and PubMed.
Results: There were 19,099 hospitalizations for polyneuropathy treatment procedures with a total expense of R$ 21,870,767.84, with 2014 being the year with the highest number of hospitalizations (1,740) and with the highest amount spent (R$ 2,034,880.25) . Of the total procedures, 3,732 were carried out on an elective basis and 15,362 in urgency, with 5,774 in the public sector and 6,396 in the private sector. All 19,099 considered to be of medium complexity. The total mortality rate was 1.63, corresponding to 312 deaths, with 2020 being the year with the highest mortality rate, 2.42, while 2014 had the lowest rate, 1.26. The mortality rate for elective procedures was 0.38 compared to 1.94 for urgent procedures, whereas in the public sector it was 1.25 compared to 1.77 for the private sector. The average total hospital stay was 9.3 days, with an average cost of R$ 1,145.13.
Conclusion: Polyneuropathy is a disease that has a low mortality rate.

MeSH terms: Polyneuropathies; health expenditures; epidemiology.

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Use of metoclopramide associated with the risk of developing extrapyramidal symptoms: a literature review

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Background: Parkinsonism is an extrapyramidal syndrome characterized by the presence of tremor, akinesia and stiffness. Metoclopramide is a substance with antiemetic properties, and the mechanism of action is an antagonism of the dopamine D2 receptor. Thus, it presents adverse effects, such as dyskinesia, dystonia, hypertonia and tremor. Accordingly, studies associate the use of metoclopramide with an increased risk of developing extrapyramidal effects.

Objectives: The aimed is describe the association between the use of metoclopramide and the risk of developing extrapyramidal symptoms.
Methods: A literature review was carried out based on articles from the PubMed database, totaling 10 articles. The keywords used for the selection of articles were: metoclopramide, extrapyramidal and parkinsonism.
Results: A case study noted that the use of metoclopramide leads to a dopamine deficiency, which may be involved in the etiology of parkinsonism, as a patient already diagnosed with Parkinson's disease developed an exacerbation after using metoclopramide. Another study showed that the use of metoclopramide in the elderly population was considered a risk factor for adverse effects such as involuntary movements. A cohort study described a positive association between the use of oral metoclopramide and an increased risk of developing parkinsonism, considered as an important side effect in high-exposure, older users and with other morbidities.
Conclusions: Therefore, it was evident that an association between metoclopramide and the development of extrapyramidal symptoms is strongly indicated by the studies analyzed, which suggests caution in the prescription of this pharmacological class.

MeSH terms: metoclopramide, parkinsonian disorders, extrapyramidal tracts, adverse effects
Key words: antiemetic, tremor, akinesia, stiffness

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Overview of the conservative treatment of light grain cranioencephalic traumatism in the state of São Paulo

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Background: The traumatic brain injury is one of the main causes of mortality and disability in the world.
Objectives: To analyze the current panorama of conservative treatment procedures for mild traumatic brain injury performed in the State of São Paulo and correlate with the current epidemiology.
Methods: Literature review and observational, descriptive and transversal data collect on conservative treatment of mild grade traumatic brain injury, available at DATASUS from January 2008 to December 2020 and articles from Scielo, Lilacs and PubMed.
Results: There were 150,743 hospitalizations for the conservative treatment of mild traumatic brain injury, being considered of medium complexity. They represent a total expenditure of R$ 64,098,819.38, with 2010 being the year with the highest number of hospitalizations (14,153) and 2011 being the year with the highest amount spent during the period (R$ 5,522,391.52). Of the total procedures, 1,744 are elective and 112,805 are urgent. In the public sector, 53,820 were carried out and 45,050 in the private sector. The total mortality rate was 1.60, corresponding to 2,413 deaths, with 2008 being the year with the highest mortality rate, 2.20 and 2016 had the lowest rate, 1.18. The mortality rate for elective procedures was 1.89 compared to 1.71 for urgent procedures, whereas in the public sector it was 1.73 compared to 1.58 for the private sector. The average total hospital stay was 2.4 days, with an average cost of R$ 425.22. **Conclusion:** The conservative treatment of traumatic brain injury has a low hospital stay and average cost.

MeSH terms: Traumatic brain injury; Conservative treatment; Epidemiology.

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Profile conservative treatment of cranioencephalic traumatism medium degree in the state of São Paulo

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Background: The traumatic brain injury has a great impact on neurological emergencies.
Objectives: To analyze the current panorama of conservative treatment procedures for mid-level traumatic brain injury performed in the State of São Paulo and to correlate with the current epidemiology.
Methods: Literature review and observational, descriptive and transversal data collect on conservative treatment data for medium grade traumatic brain injury, available at DATASUS from January 2008 to December 2020 and articles available at Scielo, Lilacs and PubMed.
Results: There were 63,218 hospitalizations for conservative treatment procedures in this period, accounting for R$ 68,668,413.92, with 2011 being the year with the highest number of hospitalizations (5,262), although 2020 with the greatest expenditure (R$ 5,984,875.09). 1,149 of them were elective, while 47,478 were urgent, with the occurrence of 24,527 in the public sector and 13,705 in the private sector. All 63,218 considered to be of medium complexity. The total mortality rate was 9.69, corresponding to 6,125 deaths, with 2009 being the year with the highest mortality rate, 10.34, while 2011 had the lowest rate, 9.14. The mortality rate for elective procedures was 6.44 compared to 9.89 for urgent procedures, whereas in the public sector it was 10.80 compared to 7.63 for the private sector. The average total hospital stay was 7.7 days, with an average cost of R$ 1,086.22.
Conclusion: Medium grade traumatic brain injury has a short period of in-hospital stay and a higher number of admissions and mortality rates in emergency care and in the public sector.

MeSH terms: Traumatic brain injury; epidemiology; hospitalization.

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Serological screening for syphilis in non-compressive spinal injuries

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Background: Syphilis is an infectious disease that can present systemic symptoms during its progression, reaching the central nervous system, causing neurosyphilis, combined include involvement of the meninges and spinal cord.
Objectives: to review information on meningomyelitis in patients with positive syphilis serology, assessing the need for serological screening for syphilis knowledge and the importance of the clinician for an accurate diagnosis, preventing major sequelae or fatalities
Methods: We analyzed 14 clinical cases of syphilitic myelitis from January 2000 to January 2021. Documents were resolved to determine clinical issues, apparent symptoms, radiological findings, penal treatment and complications.

Results: 85.7% suffered from chronic myelopathy and 14.3% revealed subacute transverse myelitis. The most common clinical condition of chronic myelopathy was tabes dorsalis, present in 50%, afterwards it was syphilitic meningomyelite, present in 33.3%.
Conclusion: Syphilitic myelitis is a rare condition, but there are studies that prove an increase in cases of myelopathy in patients with positive syphilis serology. The condition manifests itself with weakness of the lower limbs, sensory disturbance and urinary and fecal incontinence, in addition to long spinal cord injuries and abnormal enhancement, predominantly in the superficial parts of the spinal cord, in imaging exams. There is a differential diagnosis with multiple pathologies, such as intramedullary tumors, herniated intervertebral disc, myelopathy caused by HIV, among others. Therefore, it is important to know the signs and symptoms and an approach to serological screening for syphilis in patients with neurological disorders and non-compressive medical injuries

MeSH terms: Syphilitic Meningomyelitides, Myelosyphilis, Tabetic Neurosyphilis
Key words: chronic myelopathy, neuroinfection, neurosyphilis

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Conservative treatment of rachimedular trauma: a state epidemiological analysis

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Background: Spinal cord injury is a major cause of mortality worldwide and is highly relevant in the context of neurological emergencies.
Objectives: To analyze the current panorama of conservative treatment procedures for spinal trauma performed in the State of São Paulo and to correlate the current epidemiology with the results obtained.
Methods: Literature review and observational, descriptive and transversal data collect on treatment for spinal trauma, available at DATASUS from January 2008 to December 2020 and articles available in Scielo, Lilacs and PubMed.
Results: There were 11,402 hospitalizations for the performance of conservative treatment procedures for spinal trauma with a total expenditure of R$ 13,422,685.10, with 2013 being the year with the highest number of hospitalizations (1,031) and the highest amount spent during the period (R$ 1,216. 410.34). 234 procedures were performed on an elective basis and 8,129 on an urgent basis, with 2,921 occurring in the public sector and 4,215 in the private sector. All 11,402 considered highly complex. The total mortality rate was 4.99 (569 deaths), with 2017 being the year with the highest mortality rate, 5.95, while 2011 had the lowest rate, 3.51. The mortality rate for elective procedures was 6.84 compared to 5.19 for urgent procedures, whereas in the public sector it was 5.31 compared to 4.34 for the private sector. The average total hospital stay was 8.8 days, with an average cost of R$ 1,177.22.
Conclusion: The conservative treatment of spinal trauma presents a predominance of emergency care, with a low average cost of hospitalization.

MeSH terms: Spinal cord injury; Hospitalizations; Epidemiology.

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Treatment procedures for uncontrolled epileptic seizures in the state of São Paulo, Brazil: an overview

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Background: epileptic seizures are treated with antiepileptics; nevertheless, about 30% of these patients do not present complete control with only drug therapy.
Objectives: to describe the overview of treatment procedures for uncontrolled epileptic seizures in the state of São Paulo, correlating it with current epidemiology.
Methods: observational, descriptive, and transversal data collect on treatment procedures for uncontrolled epileptic seizures, available on DATASUS website, from January 2008 up to December 2020, taking in account: number of hospitalizations, public health expenditures, complexity, mortality rate, deaths, hospital stay, and service character.
Results: there were 131,397 hospitalizations for treatment procedures in this period, accounting for R$97,412,992.73, with 2008 the year with the greatest number of hospitalizations (12,041) and 2020 with the greatest expenditure (R$10,065,826.67). 7,091 of them were elective, while 124,290 were urgent. 45,307 were carried out in public care and 38,154 in private one. All of them were considered medium complexity. Mortality rate was 2.76%, corresponding to 3,621 deaths, with 2020 the year with the greatest mortality (3.67%) and 2008 with the lowest (2.21%). Mortality rate was lower in elective procedures (0.83 versus 2.87 in urgent ones) and when carried out in public sector (2.40 versus 2.55 in private care). Average stay was 5.4 days and average cost per hospital stay was R$741.36.
Conclusion: treatment procedures for uncontrolled epileptic seizures are classified as medium complexity, most of which being urgent. Higher mortality rate was observed in urgent cases and private health care.

MeSH terms: hospitalization; health expenditures; epidemiology; emergencies; neurology.

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Lambert-Eaton Myasthenic Syndrome in Brazil: a single center experience

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Introduction: Lambert-Eaton Myasthenic Syndrome (LEMS) is an ultrarare autoimmune disorder of neuromuscular junction characterized by proximal muscle weakness, arreflexia and autonomic dysfunction due to presynaptic dysfunction caused by autoantibodies against the P/Q-type voltage-

gated calcium channel with diminished release of acetylcholine. LEMS can occurs as a primary autoimmune disorder or as paraneoplastic disorder with more than half of LEMS cases associated with small cell lung cancer.
Objectives: The main objective of this study is described clinical, epidemiological, serological, and neurophysiological findings of a Brazilian cohort with definitive diagnosis of Lambert-Eaton Myasthenic Syndrome (LEMS). Results We identified eight patients with definitive LEMS with a 2:1 male/female prevalence, all present with proximal muscle weakness with lower limb predominance and the most common autonomic dysfunction were xeropthalmia in 100% of patients, orthostatic hypotension presented in 6 of 9 patients and erectile dysfunction in all male patients.
Conclusions: LEMS should always be suspected in patients with proximal muscle weakness associated with autonomic dysfunction and in this Brazilian cohort most cases were seronegative and do not have correlation with small-cell lung cancer in contrast with the current knowledge of disease.

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Oculogyric Crisis in a patient with PURA Syndrome

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Context: PURA syndrome is a neurodevelopmental disorder characterized by neonatal hypotonia, delayed psychomotor development, early-onset feeding difficulties and an epileptic encephalopathy.
Case Report: A 3-month-old Brazilian boy presented with severe neonatal hypotonia associated with feeding difficulties due to serious dysphagia requiring nasoenteral tube feeding. Excessive drowsiness, poor social interaction and repetitive episodes of involuntary abnormal upward eye movements and ocular version with short duration were also reported by parents. Neurological examination revealed severe axial and upper limb hypotonia, orofacial dyskinetic movements and episodes of abnormal eye movements with upward ocular deviation with less than 30 seconds in duration compatible with oculogyric crisis. It was performed Whole-Exome sequencing and it was identified a new pathogenic variant in PURA gene that establisehd the final diagnosis of PURA Syndrome or Autosomal Dominant Mental Retardation type 31, MDR 31 (OMIM #616158).
Conclusions: PURA Syndrome emerges as one of the major differential diagnoses of neonatal hypotonia and in addition, we can consider the early manifestation of oculogyric crisis as a phenotypic expansion of the syndrome, making its diagnosis even more challenging, since epileptic encephalopathies and neurotransmitter deficiency-related diseases present with a similar clinical course.

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Overview of hospital admissions for migraine and other cephalic pain syndromes in Brazil and regions, 2015 to 2019

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INTRODUCTION: Headache is defined as a pain in the cephalic segment, and is the fourth cause of demand for emergency care. In Brazil, 98% of women and 95% of men will suffer some episode during their lives. It causes physical, social, labor, and economic damage, and is the third leading cause of years lived with disability. Thus, it is relevant to investigate hospital admissions for migraine and other cephalic pain syndromes.
OBJECTIVES: To analyze hospital morbidity due to migraine and other cephalic pain syndromes in Brazil between 2015 and 2019.
METHODS: Epidemiological, retrospective, descriptive study, carried out through the Hospital Information System (DATASUS). Variables: sex, ethnicity, age, hospital stay, costs and deaths.
RESULTS: Registered 49,508 hospitalizations for migraine and other cephalic pain syndromes from 2015-2019; predominantly women (65.7%), between 20-39 years (37.3%), 40-59 years (29.4%), which occurred mainly in the Southeast (33.1%) and South (23.6%) regions. The average cost per hospitalization was R$ 421.50. The mean hospital stay was 3.9 days, ranging from 3.1 days in the South to 4.8 days in the Northeast, with no differences between genders. There were 384 deaths, of which 56.3% were women.
CONCLUSION: The morbidity profile due to cephalic pain syndromes is composed of women, aged 20-39 years, living in the Southeast region. It is important to intensify investments in prevention, diagnosis and treatment, seeking to reduce hospitalizations, the impact on the health system and to improve the patient's quality of life.

MeSH terms: hospitalizations; neurological manifestations; headache disorders.
Key words: epidemiologic; migraine; morbidity.

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Mortality and hospital stay due to stroke in elderly people in Brazil (2008-2019): a time series study

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Background: Stroke is the second leading cause of mortality worldwide, being preceded only by ischemic heart diseases, 85% of these deaths occur in developing countries.

Objective: To analyze the temporal behavior of elderly mortality due to stroke in Brazil, regions and federation units from 2008 to 2019.
Methods: Ecological study of time series using Brazil, its regions and federation units as units of analysis. The following categories were collected on the DATASUS online platform :, :, i) length of stay, ii) average length of stay (days), iii) number of deaths, and hospital mortality rate from 2008 to 2019 for Brazil, regions and federative units. In the analyzes, the inflection point regression model was used, the 95% confidence interval and the significance level of 5% (joinpoint regression model) were adopted and the annual percentage change (Annual Percent Change - APC) was calculated. and the entire period (Average Annual Percent Change - AAPC).
Results: As for Brazil, there was an average of 7.5 days per hospital stay and a hospital mortality rate corresponding to 16.6%. Among the regions, the highest gross numbers were evidenced in the Southeast with 4427093 days of stay, 7.73 days on average of stay and 99753 deaths. A decrease was observed only in the hospital mortality rate in the South (AAPC: -1.3 CI: -1.9 to -0.7), Southeast (AAPC: -1.3 CI: -1.7 to -0.9) and Northeast (AAPC: -0.7 CI: -1.4 to -0.0) and the average hospital stay for the Southeast (AAPC: -0.7 CI: -1.3 to -0.1).
Conclusion: There was a heterogeneous behavior of the variables related to the mortality of elderly people due to stroke in Brazil, in parallel to the stationary behavior of the average hospitalization observed in the regions and units of the federation with the exception of the Southeast, which showed a decrease in the average days spent in study period.

Key words: stroke, epidemiology, temporal analysis.

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Red Ear Syndrome: um relato de caso sobre uma síndrome rara associada a cefaleia

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Context: The Red Ear Syndrome" (RES) is a rare condition characterized by ear hyperemia associated with burning pain. This syndrome is classified into secondary and idiopathic forms, which pathophysiological mechanisms are still unclear. Idiopathic forms occur isolated or associated with primary headaches and secondary forms are associated to cervical disorders. The aim of this study is to report a case of RES related to migraine, the new published cases make this syndrome earn more attention and investigation.
Case report: A 31-year-old woman presented with acute pain, edema and marked erythema, occasionally accompanied by hyperhidrosis and local burning. These episodes occurred spontaneously or were induced by triggers. During attacks, cooling was the only means of relief. The patient reported a clear association between RES and some migraine attacks. Extensive laboratory and radiological investigation showed no abnormalities.
Conclusions: RES is mainly determined by sudden or induced attacks of burning pain and redness in the ear. Attacks can last from minutes to hours in conjunction with primary headaches. The uncertainty about the etiology of this syndrome is an obstacle to treatment.

MeSH terms: Rare Diseases; Headache; Migraine Disorders.
Key words: Red ear syndrome; Headache; Migraine,

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Neurocognitive impairment post-COVID-19: a review

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Background: COVID-19 is an infectious disease caused by SARS-CoV-2, a neurotropic virus. Although its main manifestations are respiratory, neurological complaints associated with COVID-19 are growing. Important cognitive impairments have been shown during and after the acute illness.
Objectives: To review post-COVID-19's neurocognitive deficits.
Design and Setting: Review of the literature.
Methods: The PubMed database was used with the descriptors "COVID-19" and "neurocognition", finding 94 articles. Only articles with participants without previous cognitive or psychiatric disorders were included, 7 review articles and 5 cohort studies being selected.
Results: All of the reviewed articles demonstrated cognitive impairment in post-COVID-19 patients, including patients without cognitive complaints. Headache, dysgeusia, diarrhea and use of oxygen during acute COVID were related to lower scores on global cognition tests. Severe Acute Respiratory Syndrome (SARS) was associated with a higher risk of cognitive impairment both at hospital discharge and 1 year after, mainly in working memory, processing speed, executive functions and attention. Post-SARS imaging exams showed atrophy and loss of brain volume. The mechanisms of CNS injury in COVID-19 are not completely understood, but systemic hypoxia, associated with important viremia and the massive release of cytokines, has an important role in a picture of toxic encephalopathy and destruction of nervous tissue.
Conclusion: There is evidence of neurocognitive impairments as a result of COVID-19, however studies on the mechanisms of occurrence and severity of deficits are scarce. Further studies are needed to identify predictors and develop prevention strategies.

MeSH terms: Cognitive Dysfunction; COVID-19; SARS-CoV-2.
Key words: Neurology; Pandemics; Coronavirus infections.

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Creutzfeldt-Jakob Disease - a literature review

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Background: Creutzfeldt-Jakob disease (CJD) is a progressive, rare, fatal and rapid human neurodegenerative disease that occurs in the etiologies: sporadic (CJD), familial, iatrogenic (CJD) and CJD variant (CJV) in which cell prion protein (PrP) can be transmitted through animals.

Objectives: Literature review about Creutzfeldt-Jakob diseaseDesign and setting: Literature review development in the Centro Universitário de Volta Redonda, Rio de Janeiro, Brazil.
Methods: The Creutzfeldt-Jakob disease, infectious diseases and neuroinfection indexes were used in the PUBMED and Scielo databases.
Results:CJD has different etiologies with different clinical and pathological phenotypes. CJDV shows psychiatric behaviors and symptoms followed by abnormalities, ataxia and dementia. The sporadic form is the most common, with a progressive clinical course with generalized brain deposition of abnormal prion protein aggregates (PrPTSE) that leads to spongiform change, gliosis and neuronal loss. CJD progresses to dementia and two or more symptoms: cerebellar or visual impairments; pyramidal or extrapyramidal signs; myoclonus; and akinetic mutism. Complex periods of acute wave in the electroencephalogram (EEG) are strongly suggestive of prionic diseases. Rapidly evolving field neuroimmune disorders have shown an increasing in autoantibody testing; attempt to diagnose a range of immune-mediated conditions. Evidence indicates that diffusion-weighted magnetic resonance imaging (DWI) is more sensitive for detecting signal abnormalities.
Conclusion: The disease progresses to dementia, accompanied by myoclonus, pyramidal signs and characteristic EEG. It is a complex pathology, which has only symptomatic treatment and requires strict control of reservoirs and risk of contamination.

MeSH terms: Ataxia; Bovine spongiform; Neurodegenerative diseases.
Key words: Creutzfeldt-Jakob disease; Infectious diseases; Neuroinfection.

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Neurosyphilis causing stroke in young adult: a case report

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Introduction: Up to 10% of strokes affect people under 45 years old. Syphilis is most common in adults. Fourteen percent of neurosyphilis cases have stroke its first manifestation.
Objectives: To discuss neurosyphilis as an overlooked etiology for stroke.
Design and setting: The case occurred in a public secondary care hospital located in São Paulo - Brazil.
Methods: We present a case report of a 28-year-old woman brought to the emergency department due to acute ataxia. Previous history shows stroke at the age of 20 years old. Brain MRI showed ischemia in both cerebellar hemispheres, pons and midbrain. Arterial angiography showed segmental basilar artery stenosis. Serum laboratory tests showed Venereal Disease Research Laboratory (VDRL) of 1:128. Cerebrospinal fluid (CSF) analysis showed 117 cells (predominantly lymphomononuclear), protein 81 mg/dl, normal glucose and VDRL of 1:8, confirming neurosyphilis. Treatment with intravenous penicillin led to partial improvement in ataxia before discharge.
Discusion: A high percentage (up to 80%) of diagnostical errors is expected when stroke is caused by neurosyphilis. Misdiagnosis may compromise secondary prevention. It is possible that the first stroke was also caused by neurosyphilis in our patient. The involvement of the vertebrobasilar territory occurs in 25% of patients with meningovascular neurosyphilis. Basilar stenosis is typical for neurosyphilis.
Conclusion: Stroke in young adults should include VDRL to screen for neurosyphilis. If positive, it should indicate a CSF exam.

MeSH terms: Neurosyphilis; neurosyphilis, juvenile; acute stroke.

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The Efficacy of Deep Brain Stimulation in Parkinson's Disease Treatment: A Systematic Review

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Background: Deep brain stimulation (DBS) is a promising adjuvant therapy for Parkinson's disease (PD) in intermediate and advanced states, improving motor symptoms and life quality.
Objectives: To investigate the efficacy of DBS in PD treatment. Design and Setting: Systematic review performed on medical school in Brazil.
Methods: A literature review in the MedLine database was conducted using the following descriptors: "Deep Brain Stimulation", "Parkinson's Disease" and its variations according to MeSH. Only randomized controlled trials conducted in humans and published in English in the last 10 years were included. The PRISMA statement was used to improve this systematic review's findings.
Results: Three clinical trials that evaluated the effects of DBS in PD's management were analysed. The main result measurement tools used in the studies were the PDQ-39-SI and UPDRS-III scores. Hacked ML et al. (2018) concluded that drug therapy + DBS was significantly superior to isolated drug therapy ($p<0.0002$). Schuepbach WMM et al. (2019) found that the experimental group presented significantly better outcomes in comparison to the control group ($p<0,05$). Birchall EL et al. (2016) suggested that the DBS device implant in the subthalamic nucleus caused significant improvement in depressive symptoms, motor symptoms, quality of sleep ($p<0.0001$) and quality of life ($p=0.0005$) in comparison to the control group.
Conclusions: DBS has shown to be an efficient therapy for PD, once it promoted better outcomes regarding motor symptoms, depression, quality of life and quality of sleep. However, it is necessary to be aware of eventual side effects in the post-operative period.
Key words: Deep Brain Stimulation; Subthalamic Nucleus; Parkinson Disease.

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Duchenne Muscular Dystrophy - Case Report

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Context: Duchenne Muscular Dystrophy (DMD) is an inherited recessive disease linked to the X chromosome, it is a progressive neuromuscular disease most prevalent in the world, affecting 1/3600 male births. It is associated with mutations that lead to loss of dystrophin protein expression, loss of severe muscle, respiratory and cardiac failure. At birth, the signs are generally nonspecific. At 3 years of age there is the appearance of specific changes, starting with muscle weakness, which occurs in an ascending, symmetrical and bilateral manner, becoming evident at around 5 years of age, with difficulty walking, jumping and running, in addition to frequent falls. The disease progresses with cardiorespiratory failure, leading to death between 18 and 25 years.
Case Report: Male, 3 years old, with frequent falls, difficulty climbing stairs and rising from the floor, even with support, medical guidance for expectant conduct. At 5 years, clinical worsening, investigation of the condition, changes alteration in the creatinophosphokinase test (8918 U / L), suggesting a hypothesis of Muscular Dystrophy. Karyotype performed, with revelation of genetic changes compatible with DMD. Family heredogram, showing a brother without traits for DMD and a mother with an allele for the disease. The patient evolved with progressive loss of motor functions, reaching inability to move around at 9 years of age and the appearance of cardiac changes - left ventricular systolic dysfunction and extrasystoles. Currently, the patient presents marked movement restriction and undergoes palliative treatment.
Conclusions: A DMD relies only on palliative therapy, the recognition of the initial clinical manifestations is essential for its investigation, diagnosis and early treatment, enabling improvement in quality and life expectancy.

Mesh-Terms: Duchenne Muscular Dystrophy - Dystrophin - Muscular Dystrophy.
Key words: Neuromuscular - Disease linked to the X chromosome - Muscle degeneration.

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Impact of the Covid-19 pandemic on compulsory notifications of meningitis in Brazil

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Background: Meningitis is a disease considered endemic in Brazil and is included in the national list of compulsory notification diseases. The present study analyzed the impacts of the pandemic triggered by COVID-19 on compulsory notification of meningitis in Brazil in 2020.
Methods: This is an ecological, quantitative and descriptive study. The data were collected from the DATASUS Diseases and Notification Information System (SINAN), referring to the period from 2015 to 2020, from January to August of each year. The variables analyzed were the region / unit of the notification federation and the month of notification, with the information divided into two groups: general population and children under 15 years old. The values were subjected to statisticals analysis of the P-score.
Results: In Brazil 10,634 notifications of meningitis were expected in 2020. However, only 4,712 cases were reported. With the exception of Roraima, all states had a negative P- score in the two groups investigated: Rondônia had a greater discrepancy between the observed and expected values (-100%), as no notification records for the year 2020 were found; the P-score of Roraima was positive, with an increase of 22.8% in addition to the predicted notifications. Regarding the regions, the Southeast presented -56.8% of the predicted notifications, the South -55.9%, the Midwest -50.3%, the North -52.5% and the Northeast -54.2 %.
Conclusion: The study showed a negative impact on meningitis notifications in Brazil, in all regions and in all states, except in Roraima.

MeSH terms: Meningitis, pandemic, neuroscience
Key words: Covid-19, notifications, impact, diseases

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Opsoclonus-myoclonus syndrome in pedriatic patient from Campo Grande (MS): case report

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Context: Opsoclonys-myoclonus syndrome (OMS) is a rare neurologic disorder characterized by acute or chronic subcortical myoclonus and cerebellar ataxia at 6 months to 3 years-old children with rates of incidence expressed as 0.18 per 1.000.000 person- year. With nonspecific physiopathology, the only definitive finding is an elevated lymphocyte and positive B-cells count on the cerebrospinal fluid (≥11 cels/mm^3) along with 50 to 93% cases reported from the National Pedriatric Myoclun Center (1989-2013) presenting oligoclonal bands. The diagnosis is established by clinical evaluation with exclusion criteria based on the presence of structural central nervous system damage and the aggressive treatment includes immunomodulatory therapy for behavior and cognitive stabilization.
Case report: This paper aims to describe a case of a 1-year-old premature pediatrician patient presenting OMS in the absence of fetus distress due to pre- eclampsia condition with long-term hospitalization. After hypotonia, psychomotor agitation and vomit episodes, the patient was referred to Campo Grande (MS) where worsened to globus myoclonus, opsoclonus and nystagmus after 25 days of hospitalization, symptomatology responsive to Propranolol 10mg a day with regression of the clinical and neurological condition.
Conclusion: Although OMS is a rare condition with variable prognosis, children appear to respond to pharmacological and non-pharmacological treatment improving the quality of life.

Key words: myoclonus; opsoclonus; ocular motility disorders; propranol.

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Tau protein and its role in Alzheimer's disease physiopathology: a literature review

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Background: Alzheimer's disease (AD) is a neurodegenerative disorder characterized by a double proteinopathy: deposition of amyloid-β into plaques and hyperphosphorylation of Tau protein.
Objectives: To understand the genetic and molecular aspects of Tau protein and its relationship with Alzheimer's disease.
Methods: We conducted a systematic literature search using Pubmed/MEDLINE and ClinicalKey databases, applying the descriptors: "*Alzheimer Disease*" AND "*Tau proteins*" AND *Tauopathies*, during July and August of 2020. The inclusion criteria were English and Portuguese articles published between 2015 and 2020, with human limited study and free full text, excluding images, books, clinical tests, and narrative reviews. After analyzing titles and abstracts, we selected 12 articles and included 7 additional studies.
Results: *Mapt*, the encoder gene of Tau, is located in the 17q21.3 locus and presents 16 exons that, when transcripted, originates 12 copies of mRNA by alternative splicing and 6 Tau's isoforms. Tau is a microtubule-associated protein (MAP) responsible for cellular cytoskeleton stabilization and maintenance, promoting neuronal axonal transport. A kinase-phosphatase imbalance turns Tau hyperphosphorylated, disassociating it from tubulin and grouping it into insoluble paired helical filaments, which originates neurofibrillary tangles. The tauopathy's progress causes neurotransmitter destabilization and neuronal death, inducing AD symptomatic manifestations.
Conclusions: Due to the gradual worsening of the disease to more debilitating stages, studies focused on deepening the knowledge of genetic and molecular aspects of Tau protein are viable and promising alternatives to improve the quality of patient's lives.

MeSH terms: Alzheimer Disease. Tau proteins. Tauopathies.
Key words: Hyperphosphorylation. Neurodegenerative disorder. Neuropathology.

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Meninge inflammatory myofibroblastic tumor: rare case report and literature review

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Context: Inflammatory myofibroblastic tumor (IMT), also known as inflammatory pseudotumor or plasma cell granuloma is a benign tumor of mesenchymal origin that can occur in different anatomical locations, but is more common in the lung and liver, being rare in the central nervous system (CNS). The main challenge when finding this type of tumor in meninges is to make the differential diagnosis with metastatic neoplastic infiltration, granulomatous and infectious diseases. The ideal treatment is complete surgical resection, not requiring other complementary therapies due to its benign behavior.
Case report: This work brings the case report of a 22-year-old young man who search medical attention due to headache and after extensive investigation presented the diagnosis of myofibroblastic tumor of the meninges.
Conclusion: A comprehensive review of the literature on this type of tumor was carried out in this location, but with very few cases and papers written to date.

Key words: Inflammatory myofibroblastic tumor (IMT), Myofibroblastic Tumor, Meninge, Inflammatory Pseudotumor, headache, central nervous system (CNS).

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Hemifacial spasm caused by posterior fossa arachnoid cyst: Case Report

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Context: Hemifacial spasm (HFS) is characterized by continuous or intermittent spasmodic movements at the facial nerve motor territory.1,2,3 It mainly affects middle- aged adults and usually occurs by compression of the facial nerve by anomalous vascular loops of the anteroinferior and vertebral cerebellar artery.2,3,4,5 The arachnoid cyst at the cerebellopontine angle (CPA) is an rare cause of HFS, especially in children.
Case report: A six-year-old female patient started presenting at 18 months HFS on the right side. She was initially treated with anticonvulsant without improvement. The patient came to our care at the age of six presenting 2-3 HFS per day and remissions lasting 3-4 weeks. Image exams reveled a CPA arachnoid cyst compressing the VII and VIII nerves complex. Surgical drainage of the cyst was performed as the treatment of choice. In postoperative period, the patient presented remission of HFS, and cranial tomography showed a decrease in cyst volume. In three months, there was remission of the signs without use of any medications.
Conclusions: There was no report of arachnoid cyst in CPA as a cause of HFS in children. HFS occurs probably by chronic irritation, since birth, because of the contact of arachnoid cyst in the emergence of the VII and VIII nerves complex in the PCA. Therefore, treatment was chosen according to the cause of HFS. Movement disorder as a clinical manifestation of the cyst is rare, especially in pediatric population, and should be considered as one of the diagnostic hypotheses.

MeSH terms: Hemifacial Spasm; Arachnoid Cysts; Facial Nerve Diseases.
Key words: Neurosurgery; Movement Disorders; Cerebellopontine angle; Child; Pediatrics.

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The impact of Covid-19 on hospitalizations and deaths due to stroke: a comparison between the regions of Brazil

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Background: Stroke is the second leading cause of death in the world and in Brazil. During the Corona Virus pandemic, patients may have been neglecting stroke symptoms, inducing a drop in the search for medical assistance.
Objectives: Analyze the prevalence of hospitalizations and deaths due to stroke in Brazil during the COVID-19 pandemic compared to the previous year.
Design and setting: Transversal, descriptive Epidemiologic study between the years of 2019 and 2020 in Brazil.
Methods: Study realized using data from the Department of Information of the Brazilian Health System (DATASUS).
Results: There were 163.120 hospitalizations for stroke in the year of 2019, and in the year of 2020 this number had a decrease of approximately 6%. In 2019, Household deaths due to unspecified Cardiovascular Diseases had 85 records. In 2020, there was an increase of 7% in home deaths due to unspecified Cardiovascular Diseases.
Conclusion: There is a decrease in notifications of hospitalizations and deaths in Brazil due to unspecified stroke during the year of the pandemic. It is also noticed, during this period, an increase in home deaths due to unspecified Cardiovascular Diseases, of which stroke is a prominent cause. This fact suggests interference of the pandemic in the search for medical care.

MeSH terms: Stroke, COVID-19, Disease, Pandemic.
Palavras – chave: Acidente Vascular Cerebral, SUS, Transversal.

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Parkinson's disease hospital admissions in the last decade: a parallel between ages in the Southeast of Brazil

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Background: Parkinson's is a neurodegenerative and progressive disease, with an unknown origin that can lead to functional incapacity and decreased quality of life.
Objectives: Analyze the number of hospital admissions for Parkinson's Disease in the Southeast of Brazil.
Design and setting: Transversal, descriptive Epidemiologic study between the years of 2011 and 2020 in the Southeast of Brazil.
Methods: Study realized using data from the Department of Information of the Brazilian Health System (DATASUS). The variables researched were hospital admissions, age, and year.
Results: In the Southeast region, in the determined period, there was an average of 405 hospital admissions per year, an average growth of 4% between the years of 2011 and 2019. However, in 2020, there was a 30% decrease compared to the previous year. It was also observed that in the gap ages between 40 to 49 and 50 to 59 years old, there was a significant increase in the number of hospital admissions. In addition, the age gap between 50 to 80 or more represents an average of 90.88% of all the hospital admissions of the last decade.
Conclusion: In the Southeast of Brazil, Parkinson's Disease had a noticeable absolute reduction of the total admissions analyzed in the last year and a deviation in the average growth of the other years, meaning a possible relation with the COVID-19 pandemic.

MeSH terms: Parkinson, Disease, Pandemic
Palavras – chave: SUS, Epidemiológico, Transversal.

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Possible association of stroke with higher whole blood viscosity: study in a high altitude (Cusco 3399 masl)

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Background. Risk factors for stroke have been extensively studied, however, few studies have been carried out in high-altitude cities.
Objectives. To evaluate the difference in blood viscosity, using direct methods, in stroke patients versus patients without stroke to discover any possible association.
Design and setting. A cross-sectional study was carried out in the city of Cusco, Peru (3399 m.a.s.l).

Methods: Participants included stroke patients with less than three days of illness and controls without stroke. Viscosity levels were measured in all patients using a cone-plate viscometer. Blood viscosity was evaluated at 10, 20, 30 and 40 revolutions per minute (RPM) because blood is considered a non-Newtonian fluid. Plasma viscosity was evaluated at 100RPM. All viscosity units are expressed as means standard deviations (SD) in centipoises (cP).
Results: A total of 204 patients were included (61 cases/143 controls). The mean age was 67.5 (SD:15.9), and 88 (43%) were women. The means of blood viscosity for 10, 20, 30RPM in the stroke cases were 5.85cP (SD:1.21), 5.22cP (SD:1.09), and 4.91cP (SD:1.02), and 4.81cP (SD:1.02) respectively. For the controls were of 5.57cP (SD:1.19), 4.89cP (SD:4.85), 4.63cP (SD:0.97), 4.56cP (SD:0.95), respectively. All measured means were tested with significant differences (p <0.01). Plasma viscosities were 1.43cP (SD:0.17) for the stroke cases and 1.49cP (SD:0.23) for controls (p=0.05).
Conclusions: This study found that blood viscosity is 0.3cP higher in stroke patients. This suggests that blood viscosity could play a role in the etiology. The results presented are preliminary and the study is still under development.

Mesh Terms. *Altitude, Blood Viscosity, Stroke*
Palavras-chave. *Doença cerebral, Etiologia, Fluido não newtoniano*

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Nefroneural syndrome as a result of poisoning by diethylene glycol

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Introduction: Diethylene glycol is a clear, hygroscopic, odorless and toxic liquid for humans. It is widely available in the industry, being widely used in the production of antifreeze, lubricants, cosmetics and plasticizers. Poisoning by ingesting this substance leads patients to an early neurological syndrome consisting of drunkenness, ataxia and, if severe, seizures and coma.
Objectives: To review the central aspects of diethylene glycol intoxication, its toxic dynamics and the development of nephroneural syndrome.
Methods: A literature review compiled from searches for articles in the PubMed and Medline databases was performed using the descriptors Dietilenoglicol; Ácido 2-hidroxietoxiacético; Toxicidade Renal; Álcoois tóxicos.
Results: After ingestion, diethylene glycol is rapidly absorbed and distributed in the body. Metabolism occurs in the liver and the excretion of both the substance and its metabolite 2-hydroxyethoxyacetic acid (HEAA) is renal. HEAA is primarily responsible for kidney and neurological damage, which result in severe nephroneural syndrome, initially characterized by gastrointestinal changes, such as nausea, vomiting and abdominal pain, followed by metabolic acidosis and emerging kidney injury. After 72 hours of intoxication, damage to the optic nerve, functional deficit of cranial nerves, tetraparesis and peripheral neuropathy can occur, which can lead the patient to death or permanent disability. HEAA causes damage to renal and nerve cells to varying degrees depending on the amount of substance ingested or the susceptibility of the intoxicated patient.
Conclusion: Early diagnosis and proper patient management, in addition to good industry practices, are essential for the eradication of this intoxication.

MeSH terms: Diethylene Glycol; Alcoholic Intoxication; Syndrome
Key words: Dietilenoglicol; Ácido 2-hidroxietoxiacético; Toxicidade Renal; Álcoois tóxicos

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Guillain-barré syndrome (GBS): acute motor axonal neuropathy (AMAN) - case report

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Background: GBS is an acute inflammatory polyneuropathy resulting from an immune response after infection. Characterized as an ascetic, progressive, self-limiting flaccid tetraparesis. It has several phenotypic presentations, which one is AMAN. The treatment's based on use of intravenous immunoglobulin (IGIV) and plasmapheresis (PLEX).
Methods: A literature review of the PubMed and UpToDate databases using descriptors "GBS" and "AMAN" between 2014-2020.
Objectives: Report a case of GBS, addressing AMAN variant; a literature review with therapeutic and diagnostic possibilities.
Case report: DTS, 32y, male, admitted with a picture of flaccid, limp asymmetrical tetraparesis, with an asymmetrical pattern, predominant in lower limbs, without sensory symptoms. Progressive evolution, onset of motor symptoms on the 8th day after self-limited diarrhea. CSF on 3rd day of onset of motor symptoms without dissociation cytological protein - CN: 62 / Ptn: 80.1mg / dl. Repeated CSF on the 10th day with CN: 27 / Ptn: 215 mg / dl. electroneuromyography 16/04: electrophysiological examination shows motor neuropathy of axonal pattern with signs of denervation in activity, findings compatible with axonal neuropathy. IGIV was performed for 5 days, without complications.
Results: The diagnosis of GBS is based on CSF clinical criteria and findings on electroneuromyography. AMAN is a phenotypic variant characterized by purely motor and axonal impairment. The therapeutic options proven effectiveness are PLEX, and IGIV.
Conclusion: Studies demonstrates that there's no difference in effectiveness between PLEX and IGIV, the choice of treatment being dependent on socioeconomic and patient-related factors.

MeSH terms: "Polyneuritis", "Neuropathies", "Syndromes"
Key words: " Autoimmune", "Demyelinating", "Polyradiculoneuropathy"

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Sciatic schwannoma: rare case report

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Introduction: Schwannoma is the most common benign tumor of the peripheral nerve sheath. They appear in the sheath of the nervous fascicle and are well-defined masses, which allow their dissection of the underlying neural bundle. Sciatic nerve involvement is rare, accounting for less than 1%.
Case report: Male, 83. He has had sciatica on the left for 10 months. With progression of pain, VAS of 9 and difficulty to walk for 1 month after admission. On physical examination, a positive tinel sign in the left gluteal region with tactile perception of nodular lesion in sciatic nerve topography. Preserved and discrete hypoesthesia strength in left sciatic nerve territory. MRI shows nodular

lesion, suggestive of neural sheath tumor. Undergoing a surgical procedure for excision of the lesion. Total resection of the lesion was performed with no changes in monitoring potential. The patient was discharged from the hospital the next day, with a VAS of 0, with no other complaints and pain control.
Discussion: Schwannomas have a long subclinical course, their clinical presentation is usually misleading. The referred patient started with sciatica, with painful progression to VAS 9. The diagnoses of sciatic nerve schwannomas are made with MRI. The definitive diagnosis is possible after the histopathological study. The treatment of this tumor is by massive excision and preservation of the nerve.
Conclusion: Studies regarding sciatic nerve Schwannoma are scarce. There is a need for further studies on the case, to train health professionals to recognize and effectively treat the pathology.

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Autoimmune diseases associated with inflammatory demyelinating diseases of the central nervous system – a cross sectional study

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Background: The most prevalent autoimmune diseases (AID) of the Central Nervous System (CNS) are Multiple Sclerosis (MS) and Neuromyelitis Optica Spectrum Disorder (NMOSD), both being demyelinating diseases. Recent studies show that patients with CNS demyelinating diseases have a higher risk of presenting associated diagnosis of another AIDs.
Objectives: The present study aimed to evaluate the frequency of autoimmune comorbidities and autoantibodies in patients with MS and NMOSD.
Design and setting: Were analyzed the medical records of 126 patients with MS or NMOSD, from the Demyelinating Diseases Outpatient Clinic in the Neurological and Psychiatric Unit in the Complexo Hospital de Clinicas da Universidade Federal do Parana (CHC-UFPR), taking in consideration the presence of AIDs and autoantibodies.
Methods: The variables were organized in a Microsoft® Office Excel spreadsheet for statistical analysis.
Results: Of the 126 analyzed cases, 111 (88%) corresponded to MS and 15 (12%) to NMOSD. From the total, at least one AID was associated in 11 patients (8.7%), six of which were diagnosed with MS and five with NMOSD ($p<0.05$). Regarding autoantibodies, there were 21 cases (16.7%) in which antinuclear antibodies (ANA) were present, and 12 cases (9.5%) in which autoantibodies other than ANA were present ($p<0.05$).
Conclusions: The results of the study showed a higher frequency of AIDs in patients with CNS demyelinating diseases compared to the normal population. The results found in this study may contribute to improve the treatment and follow-up of patients with CNS demyelinating diseases, so that the concomitance of other AIDs is considered by the clinician.

MeSH terms: Demyelinating Autoimmune Diseases; Comorbidity; Antibodies, Antinuclear.
Key words: Demyelinating disease. Central nervous system. Autoimmune disease. Multiple sclerosis. Neuromyelitis Optica Spectrum Disorder. Autoantibodies.

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Case Report: Reversible Cerebral Vasoconstriction Syndrome in a cancer patient using ZoladexTM

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Context: The Reversible Cerebral Vasoconstriction Syndrome (SVCR) is characterized by rapid and reversible vasoconstriction and segmental dilation of cerebral arteries, usually preceded by thunderclap headache. The involvement of second and third-order branches of the cerebral arteries is the most commom finding in a cerebral angiography. This report is about a SVCR case with atypical involvement, significantly compromising extracranial vessels and raising the hypothesis of association between the use of hormonal blocker gosserelin acetate (ZoladexTM) with SVCR.
Case report: Female, 39 years old, with breast cancer and bone metastasis using ZoladexTM that presented with a sudden headache and vomiting, progressing to global afasia and paresis in the right upper limb. Magnetic resonance identified hyperacute intraparenchymal hematoma in left frontoparietal convexity and subarachnoid haemorrhage. Cerebral angiography showed irregularities in the distal branches (M3 and M4) of the middle cerebral arteries, as well as in the superficial temporal artery, characterized by focal strictures.
Conclusion: Studies show that hormonal fluctuations in the postpartum period can trigger SVCR due to the drop in estrogen and progesterone (gonadotropins). During postpartum, the stimulus of breastfeeding increases prolactin levels leading to GnRH suppression, which decreases the level of gonadotropins. ZoladexTM is a GnRH analogue and its chronic administration results in suppression of these hormones - similar to the postpartum period. Therefore, there may be an association of hormonal blockers with SVCR.

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Clinical prognosis of Charles Bonnet Syndrome: A review of Integrative Literature

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Background: Charles Bonnet syndrome (CBS) is defined by repetitive experiences of visual hallucinations. This classically affects the elderly with visual impairment, intact cognition and the absence of psychiatric illness. Hallucinations remain indefinitely and can be static, dynamic, elementary or complex, colored or in black and white, centrally or peripherally.
Objectives: To analyze the scientific information available on the clinical aspects of CBS.

Methods: A bibliographic review was carried out in the PubMed database, in the last 10 years, using the descriptors "Charles Bonnet Syndrome", "Hallucinations" and "Prognosis", associated with the Boolean operator "AND". English and Portuguese were included, inconclusive studies were excluded, with biases or duplicates, whose approaches did not indicate an outcome in the syndrome, selecting 12 articles.
Results: It was observed that there is no consensus on the pathophysiology and age range of CBS involvement, which varies between 70 and 80. The incidence is up to 1.4%. As for the prognosis, one of the articles pointed to the presence of hallucinations between 7 and 18 months, these varying in complexity, frequency and impact on patients' lives. Diagnosis is made by exclusion, emphasizing the benign character, assertive diagnosis and effective treatment are essential factors for the mild evolution of the disorder.
Conclusion: As it is considered a rare disease, it is rarely addressed in the literature and, therefore, new studies are desirable, in order to demystify the condition and ensure an appropriate approach to patients.

MeSH terms: Charles Bonnet Syndrome; Hallucinations; Perceptual Disorders
Key words: Vision Disorders; Visual Hallucinations, Nervous System Diseases

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Taxa de morbidade por transtornos mentais e comportamentais devido ao abuso de álcool no Brasil nos anos de 2010 a 2020

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Introduction: Alcohol consumption in Brazil portrays a major economic, social, and health challenge. There is no single solution to this complex problem. However, over the years, the morbidity rate for mental and behavioral disorders due to alcohol abuse has been reducing, in absolute values, throughout Brazil.
Objective: To compare morbidity rates for mental and behavioral disorders due to alcohol abuse in Brazil from 2010 to 2020, in view of the implementation of public policies aimed at reducing alcohol consumption in contrast to the pandemic resulting from the COVID-19 declared by the World Health Organization (WHO) in 2020.
Methodology: This was a cross-sectional observational study of aggregate data collected from the SUS Hospital Information System (SIH-SUS) by the SUS Department of Informatics (DATASUS), where the morbidity rate for mental and behavioral disorders due to alcohol abuse in Brazil from 2010 to 2020 was observed. The Kolmogorov-Smirnov test was performed for further adjustment as to parametric or nonparametric group comparison tests. A linear regression in the 11 years surveyed was also performed to assess the reduction of the morbidity rate in the Brazilian territory in this period.
Results: In the linear regression from 2010 to 2020, across Brazil, there was evidence of a reduction in the morbidity rate for mental and behavioral disorders due to alcohol abuse, with the following **Results:** β=-2767.706; R2=0.964; p<0.001.
Conclusion: Therefore, it can be seen that, according to the study, there was a decrease in the mortality rate for mental and behavioral disorders due to alcohol abuse. It is hypothesized that the political implementations that defined guidelines and goals for attention to this disease possibly influenced the final result of the study.

Mesh: mental disorders, behavior, alcohol.
Palavras chaves do autor: Abuso, morbidade, transtorno comportamental.

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Neurodegeneration with cerebral iron accumulation: a case report

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Introduction: NBIA is a rare disease, with a prevalence of 1/1,000,000.It is characterized by abnormal iron accumulation. Clinical findings may include progressive extrapyramidal disorders, involvement of the pyramidal, peripheral, autonomic nervous systems, superior cortical, visual and cerebellar functions. The diagnosis is made through the association of clinical findings and complementary exams. Currently, the treatment is only symptomatic, with no specific therapy.
Case report: 5-year-old female, reporting involuntary movements and difficulty walking a day ago. Presented agitation and delayed neuropsychomotor development, seen since 1 year of age. On examination, dysarthria, dystonia and parkinsonian stiffness were observed. MRI of the brain showed the radiological signal "tiger's eye" and the ophthalmological evaluation showed retinal dystrophy. Positive acanthocyte screening. NBIA's NGS panel confirmed the diagnosis. Triexfenid was started and there was an improvement in movement disorders. In outpatient follow-up, the symptoms worsened. Levodopa was associated with the return of walking without support and ability to pick up objects.
Discussion: In this case, Triexafenid 2mg/day was initially prescribed, with a slight improvement in movement disorders. Levodopa was started with the aim of improving symptoms of parkinsonian stiffness. The excellent response to the association of the drug in low doses stands out, enabling ambulation and functionality for daily activities.
Conclusion: NBIA is a rare disease, with rapid onset and progression. Studies show limited benefits of levodopa in the case of PKAN. We emphasize significant clinical improvement, with a return to walking after administration of the drug.

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Spondylodiscitis and early diagnosis: a case report

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Context: Spondylodiscitis is a term that includes vertebral osteomyelitis, spondylitis and discitis. Among the vertebrae, the most affected are the lumbar (45%), followed by the thoracic (35%). Adults present themselves progressively, with a predominant complaint of low back pain and pain on palpation of the affected site, with significant limitation of movement due to muscle spasms. Report a clinical case with an emphasis on the possibility of early diagnosis and correct treatment aimed at the recovery of patients with neurological sequelae. Analysis of medical records in a patient admitted to the neurology ward of Santa Casa de Belo Horizonte.
Clinical Case report: A.I.S. patient, 45 years old, with chronic low back pain due to asymmetry of the left lower limb. History of wear of the femoral head diagnosed in adolescence. Evolving for 2 months with progressive weakness

in the lower limbs, associated with paresis and paresis in the left lower limb. He performed abdominal USG which showed hepatosplenomegaly with collateral circulation, increased caliber of the portal, splenic and superior mesenteric veins. Tomography of the lumbosacral spine with osteolytic lesions in the joints of L2-L3, L3-L4 and L4-L5., With almost total osteolysis of the L4 vertebral body, retropulsion of much later at this level, suggesting spondylodiscitis. The resonance of the lumbar spine performed with acute spondylodiscitis L2-L3 and L3-L4, compressing the roots of the equine tail with a comprehensive potential, remains as the emerging emerging roots. Liquid filling of the L3-L4 intervebral disc compatible with acute spondylodiscitis. Staphylococcus aureus and enterobacteria are responsible for more than half of the cases of non-tuberculosis.

Conclusion: The diagnosis of discitis can be quite difficult, due to the rarity of the disease, the insidious symptoms and the high prevalence of low back pain in the general population. It is considered an important morbidity factor, as it causes an important neurological sequel. In addition, it points to the importance of differential diagnosis of low back pain in the population.

Key words: spinal neuroinfection, discitis, spondylodiscitis

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Association between obstructive sleep apnea and ischemic stroke etiology

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Introduction: Stroke is a potentially disabling event, therefore determining its etiology is the key in the development of management strategies to reduce the risk of a new event and costs. Obstructive sleep apnea (OSA) is common in stroke and is an independent risk factor. The objective of this study was to determine the association between the etiology of ischemic stroke and the presence of OSA.

Methods: Observational, descriptive, patients with ischemic stroke or acute transient ischemic attack (TIA) in the Hospital Memorial São José and Hospital Esperança Recife-PE for one year, the etiology of stroke was categorized by TOAST classification and portable polysomnography for diagnosis of OSA.

Results: 100 patients analyzed, 81 ischemic strokes and 19 TIA. The prevalence OSA (AHI≥15) was 51%. The mean age of the sample was 67.9±14.6 years, with older OSA patients (70.0±14.2 vs 65.6±14.7, p=0.128). There was a higher occurrence of females, DM, dyslipidemia and previous ictus in patients with OSA (p=0.052 /0.008 /0.055 /0.018, respectively). BMI was 27.22±4.3kg/m^2 in patients without OSA and 28.05±3.8kg/m^2 among patients with OSA. There was no association between the etiological subtype of ictus and the presence of OSA (p=0.698).

Conclusions: Our study included an elderly population with a higher frequency of dyslipidemia, DM and previous ictus in patients with OSA, but it was not possible to establish a relationship between the etiology of the stroke and the presence of OSA.

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Charcot arthropathy in the elbow caused by hydrosiringomyelia

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Introduction: Syringomyelia is a chronic disease of the spinal cord that leads to damage to nerve fibers in the spinothalamic tract. The changes in these structures responsible for the thermal and painful sensitivity lead to an abnormal innervation of the joints, which can lead to neuropathic arthropathy, called Charcot arthropathy. Syringomyelia is the main cause of Charcot arthropathy in the upper limbs, and the most involving joints are the shoulder and elbow. It is a rare condition and its recognition allows for early diagnosis and proper management.

Case report: A 50-year-old female patient, with a previous history of spinal cord trauma, who has been in a wheelchair since then, started with edema in the left upper limb, mainly in the elbow, evolved with local ulcer and presence of serosanguinolent secretion, weakness and paresthesia in the left hand. Magnetic resonance imaging of the elbow showed signs of neuroarthropathy and the study of the thoracic cervical spine showed enlargement of the cerebrospinal fluid space and tapering of the spinal cord.

Conclusions: Charcot's arthropathy should be considered as a differential diagnosis of pain, edema and limitation of joint movements. When present in the upper limbs, an investigation should be carried out to exclude syringomyelia.

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Traumatic brain injury from ground level fall in the elderly: a systematic review

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Background: Traumatic Brain Injury (TBI) is an anatomical or functional injury that affects the skull or brain and other associated structures. When analyzing the occurrence of TBI in the geriatric population, Ground Level Fall (GLF) is the main mechanism of trauma.

Objectives: To understand the scenario of TBI from GLF in the elderly, characterizing it, in order to point out associated factors and its consequences.

Desing and setting: Systematic review at the University of Pernambuco in Recife city.

Methods: This is a systematic review of articles indexed in the MEDLINE/Pubmed, LILACS, BDENF and BINACIS databases and two other works from Google Scholar in April 2021. Original articles in Portuguese and English that met the objectives of this review and were published in the last ten years (2011-2021) were included.

Results: Four articles were included. The mean age of elderly who developed TBI from GLF was around 80 years, with a higher prevalence in females. In ad-

dition, it was observed that most victims already had associated comorbidities and medications, such as anticoagulants, antiplatelet agents and antiarrhythmic agents. Patients had an average length of hospital stay from 2 to 7.7 days. Limbs and Face injuries were observed.

Conclusions: TBI from GLF in the elderly is frequent and even though the length of hospital stay and deaths related to this trauma were low, physical and psychological consequences are also associated to this injury.

Clinical Trial or Systematic Review Registration: 254698, https://www.crd.york.ac.uk/prospero/

MeSH terms: Traumatic Brain Injuries; Elderly; Accidental Injuries; Falls.
Key words: Older adults, head injury, same-level falls.

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Association between HIV infection and neurocognitive disorders: a review

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Background: HIV-associated neurocognitive disorders (HAND) are characterized by impairment in at least two cognitive domains with a prevalence of up to 50% in people living with HIV (PLHIV). HAND is subdivided into asymptomatic neurocognitive impairment (ANI), mild neurocognitive disorder (MND) and HIV-associated dementia (HAD).

Objectives: Demonstrate the impact of HAND and possible pathogenic mechanisms by relating them to the prevalence of subtypes

Design and Setting: Review of the literature.

Methods: Review made from PubMed with the descriptors "neurocognitive disorder", "HIV", "review". Twelve articles were selected, among systematic reviews and meta-analysis published since 2017.

Results: Before Highly Active Antiretroviral Therapy (HAART) HAD cases had a higher prevalence, probably due to the high viral load causing intense brain inflammation. Today the percentage of HAD has decreased, but the cases of ANI and MND continue to increase. HAART increases life expectancy and reduces viral load, but it may be related to the increase in ANI / MND associated with early brain aging and mild inflammatory processes resulting from primary infection.

Conclusions: HAND is a concern for its impact on the quality of life and life expectancy of PLHIV. Therefore, neuropsychological assessment is an important tool for early diagnosis and disease management. The change in prevalence of different HAND subtypes raises doubts about the pathogenesis of these conditions and further studies are needed to elucidate this issue and develop therapeutic solutions.

MeSH terms: neurocognitive disorder, HIV; review
Key words: epidemiology, infections, dementia

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Management challenge of basilar artery occlusion in SUS: Case report

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Context: Stroke caused by basilar artery occlusion is rare, corresponding to 1% of strokes. There is no consensus in the literature on the ideal management of this disease at acute phase. However, mechanical thrombectomy may be a viable treatment option.

Case report: 68-year-old female, with no comorbidities, admitted to a secondary hospital 14h after headache, dizziness, vomiting and difficulty walking. She was disoriented, with severe dysarthria and dysphonia, horizontal and vertical ophthalmoparesis and pronation of the right upper limb (NIHSS: 4). Cranial tomography was normal and cranial angiotomography showed a basilar artery thrombosis. Patient was out of the window for intravenous thrombolysis and our hospital did not have another possibility of treatment. Due to high morbidity and mortality, also the possibility of neurological deterioration, medical contact was made with a tertiary hospital with hemodynamic service. During patient transference, she evolved with decreased level of consciousness, aphasia and tetraparesis (NIHSS: 18). Upon arrival at the hospital, a thrombectomy was performed due to an important clinical-radiological mismatch, 19 hours within symptoms onset and 3 hours after neurological worsening. After discharge, patient walked with assistance and physical examination showed a significant improvement in neurological deficits (NIHSS: 6).

Conclusions: This case demonstrates the importance of engaging Brazil's public health system in the management of acute ischemic stroke, especially in challenging cases such as basilar artery occlusion. This patient was the first admitted to our hospital to perform a thrombectomy after effective transference for a tertiary hospital and staff engagement of both hospitals.

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Epidemiological profile of myasthenia gravis patients at the Neuromuscular Diseases Service of the Hospital de Clínicas of the Federal University of Paraná

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Background: Myasthenia Gravis (MG) is an autoimmune disease of the neuromuscular junction. In Brazil, epidemiological data regarding MG and its clinical aspects are limited.

Objectives: The aim of this study was to describe the clinical and epidemiological profile of patients with MG at a referral center.

Design and setting: Cross-sectional observational study performed on patients with Myasthenia Gravis age 18 years and older at Federal University of Paraná.

Methods: Data were obtained through clinical evaluation and medical records.
Results: The sample comprised 100 patients (67 females and 33 males). The median age at last appointment was 49.5 years (IQR 37-61). Anti-AchR antibody was positive in 79 patients. Anti-MuSK antibody was positive in 6 positive patients. The Repetitive Nerve Stimulation (RNS) test presented abnormal result in 89 individuals. The main comorbidities reported were systemic arterial hypertension (SAH) (35%), mental health disorders (23%), diabetes mellitus (DM) (21%), dyslipidemia (18%), and hypothyroidism (13%). During the study period, the patients were on the following medications: pyridostigmine (88%), prednisone (42%), azathioprine (45%), cyclosporine (13%), and mycophenolate (6%). Thymectomy was performed in 30 patients, of whom 6 had a pathological diagnosis of thymoma, and five a pathological diagnosis of thymic hyperplasia.
Conclusion: The patient profile as well as the prevalence of comorbidities in our MG sample were similar to previous studies. We also found that our sample presented a higher incidence of SAH, DM, mental health disorders and hypothyroidism compared with the general population.

Key words: Myasthenia gravis. Epidemiology. Comorbidity. Neuromuscular diseases.

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Morvan's syndrome: case report

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Introduction: Morvan's syndrome is a rare neurological condition characterized by the combination of central and peripheral symptoms such as neuromyotonia by fasciculation, dysautonomy and encephalopathy associated with laboratory evidence of the VGKC antibodies LGI1 and CASPR2.
Case report: A 77-year-old man was admitted to the emergency room with a 3-month history of mental confusion, alteration in memory and language, visual and auditory hallucinations, and seizures. He had a sudden decrease level of consciousness and generalized myoclonus, being admitted to the intensive care unit. Due to non-improvement of the neurological condition, the possibility of encephalitis rose, herpes simplex virus (HSV) polymerase chain reaction (PCR) and 14.3.3 protein in cerebrospinal fluid (CSF) were performed, which resulted negative later. Analysis of CSF showed a high level of protein and cells. Magnetic resonance imaging (MRI) of the brain showed hypersignal activity in the bilateral internal capsule, temporal and frontal region. An extensive propaedeutic was performed for rapidly progressive dementia, including an autoimmune panel, with anti-glioma rich in inactivated leucine 1 (LGI-1) positive by indirect immunofluorescence.
Discussion: the diagnosis of Morvan's Syndrome is clinical. Some cases are reported with spontaneous remission and others that require extensive treatment, with immunotherapy, including plasmapheresis and immunosuppression. VGKC antibodies have been reported in association with three main clinical syndromes: neuromyotonia, Morvan's syndrome and limbic encephalitis.

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Clinical correlation between Migraine and Generalized Anxiety Disorders: a literature review

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Background: Migraine and anxiety are common neuro-psychiatric disorders in clinical practice, sharing symptoms and epidemiological factors among themselves. The presence of both pathologies in the same individual is frequently reported in the literature.
Objectives: To report the clinical and epidemiological correlations established between generalized anxiety disorder and migraine.
Methodology: Systematic review of studies published between 2016 and 2021, exploring the association between generalized anxiety disorders and Migraine. The descriptors "association", "Migraines" and "Generalized Anxiety Disorder" were used in the LILACS, SCIELO and PUBMED databases. Fourteen articles were selected, mostly dealing with epidemiological studies.
Results: Evidence suggests that these pathologies are associated and share common symptoms, pathophysiology and epidemiological factors. Studies corroborate that anxiety and painful sensation are more strongly associated with migraine than with other psychiatric illnesses. It has also demonstrated some characteristics of patients who are predisposed to develop both comorbidities such as smoke, low income and a history of other previous diseases. Common triggering factors such as pain, sleep disorders and stress can also contribute to the association between pathologies.
Conclusions: Based on the studies analyzed in full, the high prevalence of both diseases in the same individual highlights the importance of research on the cause and consequence relationship between Anxiety and Migraine, since this is not yet clarified in the medical literature. In addition, paying attention to migraine correlation to generalized anxiety disorder increases the quality of life of the patient in the short and long term, as well as help in the choice of better treatments.

MeSH terms: Headache Disorders, Primary; Migraine Headaches; Migraine Disorders.
Key words: Headache; Anxiety; Neurology.

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Enzyme-inducing antiseizure drugs associate with low bone mineral density in men with epilepsy

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Introduction: Little is known about the impact of enzyme-inducing antiseizure drugs (EI-ASD) on the reduction of Bone Mineral Density (BMD) in men with epilepsy (MWE).

Objectives: To evaluate the BMD in MWE exposed to EI-ASDs (phenytoin, carbamazepine and phenobarbital) and its relationship with the duration of epilepsy.
Methods: We evaluated BMD from 74 consecutive MWE (median age (range), 52.5 (25- 74) years) exposed to previous or current EI-ASDs, followed at UNICAMP-Brazil. Individuals were split into two groups (young-group, 31 individuals [25-49 years]; older group, 43 subjects, [50-74 years]). The BMD test evaluated t-score indexes from the femoral neck, whole femur and lumbar spine. Osteopenia was defined with t-score of -
1.0 to -2.4; osteoporosis, with T-scores lower than -2.5. Data were extracted from medical records. We analyzed data with SPSS22, performed chi-square tests for categorical variables and applied a partial correlation test (controlled for age) between BD scores and duration of epilepsy.
Results: BMD was reduced in 49/74 men (66.2%). Both groups presented equivalent proportions of BMD abnormalities (p=0.087) (young-group [14/41 normal (45%), 12/31 osteopenia (39%), 5/31 osteoporosis (16%)]; older-group [11/43 normal (26%), 16/43 osteopenia (37%), 16/43 osteoporosis (37%)]. BMD did not correlate with the duration of disease or age of onset.
Conclusion: BMD reduction is highly prevalent in MWE exposed to EI-ASD, including young individuals. Data suggest that exposure to EI-ASD may associate with early BMD reduction, which evolve to osteopenia and osteoporosis. BMD evaluation in MWE and appropriate treatment may be necessary to reduce fractures' risk.

MeSH terms: Epilepsy, Bone Density, Enzyme Inducing Antiseizure Drugs.
Key words: Osteoporosis, Osteopenia, seizures, collateral effects, treatment.

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Increased incidence of stroke in post-Covid patients: a literature review

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Background: Stroke causes severe damage to the brain, with prevalence in the elderly. Experts realized that infection by COVID-19 causes neurological problems, with cases of individuals diagnosed with stroke having also tested positive for Sars-CoV2, under 50 years of age.
Objectives: To assess the increased incidence of stroke in post-covid-19 patients.
Methods: This is a literature review, covering results on COVID-19 and stroke, from the last 2 years, with the descriptors "Coronavirus infections" and "Stroke." 10 articles were selected in English and Portuguese from SCIELO and PUBMED.
Results: There was an increase in the incidence of stroke in POST-COVID patients, pointing out that while a single health system identified five cases of these in a period of two weeks, in patients under 50 years of age; in other periods before the pandemic, approximately 0.7 strokes occurred over a two-week interval in individuals under 50 years old, strengthening this hypothesis.
Conclusions: Therefore, coronavirus infection causes neurological complications such as stroke. Thus, the performance of a multiprofessional team attentive to clinical and laboratory manifestations minimizes the risks of stroke.

MeSH Terms: Coronavirus infections; Stroke; Blood coagulation disorders.
Key words: Coronavirus 2019-nCoV disease; Clotting agents; Sequelae.

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Fístula liquórica cervical ventral simulando doença do neurônio motor: relato de caso

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Introduction: Motor neuron disease is currently irreversible, and the grave implications of the diagnosis should raise concerns over missing a potencial mimic disorder. The cervical region should be carefully evaluated, since many pitfalls are encounterd there. We present a case of a longitudinal extensive ventral cervical cecerebrospinal fluid leak causing a progressive monomelic amyothrophy associated with intracranial hypotension, mimicking a motor neuron disorder.
Objective: To describe the course, clinical manifestations and to raise concern about a rare disorder, potentially treatable that could mimic a motor neuron disease.
Methods: A case report seen in the neuromuscular service of the federal university of São Paulo.SP.
Results: Cervical pain irradiating to the left shoulder was the first symptom. Pogression to weakness of the bíceps and shoulder girdle with fasciculations happened months after. The patient also complained about severe headache worsening when lowering the head or lyind down. Eletroneuromiography showed chronic denervation. Magnetic ressonance imaging of the cervical spine demonstrated ventral dural displacement with longitudinal extensive cerebrospinal fluid colection. Epidural blood patch procedure was indicated. After the treatment the patient showed complete improvement of the headache, significant decrease in fasciculations and evolutionary strength improvement.
Conclusion: We described a rare form of amyothrophy that could be associated or not with intracranial hypotension. Ventral cervical cerebralpinal fluid leak should always be on the list of differential diagnosis and early indentification should be sought, since its a treatable cause.

MeSH terms: monomelic amyotrophy; motor neuron disease; amyotrophic lateral sclerosis;
Key words: Cerebrospinal fluid leak; intracranial hypotension; dural displacement; fasciculation; progressive weakness; headache

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Acquired copper deficiency myeloneuropathy with resolution Only after reversion of Roux-en-Y gastrojejunostomy: a case report

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Introduction: The performance of bariatric surgeries has increased in recente years. Secondary mal- absorptive syndrome is an important cause of acquired

copper deficiency, especially after Roux-em-Y gastric by-pass. The clinical manifestation of this deficiency disorder can occur years or decades after the surgery.

Objective: To describe the course, clinical manifestations, therapeutic approaches and to raise concern about acquired copper deficiency in patients who underwent bariatric surgery.

Methods: A case report seen in the neuromuscular service of the federal university of São Paulo.SP.

Results: The patient underwent Roux-en-Y gastrojejunostomy in 2010, 6 years before the initial manifestations of paresthesia on the lower limbs and anemia. The symptons progressed to imbalance and falls. Magnetic resonance image depicted T2 hyperintense signal in the posterior column from C4- T4. A Vitamin B12 deficiency was considered to be the cause but intramuscular therapy was ineffective. The neurological condition deteriorated and the patient was unable to walk without a walker. A severe copper deficiency was diagnosed but oral and intravenous replacement did not improve the clinical picture. Only after reversion of the Roux-em-Y gastric by-pass that the patient improved.

Conclusion: Obesity is growing health problem and the incidence of bariatric surgery is increasing. Acquire copper deficiency should always be on mind when facing a patient with myeloneuropathy that underwent these group of surgeries. Rapidly installed therapeutic approach can prevent neurological sequelae.

MeSH terms: Bariatric surgery; myelopathy; sensory ataxia; Roux em y gastric by-pass; vitamin B12 deficiency;

Key words: Copper deficiency; myeloneuropathy; mal absorptive syndrome; obesity

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Sneddon's Syndrome: a case report

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Context: Sneddon's Syndrome is a small and medium caliber arteries vasculopathy, characterized by concomitant occurrence of cerebrovascular disease and livedo reticularis. It's a rare disorder, more prevalent in women. In up to 80% of cases, positive antiphospholipid's antibodies are found.

Case report: A 28-year-old woman was admitted to Hospital das Clínicas-UFTM on May 21th, 2020, referred under suspicion of stroke with ictus on May 19th, 2020. The exam revealed left hemiparesis, anomic afasia and livedo reticularis on her thighs and thorax. She denied having comorbidities or previous episodes of thromboembolism. She had taken combined oral contraceptive for eleven years, having changed medication a year ago. In the cranial angioresonance exam, acute ischemia was confirmed in addition to moderate microangiopathy and an area of encephalomalacia. In the etiological investigation, HEP-2 positive antibody (antinuclear factor in a fine dotted nuclear pattern) was detected. She was discharged with a prescription of 100 mg of acetylsalicylic acid daily, maintained as a form of secondary prophylaxis.

Conclusions: The case illustrates the importance of a thorough physical examination and anamnesis in cerebrovascular disease patients, in order to get a accurate aetiological diagnosis of these diseases, enabling a more effective prognostic evaluation and secondary prophylaxis.

MeSH terms: Sneddon syndrome, Livedo Reticularis, Cerebrovascular Accidents, Skin diseases, Cerebrovas-cular Disorders.

Key words: Sneddon, Doença cerebrovascular, livedo reticular, vasculopatia.

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Suspected neurological disease associated with yellow fever vaccine: a series of 5 cases

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Introduction: Yellow fever vaccine is avaible since 1930. Adverse reactions are mild, including headache, myalgia, fever and skin reaction on the site of application. Neurotropic disease is rare, more common in males and mainly in the first 30 days after vaccination. We report a series of 5 cases where vaccination initiated neurological manifestations.

Objective: To demonstrate the variety of possible neurological complications and clinical course associated with yellow fever vaccination seen in our hospital.

Methods: A case series of 5 patients seen in the neuromuscular service of the federal university of São Paulo.SP.

Results: Most of our patients began symptons in the first 30 days after vaccination. 3 out of 5 patients where male, 2 cases described demyelinating diseases, 2 cases demonstrade cerebellar manifestations and 1 case of inflamatory polyneuropathy. Recovery was variable after treatment employed.

Conclusion: Neurological complications are rare and can presente itself in several ways. Occurs manly in the first month with varying outcomes. It is essencial to ask the patient about vaccination, onset of symptons to associate cause and effect.

MeSH terms: yellow fever vaccine; adverse effects; acute disseminated encephalomyelitis

Key words: neurotropic disease; Aicardi-Goutières syndrome; opsoclonus; skew deviation

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Cerebral Aspergillosis: Literature Review

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Background: Cerebral Aspergillosis is an opportunistic fungal infection. It reaches by a hematogenous pathway or by paranasal sinuses. Furthermore, the diagnosis is delayed due to the nonspecific clinical signs.

Objectives: This study aims to highlight cerebral invasive aspergillosis as a diagnostic hypothesis in a difficult-to-diagnose and nonspecific neurological clinical scenario.

Design and setting: This is a literature review from the Escola de Medicina Souza Marques's students, Brazil.

Methods: The used articles were published between 2016 to 2021, from UpToDate, Journal of Oncology Pharmacy Practice, Elsevier, and Google Academic databases.

Results: In immunosuppressed individuals, it manifests as single or multiple brain abscesses with vascular invasion, posing as a life-threatening factor. Immunocompetent patients may respond differently, presenting with meningitis or granulomatous mass, associated with seizures, headache, and visual acuity impairment. MRI or PCR in cerebrospinal fluid is the most used for diagnosis. T2 hypodensity, irregular margins with intracavitary projections on MRI, and absence of the choline peak suggest a fungal etiology. The histopathological study is not common in clinical practice. The recommended treatment is voriconazole in association with echinocandins, for 6 to 12 weeks. Notably, the mortality rate of cerebral aspergillosis in patients who are taking Ibrutinib for other conditions is close to 90%.
Conclusion: Therefore it is essential to recognize the complication to avoid morbidity and mortality in immunosuppressed and immunocompetent individuals.

MeSH terms: neuroaspergillosis, diagnosis, review

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Surgical procedures for the treatment of extradural hematoma in the state of São Paulo, Brazil: an analysis

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Background: extradural hematoma (EDM) is one the most lethal traumatic brain injury, being due to the rupture of middle meningeal artery and resulting in intracranial hypertension and brain damage.
Objectives: to describe the overview of surgical procedures for the treatment of EDM in the state of São Paulo, correlating it with current epidemiology.
Methods: observational, descriptive, and transversal data collect on surgical procedures for the treatment of EDM, available on DATASUS website, from January 2008 up to December 2020, taking in account: number of hospitalizations, public health expenditures, complexity, mortality rate, deaths, hospital stay, and service character.
Results: there were 10,210 hospitalizations for such procedures in this period, accounting for R$39,342,868.41, with 2010 the year with the greatest number of hospitalizations (1,074) and 2011 with the greatest expenditure (R$3,772,361.55). 849 of them were elective, while 7,279 were urgent. 4,459 were carried out in public care and 2,671 in private one. All of them were considered medium complexity. Mortality rate was 11.29%, corresponding to 1,153 deaths, with 2015 the year with the greatest mortality (14.20%) and 2020 the lowest (9.93%). Mortality rate was lower in elective procedures (10.60 versus 11.46 in urgent ones) and when carried out in public sector (10.88 versus 11.49 in private care). Average stay was 10.9 days and average cost per hospital stay was R$3,853.37.
Conclusion: surgical procedures for the treatment of EDM are considered medium complexity, most of which being carried out in public care. Higher mortality rate was observed in urgent cases and private care.

MeSH terms: surgical procedures, operative; health expenditures; epidemiology; emergencies; neurology.

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Tuberculous Meningitis: Literature Review

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Background: Tuberculous meningitis is the most severe form of M.tuberculosis infection, and occurs when there is an invasion of the membranes and cerebrospinal fluid by the bacteria. It develops as a complication of primary infection and reactivation in immunosuppressed.
Objectives: This study aims to characterize tuberculous meningitis and bring updates. Design and setting: This is a literature review from the Escola de Medicina Souza Marques's students, Brazil.
Methods: The used articles were published between 2012 and 2021, from the UpToDate, Scielo, PubMed, and Google Scholar databases.
Results: Relevant epidemiological factors, such as HIV, and the absence of the Tuberculosis vaccine could raise the diagnosis hypothesis for the disease. Furthermore, clinical features as headaches, myalgia, fever, emesis, and sudden mood swings are also red flags. Patients should always be tested for HIV infection since mortality in these cases is about 60%. Tuberculous meningitis has a high lethality due to the delay in diagnosis and, in the absence of therapeutics, it worsens the prognosis. The complications are hydrocephalus, cranial nerve paralysis, strabismus, and coma. The diagnostic methods include CSF examination, computed tomography, magnetic resonance imaging, and GeneXpert. The treatment consists of antituberculosis therapy with glucocorticoids.
Conclusions: It is essential to identify the disease and start immediate treatment, in addition to emphasizing the BCG vaccine and HIV prevention to reduce cases.

MeSH terms: tuberculosis, meningitis, infections

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Sexual dysfunction associated with neurological disorders in men aged 19 to 44 years

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Introduction: Male sexual dysfunction (DSM) is characterized by changes in qualitative or quantitative sexual capacity, manifested by changes in ejaculation, erection, and/or orgasm, in addition to the presence of pain or discomfort in sexual relations, and the main one of these is erectile dysfunction (ED).
Objective: Review the literature on sexual dysfunction caused by neurological disorders, in men aged 19 to 44 years.
Methodology: This is a narrative literature review. The collection of information about the theme was carried out through a search for scientific articles in the PubMed databases. The descriptions used in the search were "sexual dysfunction AND neurological disorders in men", articles published in the last 5 years were considered.
Results: Several neurological diseases with a very high correlation with DSM were

found, such as: multiple sclerosis, ED being the main problem reported by patients, depression and its respective treatment, epilepsy, mainly associated with anxiety and depression, Parkinson's disease, spinal cord injury, spina bifida, stroke and traumatic brain injury, especially when associated with diabetic neuropathy.
Conclusion: DS is a very frequent problem in neurological diseases, therefore, there is a need for this theme not to be neglected by health professionals, emphasizing the importance of multidisciplinary treatment.
Mersh Terms: Impotence, Male Sexual Impotence, Nervous System Disease.
Key words: Sexual dysfunction, Erectile dysfunction, Neurological disorders.

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Primary Amebic Meningoencephalitis due to Naegleria fowleri: Literature Review

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Background: Primary Amebic Meningoencephalitis is an acute purulent meningoencephalitis caused by *Naegleria fowleri*. The main route of transmission occurs through the inhalation of trophozoites present in the water, which cross the cribriform plate, reach the olfactory bulbs and destroy the nerve and nervous tissue.
Objectives: This study aims to provide greater knowledge and updates on the topic. Design and setting: This is a literature review from the Escola de Medicina Souza Marques's, and Universidade Federal Fluminense's students, Brazil.
Methods: The used articles were published between 2013 to 2021, from the UptoDate, Scielo, and Pubmed databases.
Results: This protozoan's distribution is worldwide. The clinical picture includes fever, headache, photophobia, emesis, convulsions, and dysfunctions of smell and taste; if untreated, it progresses rapidly to death. There is an incubation period of 2 to 7 days. Diagnosis should be considered when there is a picture of meningoencephalitis, negative results for viruses and bacteria, and there are motile trophozoites in the CSF sample. The main differential diagnosis is bacterial meningitis.
Conclusion: The rarity of the disease, delay in diagnosis, and fulminant clinical course affect the evaluation of treatment models. Currently, the indicated therapy is Amphotericin B, Rifampicin, Fluconazole, Miltefosine, and Azithromycin, ranging from 9 to 30 days duration.

MeSH terms: meningoencephalitis, protozoal, infections

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Analysis of procedures for treating muscle dystrophies in the state of São Paulo

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Background: Muscular dystrophies are degenerative and genetic diseases characterized by progressive weakness and muscle atrophies.
Objectives: To analyze the current panorama of muscular dystrophy treatment procedures performed in the State of São Paulo, correlating it with current epidemiology.
Methods: literature review and observational, descriptive, and transversal data collect on the treatment of muscular dystrophies, available on the DATASUS website, from January 2008 to December 2020, and articles from Scielo and PubMed.
Results: There were 2,600 hospitalizations with a total expenditure of R$ 28,004,202.59, with 2015 being the year with the highest number of hospitalizations (248), although 2014 was the year responsible for the highest amount spent during the period (R$ 2,858,500 , 87). Of the total procedures, 1,849 were carried out on an elective basis and 749 were urgent, with 1,330 occurring in the public sector and 286 in the private sector. The total mortality rate was 1.08, corresponding to 28 deaths, with 2016 being the year with the highest mortality rate, 4.91, while 2014 had the lowest rate, 0.41. The mortality rate for elective procedures was 0.54 compared to 2.40 for urgent procedures, whereas in the public sector it was 0.53 compared to 1.75 for the private sector. The average total hospital stay was 27.7 days, with an average cost of R$ 10,770.85.
Conclusion: the treatment of muscular dystrophies usually occurs in an elective regime and in the public sector, with the mortality rate being lower in the public service compared to the private one.

MeSH terms: Muscular dystrophy; Muscular atrophy; Epidemiology.

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Deep brain stimulation of the fornix as a therapeutic approach for Alzheimer's disease: Systematic Review

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INTRODUCTION: Alzheimer's disease (AD) is a disorder characterized by cognitive impairment. The brain network in DA can be interrupted by deficiencies in glucose metabolismo. Deep brain stimulation (DBS) is used in Parkinson's disease (PM), onceit modulates motor circuits. Considering this potential, the benefits of this approach inDA must be evaluated [1,2].
OBJECTIVE: To investigate the potential benefit of stimulating the cerebral fornix (CF) through DBS for patients with AD.
METHODS: Controlled and randomized clinical trials (ECCR), in English, performed on humans, inthe last 5 years, indexed on PubMed, were selected from the keywords "Deep brain Stimulation" and "Alzheimer Dementia". This review was registered on PROSPERO byprotocol 254506 and the PRISMA recommendation was used to improve its organization.
RESULTS: Deeb W et al. (2019) conducted an ECCR on 42 patients withAD receiving DBS in CF, anterior commissure, corpus and sub-corpus callosum, demonstrating that in 48% of them, old experiences were reported. Furthermore, the memories became better as the stimulation increased. Lozano AM et al. (2016), in turn,developed an ECCR on 6 patients receiving DBS in CF, showing increases in glucose metabolism in some cerebral areas after

12 months, contrasting to the expected reduction in AD, especially in > 65 years. It's noteworthy that the multicenter and double-blind ECCR by Ponce FA (2016) showed the safety of DBS in CF as therapy for AD, similar to that verified in the MP.
CONCLUSION: The analyzed evidences suggest a potential cognitive benefit of DBS in the therapeutic management of AD.

MeSH terms: "Electrical Stimulation of the Brain", "Dementia", "Alzheimer's disease"
KEY- WORDS: "Alzheimer Syndrome", "Senile Dementia", "deep brain stimulations"

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Neurological manifestations caused by COVID-19 in Alagoas, Brasil

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Introduction: COVID-19 affects several vital organs, including the brain, and can cause neurological manifestations.
Objective: To characterize the neurological manifestations of hospitalized patients with laboratory confirmation of COVID-19, between May and August, 2020. Design and setting: Observational study at Veredas Hospital and University Hospital Professor Alberto Antunes in Alagoas, Brazil.
Methods: Socio-demographic data, infectious and neurological symptoms, risk factors for neurological and infectious diseases, clinical history, treatment instituted and outcome of patients were collected.
Results: We included 30 patients with a mean age of 61.05 ± 18.65 years, 70% were female. The average between the onset of COVID-19 symptoms and hospital admission was 10 ± 9.7 days. Systemic arterial hypertension (66.7%) and diabetes mellitus (63.3%) were the main comorbidities. Cough, fever (60%) and dyspnea (56.7%) stood out in general symptoms. The most frequent neurological symptoms were changes in the level of consciousness (56.7%), epileptic seizures (33.3%) and motor deficits (23.3%). Ischemic stroke (40%) was the main neurological diagnosis, followed by epileptic seizures (33.3%), delirium (13.3%), encephalitis (10%), SAH (6.6%), vasculitis (6, 6%), hemorrhagic stroke, TIA, cranial neuropathy, meningitis and peripheral neuropathy (3.3% each). Regarding treatment, 100% used antibiotic therapy, 96.7% prophylactic heparin, 50% mechanical ventilation, 46.7% antiparasitic, 20% vasoactive drugs and 6.7% hydroxychloroquine. The death rate was 40%.
Conclusions: Neurological manifestations by patients with COVID-19 are not uncommon, presenting in different ways, and can be potentially fatal. The main neurological symptom was changes in the level of consciousness and diagnosis, ischemic stroke.

MeSH terms: COVID-19; neurological manifestations; stroke.
Key words: Coronavirus; Neurological manifestation; COVID-19.

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National scenario of procedures for intracranial tumor exerisis

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Background: Intracranial tumors have an incidence that varies between 10 to 17 cases per 100 thousand people.
Objectives: To analyze the panorama of craniotomy treatment procedures for removal of intracranial tumors in the State of São Paulo and correlate it with the current epidemiology.
Methods: observational, descriptive and cross-sectional collection of craniotomy treatment for removal of intracranial tumors, available at DATASUS website, from January 2008 up to December 2020 - evaluating the number of hospitalizations, public spending, complexity, mortality rate, deaths, permanence and character of care.
Results: 9,569 hospitalizations were observed for such procedures in this period, representing a total expenditure of R$ 39,104,400.74. 2013 was the year with the highest number of hospitalizations (880), it was also the year with the greatest expenditure (R$ 3,729,954.75). 3,204 of them were elective and 6,365 were urgent, with 4,550 occurring in the public sector and 1,519 in private one. All 9,569 considered to be of high complexity. The mortality rate was 9.31, corresponding to 891 deaths, 2008 was the year with the highest mortality, 11.64 and 2018 the lowest, 6.29. Mortality rate was lower in elective procedures (6.27 versus 10.84 in urgent ones) and when carried out in public sector (9.27 versus 9.61 in private care). The hospital stay was 17.0 days, with a cost of R$ 4,086.57.
Conclusion: The excision of intracranial tumors represents a procedure of high complexity with a long period of hospital stay. Higher mortality was observed in emergency care and the private sector.

Key words: Intracranial tumors, craniotomy, panorama.
MeSH terms: Neurosurgical Procedures, Brain Neoplasms, Epidemiology

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Tensional headache in medicine graduation

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Introduction: Tension headache has become a major health problem for medical students. This can trigger a worsening in the quality of life of the student and hinder their learning, corroborating for an impaired education. Better understanding of the topic is necessary so the academics can have a better overview of the problem.

Objective: Clarify the relationship between tension headache and the quality of life of medical students.
Methods: Articles from the last ten years were selected on the Scielo and Google Scholar portal platforms, which made it possible through an online scenario.
Results: The mechanisms of tension headache are controversial and their pathophysiology complex and poorly understood. In crises, analgesics, anti-inflammatories, muscle relaxants and/or caffeine are applied. In the articles studied, epidemiological data suggest that most students (99%) have already had a headache case during their lifetime and such occurrences are related to moments of stress and tiredness (74%). It is visible, that the academic affected by various activities, is a target for the disease.
Conclusion: The prevalence of tension headache in the medical student was higher than that of the general population, with stress as the main reason. then a resolution on the issue of pain regarding stress is necessary since it proved to be inappropriate.

MeSH terms: Headache, tension, stress.
Key words: quality of life, tiredness, pain, medicine, academic.

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Conservative treatment of cerebral hemorrhage: an analysis of the State of São Paulo

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Background: Cerebral hemorrhage represents 10% to 15% of all strokes, with the worst prognosis and the highest rate of morbimortality.
Objectives: To analyze the panorama of conservative treatment procedures for cerebral hemorrhage in the State of São Paulo and correlate it with the current epidemiology.
Methods: observational, descriptive and cross-sectional collection of conservative treatment data for cerebral hemorrhage, available at DATASUS website, from January 2008 up to December 2020 - evaluating the number of hospitalizations, public spending, complexity, mortality rate, deaths, permanence and character of care.
Results: 15,327 hospitalizations were observed for such procedures in this period, representing a total expenditure of R$ 30,258,539.39. 2008 was the year with the highest number of hospitalizations (1,373), and 2020 was the year with the greatest expenditure (R$ 3,008,526.38). 552 of the were elective and 14,606 were urgent, with 4,102 occurring in the public sector and 4,510 in private one. All 15,327 considered to be of medium complexity. The mortality rate was 29.68, corresponding to 4,549 deaths, 2009 was the year with the highest mortality, 33.33 and 2008 the lowest, 24.33. Mortality rate was lower in elective procedures (15.40 versus 30.48 in urgent ones) and when carried out in public sector (27.16 versus 30.07 in private care). The hospital stay was 11.0 days, with a cost of R$ 1,974.20.
Conclusion: The conservative treatment of cerebral hemorrhage represents a procedure of medium complexity with a long period of hospital stay. Higher mortality was observed in emergency care and the private sector.

Key words: cerebral hemorrhage; stroke; neurological emergency.
MeSH terms: Neurosurgical Procedures, Intracranial Hemorrhages, Mortality

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National perspective of the surgical treatment of platibasia and malformation of Arnold Chiari

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Background: Platybasia is a bone anomaly, characterized by the flattening of the skull base. Its etiology is still questioned, but it is believed to occur in a congenital way.
Objectives: To analyze the panorama of Arnold Chiari's platelet and malformation surgical treatment procedures in the State of São Paulo and correlate it with the current epidemiology.
Methods: observational, descriptive and cross-sectional collection of Arnold Chiari's platelet and malformation surgical treatment data, available at DATASUS website, from January 2008 up to December 2020 - evaluating the number of hospitalizations, public spending, complexity, mortality rate, deaths, permanence and character of care.
Results: 1,573 hospitalizations were observed for such procedures in this period, representing a total expenditure of R$ 5,680,871.82. 2011 was the year with the highest number of hospitalizations (142), it was also the year with the greatest expenditure (R$ 582,194.40). 1,006 of the were elective and 567 were urgent, with 509 occurring in the public sector and 482 in private one. All 1,573 considered to be of high complexity. The mortality rate was 2.16, corresponding to 34 deaths, 2010 was the year with the highest mortality, 4.10 and 2012 the lowest, 0.83. Mortality rate was lower in elective procedures (1.89 versus 2.65 in urgent ones) and when carried out in public sector (2.36 versus 2.49 in private care). The hospital stay was 12.7 days, with a cost of R$ 3,611.49. **Conclusion:** Platybasia is a highly complexity condition with a long period of hospital stay. However, the predominance of care is elective, with low mortality.

Key words: Platybasia, Neurological emergency, Epidemiology.
MeSH terms: Rare Diseases, Morbidity, Skull Base

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Diethylene glycol poisoning: report of two cases due to brewery contamination

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Context: Diethylene glycol (DEG) is an alcohol used as industrial antifreeze. Poisoning is usually accidental and involves contamination of food and beverage. We report two cases of DEG poisoning (DEGP) resulting from ingestion of beer in 2020.
Case report: ACMO, male, 57 year-old, admitted with bilateral visual turbidity complaint. Laboratory showed renal dysfunction (Cr 11 mg/dl, Ur 202 mg/dl), increased anion GAP (AG) and metabolic acidosis. He evolved with amaurosis,

facial diplegia, tetraparesis and areflexia. He was discharged after prolonged hospitalization with severe motor impairment, bilateral amaurosis and under dialysis therapy. RJB, 75 year-old alcoholic male patient, reported 600 ml/day ingestion of high-risk beer in the month preceding his hospitalization. He was admitted with nausea, abdominal pain, renal failure (Cr 11 mg/dl, Ur 177 mg/dl), metabolic acidosis and AG 21. He developed bilateral papilla edema, flaccid tetraparesis, areflexia, dysautonomy, respiratory failure and death.

Conclusions: DEG metabolites primarily target kidneys and nervous system. Patients shortly develop nephroneural syndrome characterized by acute oligoanuric renal injury with metabolic acidosis and increased AG, associated with peripheral polyneuropathy with involvement of cranial nerves, in addition to optic neuropathy. Due to the poorly available serum dosage, rapid recognition of DEGP is essential to institute early treatment and identification of the source of the intoxication in order to prevent mass poisoning.

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Epidemiological profile of Dementia in the state of São Paulo in the last 5 years

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Background: dementia is a syndrome characterized by the presence of a progressive deficit in cognitive function, with interference in social and occupational activities, with risk factors varying with genetic and environmental stressors. The differential diagnosis must identify potentially reversible conditions, of different etiologies, such as metabolic changes, intoxications, and nutritional deficiencies. In primary degenerative dementias and sequelae forms, the etiological diagnosis carries therapeutic and prognostic implications.

Objectives: to analyse the current epidemiological profile of dementia in the state of São Paulo in the last 5 years.

Methods: a literature review was carried out based on articles available in the Scielo and PubMed database and an observational, descriptive and cross- sectional collection of epidemiological data on dementias available in DATASUS – SUS Hospital Information System (SIH/SUS) – in the last 5 years – January 2016 to December 2020 – assessing the number of hospitalizations, the amount of public spending, mortality rate and permanence.

Results: in the analyzed period, 3.105 hospitalizations were observed due to occurrences related to dementia, representing a total expenditure of R$37.847.961,13, with 2017 being the year with the highest number of hospitalizations and responsible for the highest amount spent. The total mortality rate in the 5 years studied was 5,57, corresponding to 173 deaths, with 2020 being the year with the highest rate while 2017 had the lowest rate. The average of the permanence in the hospital was 180 days.

Conclusion: patients with dementia need early diagnosis and procedures to reduce the rate of hospitalizations and mortality, as well as public costs. For this, technological innovations, using structural and functional neuroimaging methods, as well as biology and molecular genetics techniques, have presented perspectives for the early diagnosis of dementia.

MeSH terms: dementia; epidemiology; neurology; hospitalization.

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Epidemiological analysis, risk factors and therapeutic plan for post-stroke depression

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Background: the stroke is defined by the OMS as the rapid development of neurological symptoms and/or focal signs that last for more than 24 hours, resulting from the sudden change in blood flow to the region. Major depressive disorder is one of the main complications that exist after a stroke.

Objectives to correlate the occurrence of depression and stroke, to analyze the risk factors and the best therapeutic approach for the condition.

Methods: a literature review was carried out from the Scielo and PubMed database, using as descriptors "Stroke", "Depression" and "Post-stroke depression", where 13 articles between 2003 and 2018 were selected.

Results: the major depressive disorder is the most common psychiatric complication after strokes. A meta-analysis identified a cumulative incidence of depression from 29% to 52% in the first five years after stroke, although several studies have shown that post-stroke depression is diagnosed in only 10% of cases. When not diagnosed or treated, it is associated with a reduction in the patient's active participation in the rehabilitation process, a decrease in quality of life and an increase in mortality. Risk factors include previous functional and cognitive impairment, history of depressive disorder, sex, age, previous stroke, hypercortisolemia, poor social support network, neuroanatomical characteristics of the stroke and high serum levels of IL-6. The pharmacological management can be carried out prophylactically or therapeutically, with selective serotonin reuptake inhibitors being the most indicated and tricyclic antidepressants as an alternative.

Conclusion: the frequency of depressive disorder after stroke is relatively high and characterized as a predictor of poor prognosis. The importance of attention to the multifactorial context in which depression arises and the early treatment of psychiatric comorbidities in post-stroke individuals should be reinforced, since this strategy may reflect on better quality of life and reduction in morbidity and mortality rates that occur after the condition.

MeSH terms: stroke; depression; epidemiology; neurology.

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Clinical overview and therapeutic management of the cognitive and behavorial aspects of Huntington's disease

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Background: Huntington's disease (HD) is an autosomal dominant neurodegenerative disease classified among chorea that, in addition to motor symptoms, is characterized by neuropsychiatric disorders.

Objectives: to analyze the cognitive and behavioral clinical aspects of Huntington's disease and the therapeutic management of these symptoms.

Methods: a literature review was carried out from the Scielo and PubMed database, using "Huntington's disease", "Cognition", "Behavior" and "Treatment" as descriptors, where 11 articles were selected between 2001 and 2018.
Results: the nature of cognitive and behavioral symptoms in HD are very dynamic, and cognitive dysfunctions are present prior to diagnosis. The most common clinical challenges include executive dysfunction, mainly slow thinking and attention disorders, apathy, depression and irritability. One study used data from the European Huntington's Disease Network and evaluated almost 2.000 carriers of the mutation, in which 47.4% reported apathy, while depression and irritability occurred in 42.1%, and aggression and psychosis occurred in 38.6%. Other studies have confirmed apathy as an early manifestation related to its progression. For the therapeutic management of chorea, tetrabenazine is used, while antidepressants can be effective in mood symptoms. On the other hand, antipsychotics can lead to the advance and rapid progress of the disease. Small controlled studies with atomoxetine, donepezil and rivastigmine have found no positive effects on patients' cognition. Recent publications have shown that circulating levels of brain-derived neutrotrophic factors in HD correlate with mood, cognition and motor function and can serve as markers of treatment success, while growth factor I is associated with cognitive decline and can provide biomarker targets for treatment validation.
Conclusion: cognitive and behavioral symptoms in HD are very diversified and some strategies may have potential therapies and/or deleterious ones.

MeSH terms: Huntington's disease; clinical condition; treatment; cognition; behavior.

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Music therapy as treatment of Autism Spectrum Disorder: Systematic Review

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Introduction: Autistic Spectrum Disorder (ASD) is a neurodevelopmental disorder that affects social communication[1] .Music is great for individuals with ASD, because it interacts with the brain, contributing with cognitive and psychosocial benefits[2,3]. Furthermore, music is emotional and promotes movement synchronization, being a non-pharmacological option for the treatment of ASD[3].
Objective: To investigate the positive impacts of using music therapy for cognition in patients with ASD.
Methodology: Controlled and randomized clinical trials, in English, performed onhumans, in the last 5 years, indexed on PubMed, were selected from the descriptors "autism spectrum disorder" and "music therapy". This review was registered onPROSPERO by protocol 254495 and the PRISMA recommendation was used to improve its organization.
Results: Music therapy was efficient in improving the symptoms of children with ASD, because of the better sensitivity of individuals to music than words[4]. In addition, music is able to restore brain connectivity, which is altered in TEA[5]. Musical and emotional attunement allows synchronization, integrating the senses and affective regulation, improving self-awareness6. During therapy, there was a reduction in the diagnostic scale of ASD, indicating an improvement in communicative and social skills. Furthermore, it was noted that children became more socially responsive, but there were differences, suggesting the need to balance individual and methodological treatment[7]. Finally, music therapy contributes to children's well-being and health[8,9].
Conclusion: Evidence suggests that patients with ASD can benefit from music therapy, as it explores and expands the physical and mental limits of the autistic person, stimulating agility, communication and motor control.

MeSH terms: "Autistic Spectrum Disorders", "Music Therapy", "Autism Spectrum Disorders".
KEY- WORDS: "Autism Spectrum disorder","Music therapy","Cognitive Decline"

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Epilepsy in patients with COVID-19

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Introduction: Coronavirus disease 2019 (COVID-19), caused by SARS-CoV-2, appeared in a Chinese city in late 2019. Four months after its emergence it was declared by the World Health Organization as a pandemic. Although the virus has tropism for respiratory tract cells, there is evidence of involvement of systems such as vascular, digestive, hematological, urinary and nervous. Some neurological complications were observed in patients with COVID-19, such as stroke, myopathies and polyneuropathies. Encephalitis may cause seizures, suggesting that the inflammatory process by COVID-19 may be associated with seizures.

Objectives: To address the possible association between seizures and SARS-CoV-2 infection.
Methodology: The research is na integrative review carried out in a virtual environment, based on articles published between 2020 and 2021, with the theme "COVID-19, epilepsy and seizures", on the academic Google platforms, SciELO portal and PubMed.
Results: It is known that encephalitis and viral infections can trigger epileptic seizures by the pathophysiological mechanisms of activation of the inflammatory cascade. This process involves the release of inflammatory cytokines, tumor necrosis factor (TNF-α), interleukins 2, 6, 7 and 10, and complement, this neuronal hyper excitability activates Glutamate receptors, triggering seizures. Based on this, epileptic seizures can be explained in patients with neurological impairment by COVID-19.
Conclusion: It was observed that inflammatory processes lead to excitation of receptors that trigger seizures. Therefore, the disruption of the blood brain barrier can play a fundamental role in the initiation of this process. However, the pathophysiological mechanism is not yet well elucidated, and further studies are needed on this.

MeSH terms: Epilepsy, COVID-19, Encephalitis.

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Association of sleep and wake bruxism in patients with migraine

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Introduction: When migraine evolves from episodic to chronic form, it becomes more disabling, due to refractory treatment and the arising of comorbidities. Bruxism has already been associated with migraine in adults, with a bidirectional relationship between sleep bruxism and chronic migraine. This study aimed to assess whether sleep and wake bruxism are more prevalent in chronic migraine when compared to episodic migraine and also to establish possible clinical correlations with chronification.
Methods: 210 patients were allocated to the study, 97 with episodic migraine (EM) and 113 with chronic migraine (CM). The patients were submitted to face-to-face interviews with a neurologist to confirm the diagnosis and fill in the scales: specific questionnaire for the diagnosis of sleep and wake bruxism, PHQ-9 (depression), GAD-7 (anxiety), Epworth Scale (sleepness), MIDAS and HIT-6 scales to assess the migraine disability and the headache impact on patients.
Results: The prevalence of sleep and wake bruxism was similar in patients with EM versus CM (p=0.300 and p=0.238). The correlation of patients with both bruxism forms at the same time with the high scores on the migraine disability and the headache impact, was higher among patients with chronic migraine than in patients with chronic migraine. episodic migraine (p <0.001 and p <0.001).
Conclusion: Sleep and wake bruxism alone aren't more prevalent in chronic migraine when compared to episodic migraine. In patients affected with both bruxism forms, bruxism only causes a greater impact and disability on individuals with chronic migraine.

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De novo variant in the MAPK8IP3 gene in the differential diagnosis of global development delay. Case report.

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Context: The global development delay has a high prevalence and heterogeneity in the world population. With the advancement of technology and detection of pathogenic variants detected by sequencing the exome, genes related to global developmental delay could be identified and collaborate for further clinical clarification. Among the studied genes, the MAPK8IP3 gene, became an attractive candidate due to its performance in neuronal axonal transport in vertebrates and invertebrates. This case report was approved by the Ethics Committee of Universidade Metropolitana de Santos.
Case Report: The present case refers to a 6-year-old male patient presenting with a clinical picture of global developmental delay without bodily dysmorphia. Cerebellar ataxia, muscle hypotonia and intellectual impairment are important clinical impairments. Skull MRI and complementary exams were normal. The genetic study showed a new and heterozygous pathogenic variant in the MAPK8IP3 gene.
Conclusions: Symptomatic treatment with multiprofessional rehabilitation was instituted with partial improvement of symptoms.

MeSH terms: De novo variant; MAPK8IP3 gene; global development delay; case report.

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Susac syndrome. Case report.

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Context: Susac Syndrome, was first described in 1979, by neurologist John Susac, and is characterized by a clinical triad consisting of: central nervous system dysfunction, visual changes and sensorineural hearing loss. Although the pathophysiology is not yet fully understood, the description occurs with microangiopathy involving arteries of the brain, retina and cochlea. The manifestation of the clinical triad has a monophasic and self-limiting course.This case report was approved by the Ethics Committee of Universidade Metropolitana de Santos.
Case Report: The present case refers to a female patient, 40 years old, caucasian, and presented a sudden decrease in the visual acuity of the left eye, with visual blurring and dyschromatopsia. After 3 days, he sought medical assistance from an ophthalmologist, already presenting amaurosis of his left eye. Occlusion of distal branches of the retinal artery of the left eye was confirmed. He had a personal history of recurrent major depression and obsessive-compulsive disorder with sub-optimal response to drug treatment. Evaluated with neurology, referring to a decrease in asymmetric auditory acuity. Bilateral sensorineural hearing loss confirmed. Skull MRI was performed and showed multiple images of central lesions in the corpus callosum ("snow ball lesions"), as well as lesions in the white matter of the brain.

Conclusions: The diagnosis of Susac syndrome was established and symptomatic treatment was performed, presenting with clinical stabilization.

Mesh-Terms: Susac syndrome; case report

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Camptocormia and genetic Parkinson's disease caused by the mutation of the LRRK2 gene. Case report.

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Context: Parkinsonism is a clinical syndrome characterized by bradykinesia, tremor at rest, muscle stiffness and postural instability. Parkinson's disease is the most common cause of parkinsonism. Pathogenic mutations in the leucine- rich repeat kinase 2 gene (LRRK2) have been identified in PARK8-linked autosomal dominant parkinsonism. This mutation is the most common and explains about 1–7% of family cases of parkinsonism of European and American origin and 1–3% of sporadic PD. This case report was approved by the Ethics Committee of Universidade Metropolitana de Santos.
Case Report: The present case relates to a 40-year-old, white man, who presented insidious and progressive parkinsonism for 6 years, akinetic-rigid and asymmetric (HoehnYahr 2.5 scale) associated with early camptocormia and non-motor symptoms and partial response to levodopa. The classic phenotype of late-onset parkinsonism was found on the paternal side of the patient's family, suggesting family inheritance. Exome sequencing showed heterozygous mutation PARK8 LRRK2 (Gly2019Ser).
Conclusions: The presentation of this case was aimed at alerting to Parkinson's genetic disease in adults with family inheritance associated with early camptocormia. The presentation of this case was aimed at alerting to Parkinson's genetic disease in adults with family inheritance associated with early camptocormia.

Mesh-Terms: Camptocormia; Parkinson disease; LRRK2 gene; case report

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Sporadic Creutzfeldt-Jakob disease. Case report

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Context: Creutzfeldt-Jakob disease (CJD) is a rare disease that belongs to the category of transmissible spongiform encephalopathies. The condition is invariably fatal and progresses with severe dementia with psychiatric signs and, with cortical, subcortical and cerebellar signs. This case report was approved by the Ethics Committee of Universidade Metropolitana de Santos.

Case Report: We present the case of a 59-year-old male patient who presented with a subacute onset of behavioral changes associated with myoclonus and changes in coordination. Associated with the described symptoms, he presented aphasia of expression, cerebellar incoordination and spasticity was also present in the four limbs.

Conclusions: The usual forms of transmission could not be confirmed for this patient, who died four months after the onset of symptoms
Mesh-Terms: Sporadic Creutzfeldt-Jakob disease; case report

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Villaret's syndrome after ionizing radiation in the adjuvant treatment of lung malignancy. Case report.

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Context: Villaret's syndrome is characterized by neuronal dysfunction in the posterior retroparotid space, where the external carotid arteries, internal jugular veins, the cervical sympathetic trunk and the following cranial pairs IX, X, XI, XII pass. Symptoms may vary depending on the location and extent of the lesions. This case report was approved by the Ethics Committee of Universidade Metropolitana de Santos.
Case Report: The present case refers to a female patient, 54 years old, who presented with an insidious and progressive onset of dysphagia, dysphonia and ageusia during adjuvant radiotherapy treatment for malignant lung cancer. The neurological examination showed miosis with ptosis and enophthalmos, weakness of the trapezius and sternocleidomastoid muscles, palate paresis and atrophy of the right tongue. Clinical diagnosis of Villaret Syndrome was performed. Complementary and imaging tests were normal. Villaret's syndrome presents a variety of nosological entities, the most common being neoplastic and involving the posterior retroparotid space. Other causes such as vascular, infectious, immunomediated are described. The patient in question has a probable etiology by ionizing radiation in a structure close to the posterior retroparotid space.
Conclusions: After 6 months of radiotherapy and symptomatic treatment, she presented with clinical stabilization.

Mesh-Terms: Villaret syndrome; radiation; case report

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Familial ALS Type 25 – A Brazillian Case Serie

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Introduction: Familial Amyotrophic Lateral Sclerosis (fALS) represent 5-10% of ALS patients. Different mutations in the N-terminal motor or coiled-coil

domains of the kinesin family member 5A (KIF5A) cause Hereditary Spastic Paraplegia Type 10 (HSP10), Charcot-Marie-Tooth 2 (CMT2), Neonatal Intractable Myoclonus and more recently described fALS Type 25. Previous described phenotypes are very similar to the sporadic type, except from the long course of disease.

Methods: We describe four Brazillian patients, under clinical follow-up on two Neuromuscular services with genetic diagnosis of fALS25.

Results: Four diferent fALS25 are described. Two brothers and two unrelated patients, with distinct features, three males and one female, age range from 72 to 24; age of onset ranged from 62 to 22. The genetic mutations were the following: simple heterozygous pathogenic variant c.1651C>G (p. Leu-551Val), simple heterozygous pathogenic variant c.2953G>A (p. Gly985Ser) and pathogenic variant c.484C>T (p.Arg162Trp); all of KIF5A gene (fALS25). Only one patient presented with similar phenoptype and age of onset as sporadic ALS (sALS), thetwo brothers presented the symptoms at the ages of 28 and 30, the female patientat 22. All patients still walk without assistence after the diagnosis. All patients showed classic superior and inferior motor neuron involvement signs, but one brother had a mild limb ataxia. The three younger patients had MRI with no specific findings, except from subtle cortical atrophy in one brother, and mild vermis and corpus callosum atrophy on the other brother. Only the female patienthad negative familiar history.

Conclusions: fALS25 should be suspected in patient with fALS and longer course disease. Mutations KIF5A gene must be remembered either in juvenile form of ALS.

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Bilingual aphasia after stroke. Case report

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Context: With the largest number of bilingual individuals in the world, there is a growing need for understanding and studying language in different populations. In cases of bilingual aphasia, patterns of language recovery can vary. Parallel, or simultaneous, recovery in both languages is the most common type of language recovery, followed by differential recovery, where there is an improvement in one language compared to another. This case report was approved by the Ethics Committee of Universidade Metropolitana de Santos.

Case Report: The present case refers to a male patient, 52 years old, right-handed, born in Arkansas-United States of America and resident for 20 years in the city of Santos, São Paulo. The patient is bilingual fluent in English and Portuguese and had a sudden deficit in strength and sensitivity in the right hemibody, associated with language disorders. Imaging exams showed a hemorrhagic lesion in the topography of the left lenticular nucleus. In the neurological evaluation, hemiparesis and proportioned and completehemiparesis were shown on the right. In the language assessment, he presented an important impairment of fluency, compression and repetition in thePortuguese language and relative preservation, with slight dysfunction in fluency in the English language.

Conclusions: Symptomatic treatment was instituted and after 12 months he had partial improvement of motor symptoms and complete aphasia.

Mesh-Terms: Bilingual afasia; stroke; case report

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Cerebrovascular diseases: the importance of recognizing them

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Background: Until the 70s, cerebrovascular diseases (CVDs) were neglected to the lack of resources. However, due to the advancement of technology, several imaging tests have appeared, such as magnetic resonance and computed tomography, which facilitated the diagnosis and the understanding of the pathophysiology of each disease.

Objectives: The objective of this work is to identify the main CVDs signs and symptoms.

Methods: An integrative literature review was carried out based on selected articles from Google Scholar, PubMed and SciELO, using the terms headache, cerebrovascular disease, neurology.

Results: CVDs are characterized by causing damage to brain vessels, due to changes in blood flow momentarily or permanently in an area of the brain, allowing them to be classified as ischemic or hemorrhagic. In ischemic there is a blockage of blood flow and, consequently, of oxygen to areas of the brain, in hemorrhagic rupture of a vessel occurs and, with this, blood leakage. Therefore, it is necessary to recognize the signs and symptoms early, in order to prevent loss of neurological function, movements on one side of the body and the presence or absence of headaches in both patients, with ischemic CVD and hemorrhagic CVD prevent rapid loss of consciousness accompanied by severe headache. Such signs and symptoms associated with the patient's family history and lifestyle can help in the diagnosis of this disease.

Conclusion: Therefore, it isimportant to recognize the signs and symptoms of CVDs, in order to determine the treatment and advise the patient, which will guarantee a better prognosis.

MeSH terms: Brain, Cerebrovascular Disorders, Early Diagnosis, Prognosis.

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Differentiating clinical examinations of Parkinson's and parkisonisms

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Introduction: The main symptoms of Parkinson are: tremors, movement resistance, postural instability and bradykinesia. However, other diseases such as Progressive Supranuclear Paralysis, Multiple System Atrophy and Corticobasal Degeneration have similar symptoms. This similarity generates a difficulty of diagnosis, for example, Corticobasal Degeneration is often diagnosed by autopsy.

Objectives: To define the differentiating symptoms of Parkinson and the diseases mentioned and to find clinical tests that could aid in the diagnosis.

Methodology: The integrative review utilized Scielo and Pubmed databases and

the selected clinical examinations were obtained by the book Exame Clinico - 8° edition.

Results: Multiple Systems Atrophy is distinguished from Parkinson by occurrence of cerebelar abnormalities, therefore Romberg Test can evidence modified coordination, which may be indicative of Multiple System Atrophy. Corticobasal Degeneration causes loss of ability to identify things by touch and impaired sensitivity on one side of the body, thereby the verification of stereognosia and the examination of superficial sensitivity are useful. Supranuclear Paralysis Progressive generates difficulty of performing vertical movements, thus the examination of ocular motility is necessary.

Conclusion: Only clinical examinations aren't sufficient to generate an accurate diagnosis and complementary exams are necessary for greater precision. However, knowledge about differentiating clinical examinations helps to generate a line of reasoning and examinations to be requested.

MeSH terms: Parkinson Disease, Supranuclear Palsy Progressive, Basal Ganglia Diseases, Multiple System Atrophy,

Key words: Parkinsonian Disorders, Clinical examinations, Corticobasal Degeneration

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Integrative review of the use of NMDA antagonists for TBI treatment

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Introduction: The kinetic energy of TBI generates mechanical deformation, which causes release of glutamate, activating ionotropic receptors, principally NMDA receptors, favoring the flow of Ca++ and Na+ into the cell, producing edema. Then, the neurotoxicity generated by glutamate release can be avoided by NMDA antagonists.

Objectives: To define if NMDA antagonists are promising for the treatment of TBI by literature analysis and to verify if there are reports of adverse reactions.

Methodology: The review utilized the Scielo and Pubmed databases and the keywords used were: NMDA antagonist, Brain edema and Brain injury. The review contains 5 animal tests and 5 clinical studies.

Results: Animal tests: CP-98,133 minimized edema, motor damage and is promising in the treatment of memory dysfunction after TBI. The NPS 1506 reduced edema in 24h, without altering the necrosis significantly. Ketamine decreased the volume of necrosis without altering the edema. HU-211 reduced the edema slightly. Clinical studies: NPS 1506 showed a neuroprotective profile and no serius effects. Traxoprodil decreased the mortality rate by 7%. CP-101.606 improved the patient's condition, without adverse effects.

Conclusion: Although NMDA antagonists demonstrate effectiveness in TBI treatment, more studies about adverse effects and efficiency are still needed. Among those analyzed, traxoprodil, NPS-1506 and CP-101.606 still don't present serious adverse effects and demonstrate effectiveness, proving promising for new studies.

MeSH terms: Brain Edema, Receptors, N-Methyl-D-Aspartate, Brain Injuries

Key words: NMDA antagonist, Brain Injury, TBI.

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The use of erenumab for preventing migraine

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Background: In 2018, calcitonin gene-related peptides (CGRP) were approved in the United States as the first class of specific migraine prevention drugs.

Objectives: To analyze the efficacy and therapeutic safety of erenumab for preventing migraine.

Methods: A narrative literature review was carried out by researching in the PubMed/MEDLINE and SciELO databases, using the descriptor "migraine disorders" and the keyword "erenumab" combined by the Boolean operator AND. Eight articles were selected, between 2017 and 2020.

Results: The pathophysiology of migraine is related to CGRP through nociceptive modulation in the trigeminovascular system. Therefore, erenumab was developed, which is a human monoclonal antibody that binds selectively and potently to the canonical receptor of CGRP and acts as an antagonist of CGRP. Evidence indicates that the monthly dose of 70mg or 140mg reduces the frequency, quality and intensity of acute and chronic migraines. Studies report a decrease of two to six days of migraine using erenumab. The same adverse reactions occurred in both placebo and experimental groups, including upper respiratory tract viral infection, pain at the injection site and nausea.

Conclusions: Erenumab is a promising drug, because it showed efficacy in the first days of treatment, absence of significant side effects and low rate of discontinuation. Aspects such as safety, effect durability, impact on quality of life and cost require further research.

MeSH terms: Migraine Disorders, Headache, Therapeutics.

Key words: Erenumab, Monoclonal antibodies, Prevention, Trigeminovascular system.

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CGRP antagonists: Perspectives on migraine prophylaxis

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Introduction: Migraine is a neurovascular disease characterized by headache attacks. Currently there are several preventive therapeutic strategies available, however some patients are not very responsive. Thus, more effective treatments have been researched, like the antagonists of the Calcitonin Gene Related Peptide, the Gepants.

Objectives: To evaluate the effectiveness of Gepants in the treatment of migraine.

Methods: This is an integrative literature review in the PubMed database, using the descriptors "gepants", "migraine" and "efficacy". Only randomized clinical trials conducted from January 2018 to September 2020 were included.

Results: Twenty studies were listed, of which 17 use Gepants as a preventive

treatment, 2 in acute use and 1 pharmacodynamic study. The Gepants have proved to be a viable option for patients irresponsible to the usual prophylactic regimens. Its significance in reducing migraine and associated symptoms is approximately 50% compared to the placebo group. Evidence of efficacy in the acute crisis is still insufficient. The adverse effects observed had not clinical impact, but more investigations are necessary since most studies exclude people with heart, liver and chronic kidney disease. Another limitation was the use of placebo as a control, not the current prophylactic regimens.
Conclusion: This review points to Gepants as a viable option in patients with migraine resistant to the usual regimens. However, there is a need for further studies on adverse effects, comparison with current therapies, drug and pathological interactions.

MeSH terms: Classical Migraine, Prophylaxis, Clinical Pharmacology
Key words: Calcitonin Gene-Related Peptide Receptor Antagonists. Migraine Disorders. Tertiary Prevention.

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Study of the prevalence of Frank's sign in a general population

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Background: Frank's sign is a diagonal crease in the earlobe that extends from the tragus to the inferior-posterior auricle's edge. Described as a predictor of cardiovascular diseases (CVDs), it was considered an independent cardiovascular risk factor (CRF) and associated with cerebrovascular events and cognitive impairment (CI).
Objectives: To assess the prevalence of Frank's sign in a general population aged 60 years or older regardless of the presence of CRFs and to relate the presence of this sign with epidemiological and clinical aspects.
Design and setting: This is an analytical, observational and cross- sectional study accomplished in ABC Region and in Itapecerica da Serra (Greater São Paulo).
Methods: 500 individuals aged 60 years or older randomly recruited had their ears photographed, responded to either Mini Mental State Examination or Montreal Cognitive Assessment depending on education achievement.
Results: 57% were women; 57% were white, 39% black and 4% asian; 64% had the sign; Frank's sign was associated with dyslipidemia and almost with hypertension, but not with cardiovascular events or CI.
Conclusions: 1. Frank's sign was more prevalent in older people and in the white population and, for the first time, in women. 2. There is a pattern in the sign prevalence in Greater São Paulo, which differs from the international one. 3. Frank's sign may be more sensitive to CVDs in hospitalized patients than in the general population and it can be a bias in literature. 4. Prospective studies could assure whether this sign is a marker for CVDs in this population.

MeSH terms: Ear auricle. Prevalence. Aging. Cardiovascular diseases. Cardiovascular risk factors.
Key words: Frank's sign. Diagonal earlobe crease. Epidemiology.

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The main impacts of COVID-19 on parkinson's disease patients

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Background: COVID-19 patients with chronic diseases and comorbidities are more susceptible to the severe form of the infection. Neurological symptoms are reported by some patients infected by the virus and research seeks the relationship between the virus and neurological diseases, such as Parkinson's Disease (PD).
Objectives: To understand how COVID-19 and its effects affect patients with PD.
Methods: Integrative review with search on Google Scholar, Scielo, PubMed and Science Direct platforms through an online scenario, selected articles from the years 2020 and 2021.
Results: SARS-CoV-2 frequently undergo mutations, causes damage and inflammation. There are reports of symptoms such as anosmia, ageusia and headache. Anosmia stands out for its relationship with one initial symptom of PD, hyposmia. As the majority of PD patients are elderly and have comorbidities, there is a higher risk of being infected. Some patients with PD infected by the virus report worsening in motor and non-motor symptoms and such worsening can occur due to systemic inflammation, stress and the measures to contain the pandemic.
Conclusions: PD is not a risk factor for COVID-19, however patients may experience worsening symptoms due to comorbidities, old age and stress caused by the pandemic. Strategies that reduce stress are options for maintaining the health of patients with PD.

MeSH terms: Parkinson Disease, COVID-19, pandemics
Key words: anosmia, hyposmia, comorbidities, stress, neurological disease

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Main Targets for Deep Brain Stimulation in Tourette Syndrome

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Introduction: Tourette Syndrome (TS) is a neurodevelopmental disorder characterized by fast and recurrent vocal and motors tics, with classical onset in infancy. Psychotherapy and medicament are the treatments of choice, but as of lately the use of the Deep Brain Stimulation (DBS), still considered an experimental intervention, has shown promising results.
Objective: Describe and analyze data regarding modern targets for DBS in TS.
Methods: A narrative review was conducted. Research in the following databases was performed: MedLine, PubMed, Scielo. Criteria of inclusion were articles published between 2016 and 2021, selected according to relevancy and adequacy. Criteria of exclusion were non-pertinent articles.
Results: Being TS a dysfunction in the Basal Ganglia and cortical-striatal-thalamic-cortical circuit, it is thought to be in one those sites that DBS

may present best results, nonetheless the precise optimal location it is still debatable and a myriad of targets have arisen. Recent studies showed the ideal target is likely the Internal Globus Pallidus, improving symptoms in 50%, followed by Centromedian parafascicular nucleus complex of Thalamus, with an improvement of 46.6%, measured by the Yale Global Tics Severity Scale (YGTSS).
Conclusion: DBS is possible to become a gold standard treatment for TS with no improvement by the usual therapy, but larger studies showing the efficacy of new targets are still necessary.

MeSH terms: Deep Brain Stimulation, Tourette Syndrome, Neurosurgery
Key words: Functional Neurosurgery, Tourette Disorder, Electrical Stimulation

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Epidemiology of accidental tetanus in Brazil from 2009-2019

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Background: Accidental tetanus is an infectious disease caused by acute intoxication from Clostridium tetani's exotoxin. Manifestations include intermittent tonic spasms due to central nervous system's hyperexcitability.
Objectives: To estimate the lethality rate and describe the epidemiological profile of patients diagnosed with accidental tetanus in Brazil.
Design and setting: Ecological descriptive study developed at Federal University of Fronteira Sul, Passo Fundo, Brazil.
Methods: The data was obtained from the Notifiable Diseases Information System (SINAN). All cases confirmed in Brazil from 2009 to 2019 were included. Variables sex, skin color, age group, outcome and region of notification were selected. Descriptive statistics were used based on absolute (n) and relative (%) frequencies and the lethality rate was calculated.
Results: 2,969 cases were included, with a 34% decrease from 2009 to 2019. The majority were male (85.3%), brown people (51%), age group of 40-59 years (39.9%) and in the northeast region (33.3%). Cure was seen in 52.5% and the lethality rate was 32.3%.
Conclusions: Though cases reduced, accidental tetanus still is a public health issue because of its high lethality rate. Immunization, offered by the Brazilian public health system, can prevent it, indicating the necessity to increase immunization rates.

MeSH terms: Tetanus; Epidemiology; Public Health.
Key words: Lethality coefficient; Neuroinfection; Immunization.

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Clinical Findings of Type 3 Spinocerebellar Ataxia

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Background: Spinocerebellar ataxias (SCAs) are a genetically heterogeneous group of progressive autosomal disorders of dominant inheritance with a gradual degeneration of the cerebellum and related pathways [1]. This leads to a movement disorder, loss of balance and coordination, accompanied by slurred speech [2].
Among the approximately 40 types of SCA, the spinocerebellar ataxia type 3 (SCA3), also known as Machado-Joseph disease, is the most clinically heterogeneous [3]. It involves the cerebellar, pyramidal, extrapyramidal, motor neuron and oculomotor systems [2].
Objectives: Understand the clinical findings of SCA3.
Methods: The review was based on papers from SciELO and LILACS databases. Articles presented in full, written in English or Portuguese, were researched.
Results: SCA3 is a consequence of the ATXN3 gene modification, which generates pathogenic repeated expansions of trinucleotides CAG, leading to polyglutamine coding. The common clinical phenotype includes the presentation of symptoms such as cerebellar ataxia, ophthalmoplegia, spasticity, basal ganglia symptoms, sensory symptoms, amyotrophy, including facial atrophy and fasciculations [4]. In addition, atrophy of the cerebellar vermis, hemispheres, brainstem and medial cerebellar peduncle are visualized on MRI in the early stages, resulting in an enlargement of the fourth ventricle. Furthermore, changes also occur in the caudate nucleus, putamen and upper cerebellar peduncle [5].
Conclusion: Through data analysis, there is a necessity to know the clinical and pathological characteristics of SCA3. This neurological disorder causes suffering for the patients, since it is a highly debilitating serious condition.

MeSH Terms: neuroimaging, spinocerebellar ataxias, machado-joseph disease.
Key words: clinical findings, SCA type 3, movement disorders.

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Frontotemporal dementia and Iowa Gambling Task: a literature review on decision-making process

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Background: Frontotemporal dementia (FDT) is related to memory and behavioral changes. There are variants in which the damage is more pronounced in one

cognitive domain. Among the behavioral changes is the decision-making process. To evaluate this skill executive function tests are used, such as the Iowa Gambling Task (IGT).

Objectives: Analyze the correlation between Iowa Gambling Task and decision- making process in patients with FDT.

Methods: A review was conducted on PubMed, using the key words "Iowa Gambling Task AND Frontotemporal Dementia", resulting in 4 papers. From those, 3 were included.

Results: In Gleichgerrcht et al. (2012) IGT was used as a parameter to investigate risk taking on the decision-making process in patients with Primary Progressive Aphasia (PPA) and its subtypes (PPA is frequently associated with FTD) versus subjects with behavioral variant from FTD (bvFTD). PPA subjects had no improvement throughout the task, proving that there is an impairment in decision-making. The bvFTD group progression showed that this group has a tendency to choose risky behaviors, suggesting an inability to foresee negative outcomes. In Girardi, MacPherson & Abrahams (2011) the frontal variant was analyzed in subjects with ALS and had similar results, showing also a failure to learn how to avoid disadvantageous choices. Torralva et al. (2017) analyzed the results on subjects with the frontal variant in which the results were consistent with the previous studies analyzed in this review.

Conclusion: In patients with FTD, the IGT proves thata cognitive impairment in the decision-making and risk-taking process is present.

MeSH terms: Frontotemporal Dementia; Neuropsychological Tests; Mental Status and Dementia Tests

Key Words: Frontotemporal dementia; Decision-making process; Iowa Gambling Test

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Neurofilament Light Chain (NfL) as a Potential Biomarker of Treatment Response in Hereditary Transthyretin-Mediated (hATTR) Amyloidosis: Patisiran Global OLE Study

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Introduction: Patisiran is approved for the treatment of hATTR amyloidosis with polyneuropathy and its long-term efficacy/safety is being studied in a Global OLE. Plasma biomarkers are being investigated for utility in facilitating earlier diagnosis and monitoring disease /treatment response.

Objective: Evaluate long-term change in neurofilament light chain (NfL) levels in response to patisiran in patients enrolled in the Global Open-Label Extension (OLE) study.

Methods: NfL plasma levels were measured in duplicate in healthy controls and patients with ATTRv amyloidosis with polyneuropathy using the Quanterix Simoa platform. Patient samples were analyzed from the APOLLO study at baseline and 18 months, and also measured at 12 and 24 months following APOLLO in patients who rolled into the Global OLE.

Results: NfL levels at APOLLO baseline were 63.2 (placebo) and 72.1 pg/mL (patisiran). NfL increased during APOLLO in the placebo group (99.5 pg/mL), whereas a significant decrease was observed at 18 months following patisiran (48.8 pg/mL). Reduced NfL levels were maintained in the APOLLO-patisiran group through 24 months of additional patisiran treatment in the Global OLE (44.0 pg/mL), consistent with maintained improvement in mNIS+7. Upon initiation of patisiran in the Global OLE, the APOLLO-placebo group experienced a reduction in NfL levels through 24 months (44.2 pg/mL), reaching a similar level to the APOLLO-patisiran group.

Conclusions: NfL may serve as a biomarker of active nerve damage and polyneuropathy, making it useful as a potential biomarker of disease progression, treatment response and for earlier diagnosis of polyneuropathy in patients with ATTRv amyloidosis and monitoring disease.

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Alcoholic Victims and Traumatic Brain Injury: Epidemiological Aspects and Clinical Manifestations

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Introduction: An integrative review was conducted to elucidate epidemiological and clinical aspects surrounding alcohol-involved brain injury (TBI) victims, highlighting its dubieties around the theme, especially with regard to the Glasgow Coma Scale (GCS).

Objectives: Expose the epidemiology and clinical aspects that may be distorted. Design and setting: Descriptive review conducted in João Pessoa, PB, Brazil.

Methodology: This is an descriptive review, based on the question: TBI in alcoholic victims. A survey of studies published in the BVS and SciELO databases was conducted with a temporal focus between 2018 and 2020.

Results: Epidemiological data were conclusive: most victims are male and young. Concerning the clinical aspects, the question that emerged was: is the evaluation by GCS of the alcoholic patient with suspicion of TBI accurate? The answer was negative. The use of the GCS was revealed to be inefficient, due to the reduction of motor and verbal response, which leads one to assume that it is motivated by alcohol. Additionally, alcohol in medium and high doses reduces blood pressure and elevates heart rate. These signs indicate the opposite of what is expected in a picture of intracranial hypertension caused by TBI. Such features disguise its severity.

Conclusions: It is necessary to outline a better way of assessing TBI in this group and to ensure that only alcoholic libation is not associated with lower GCS numbering, preventing concealment of the severity of the trauma.

MeSH terms: Brain injuries, Traumatic; Alcohol drinking; Glasgow Coma Scale

Key words: Alcoholic victims; Intracranial injury; Men and youth

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Mortality Rate of CNS neoplasms in childhood in Brazil

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Background: The variety of tumors of the Central Nervous System (CNS) during childhood is related to heterogenous clinical manifestations and to an important mortality rate (MR). In Brazil, CNS tumors represent the second most incident cancer during childhood and the main cause of death of children between ages 0-9.
Objectives: To describe the number of hospitalizations and the MR of CNS neoplasms by childhood age group in Brazil.
Design and Methods: This is a descriptive ecological study based on secondary data, obtained from DATASUS. Data were collected regarding the number of hospitalizations and MR by childhood age group due to neoplasm of the CNS in Brazil between the years 2009-2019.
Results: A total of 38192 hospitalizations happened, resulting in 5.91% of MR. The highest value of brain's neoplasms MR was found in children up to 1 year old (9,34%), but when it comes to number of hospitalizations, the group between ages 5-9 had the highest number, both in neoplasms of the brain (9364) and of other parts of the CNS (1767).
Conclusions: The present study pointed out that the childhood age group with the lowest number of hospitalizations (less than 1 year) presented simultaneously the highest MR of CNS tumors.

MeSH terms: Central Nervous System Neoplasms; Mortality Rate; Infant; Child.
Key words: CNS, childhood, hospitalizations, death rate, Brazil

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Early diagnosis of Relapsing-Remitting Multiple Sclerosis: a review of the bibliography from 2016 to 2021

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Background: Multiple Sclerosis (MS) is a neurodegenerative disease of the Central Nervous System (CNS), which damages myelin and axons by interrupting or reducing the flow of information. Early diagnosis of MS is essential to slow disease progression. The last review of the McDonald criteria, which organize the diagnosis of MS, took place in 2017 and it is necessary to understand the evidence that emerged in this period.
Objectives: Review the updates of the bibliography published between 2016 and 2021.
Design and setting: Bibliographic review made in Rio de Janeiro, Brazil.
Methods: This research was made from Pubmed database search with the descriptors "Multiple Sclerosis Relapsing-Remitting" and "Early Diagnosis" and the filters "free full text", "english", "Portuguese", "5 years", "humans". The discarded articles did not contemplate the entire theme in the design, content or quality of publication.
Results: Patients with the first clinical event suggesting MS that meet the criteria for space dissemination may be diagnosed with relapsing-remitting multiple sclerosis (RRMS) when oligoclonal bands in the cerebrospinal fluid are detected, while other methods such as infrared spectroscopy and diffusion tensor tractography still show many concomitant signs among the varieties of MS.
Conclusions: Cerebrospinal fluid analysis is the most sensitive criterion for early diagnosis of RRMS.

MeSH terms: Multiple Sclerosis, Chronic Progressive, demyelinating factors
Key words: criteria, Review, Cerebrospinal fluid

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Spending profile on hospitalizations for Alzheimer's disease in the state of São Paulo: quantitative analysis of the last 10 years.

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Introduction: Alzheimer's disease (AD) is a neurodegenerative disorder characterized by slow and progressive loss of cognition, which affects mostly elderly people, its prevalence and disabling outcome promote a strong financial impact.
Objectives: To present the profile of expenses with hospitalizations by the AD in São Paulo (SP), between 2011 and 2020, through the morbidity list of the CID10-G30, correlating with the character of care, average length of stay, values of professional and hospital services and average value for hospitalizations. Design and setting: This is an ecological, descriptive, retrospective and quantitative study.
Methods: Data were collected in the Hospital Information System of the Unified Health System (SIH-SUS).
Results: In SP, between 2011 and 2020, there were 4126 admissions for AD, with a predominance of emergency care (74.5%). Spending for hospitalizations was approximately R $ 7.5 million, hospital services accounted for approximately 91.3% of total costs, while professional services accounted for 8.7%. Elective services had an average stay of 61.7 days and corresponded to 63.1% of total expenses, urgent services had an average stay of 12 days and 36.9% of total expenses. The average value per hospitalization was R $ 1,824.92.
Conclusions: More than R $ 7.5 million has been spent on AD in the last decade in SP. Elective care had an average stay five times longer and with the costs for hospital services accounted for most of these expenses.

MeSH terms: alzheimer disease, memory loss, dementia
Key words: cognition, hospitalizations, hospital services

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Left atrial myxoma and transient ischemic attacks: case report

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Context: Cardiac tumors are rare and myxomas are the most prevalent between them. Although histologically benign, they may cause severe effects given their intracardiac location. Unspecific symptoms compromise the diagnosis, leading to complications such as changes in the cerebral vascular dynamics. Case report following the CARE guidelines.
Case report: A 62-year-old woman was admitted to a high complexity hospital in Minas Gerais, with history of unstable angina, aphasia, right hemiparesis, dysarthria, claiming precordialgia with strong intensity. Complained hyporexia and weight loss during the last month. Medical history of 7 transient ischemic attacks (TIA) in the last two years. Physical examination with no abnormalities. Chest x-ray and transesophageal echocardiogram showed bilateral neovascularization and 4.9 x 2.9 cm dimension mass in the left atrium. Coronary angiography revealed proximal calcification and atherosclerotic plaque occluding 40% of the flux in the middle third of the anterior descending artery, pointing to the coexistence of coronary disease and left atrial myxoma. The occurrence of a TIA was determined and the prescription of an anticoagulant to avoid future embolic events. A surgical approach was necessary. Biopsy concluded myxoid and hyaline-rich stroma tumor, evident vascular system, star-shaped cells isolated or forming small groups, confirming myxoma diagnosis. After a ten-day hospitalization, the patient was clinically stable, and was discharged after health education.
Conclusion: Cardiac tumors such as myxomas lead to important cerebral vascular consequences, so that the clinical investigation is essential to the differential diagnosis between a stroke and the TIA, to provide adequate treatment and disease prevention.

MeSH terms: Heart Neoplasms; Myxoma; Ischemic Attack, Transient; Echocardiography; Case Reports.
Key words: Atrial myxoma; Cardiac Tumors; Transient Ischemic Attack; Case report.

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Analysis of hospitalizations for complicated migraine in northeastern Brazil between 2010 and 2020

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Background: Migraine is characterized as a strong migraine attack with aura, presenting signs and symptoms such as nausea and vomiting, and when intensified and out of control it is called complicated migraine (CM). In addition, CM causes biopsychosocial problems to the patient, causing difficulties or inability to perform functions, such as work, among others.
Objectives: To analyze the number of hospitalizations for CM in northeastern Brazil from 2010 to 2020.
Design and setting: Cross-sectional, descriptive and observational epidemiological study conducted in the city of São Luís (MA), Brazil.
Methods: The source of the data was the Authorizations for Hospital Admission by CM, in northeastern Brazil, between January 2010 and December 2020, by the DATASUS system, using the keywords "treatment of complicated migraine".
Results: The northeast region showed a total of 12,602 hospitalizations for CM treatment, with the state of Maranhão accounting for most hospitalizations (3323). In the northeast, the year 2019 showed the highest prevalence (2260), while the year 2010 showed the lowest prevalence (517). Moreover, in the northeast region there was a total expenditure of 525,428.01 dollars on hospital services. The state of Pernambuco spent the most on hospital services for the treatment of CM (168,934.85 dollars).
Conclusion: In this study, the northeastern region presented a significant increase in the cases of CM in the period studied. In addition, the state of Maranhão was the most affected by CM and the state of Pernambuco generated most of the expenses for the treatment of this pathology.

MeSH terms: Headache, Epidemiologic study, Hospitalization
Key words: Cefaleia complicada, Nordeste do Brasil, Problemas biopsicossociais

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Epidemiological analysis of strokes in Grande Vitória, Espírito Santo

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Introduction: Stroke is a neurological syndrome resulting from a vascular injury that represents one of the main causes of morbidity and mortality in the world. Thus, cerebrovascular diseases are increasing in Brazilian statistics, especially the ischemic stroke, responsible for the highest incidence in cases, therefore characterizing a major public health issue.
Methods: In this descriptive and ecological study we used data provided by DATASUS concerning hospitalizations and deaths due to stroke, not specified as hemorrhagic or ischemic, occurred between January 2008 and December 2020 in the region of Grande Vitória, Espírito Santo (GV – ES).
Results: Overall, there were 10,199 hospitalizations due to stroke in the GV-ES. The prevalence was 57.2% in brown-skinned people, 26.2% between ages from 60 to 69 years old (26.2%) and 52% in Vitória. Among 2008 until 2014 there was an increase of 788.9% in stroke hospitalizations however between 2015 and 2020 there was a 30.5% reduction. In total there were 1,309 deaths, 64% were brown-skinned people, 29.2% above 80 years old and 51.3% in Vitoria. From 2008 to 2019, a 144.5% increase in the mortality rate was observed. In the analyzes there was no difference regarding the gender.
Conclusion: Data analysis inferred that old age and brown skin are risk factors for stroke in GV-ES, thereby requiring greater attention for screening and preventing this disease in those groups. Moreover, there was an increase in the mortality rate, even with reduction in the number of cases, reinforcing the need for effective and resolute care in the region.

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Therapeutic impact of hypothermia in traumatic brain injury management: systematic review

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Background: Traumatic brain injury(TBI) is an important component of mortality rate(MR) among young adults. Hypothermia(HT) is a treatment with questionable efficacy, given existing discordant views.
Objective: investigate the performance of HT in TBI.
Methods: Randomized controlled trials(RCT) from PUBMED, over the last five years, were analysed through the descriptors "Traumatic brain injury"; "Therapeutic hypothermia" and its MeSH variations. RCTs in individuals over 19 were included. After criteria were applied, four were selected for this review. This systematic review was submitted for registration on the PROSPERO plataform(ID: 253817).
Results: Eurotherm3235 segregated n=387 to a group subjected to HP and another to standard treatment, evaluating them through the Glasgow Scale. The RCT was interrupted due potential damage to the participants, and showed greater MR($p<0.05$) in the experimental group (EG). The POST-HOC of the B-HYPO sorted n=129 into a control group on fever management, and another group subjected to HT, separating them according to the injury. The patients with minor severity from the EG showed higher MR($p<0.05$). The RCT from Chunhai T et al.(n=60) subjected to decompressive hemicraniectomy, which were divided into those who received HT, and a control group, displaying an inferior MR in the EG ($p<0.05$). Feng JZ et al. with n=14 subjected the EG to HT, and analysed the participants through the magnetic resonance metabolomics, showing lesser MR and better recovery in the EG($p<0.05$).
Conclusion: The studies indicated disparate results. However, those with larger samples indicated worse prognosis between patients subjected to HT.

Key words: "Traumatic brain injury"; "Therapeutic hypothermia".

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Neuro-Behçet's Syndrome: case report

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Context: Behçet's Disease (BD) is a multisystem chronic disorder characterized by perivasculitis within several tissues, including the Central Nervous System – Neuro-Behçet's Disease, which accounts for 3 – 9 % of the BD patients. Neuro- Behçet's Syndrome may present as brainstem or pyramidal syndromes, myelopathies, meningoencephalitis, intracranial hypertension and movement or psychiatric disorders. The objective of the present work is to report a case of Neuro-Behçet's Disease, a rare and disabling disorder.

Case report: 24-year-old male presenting focal neurological deficits – hemiparesis on the right side and motor aphasia, associated with unstoppable hiccups and visual blurring. His previous pathological history featured several self-limiting episodes of the same neurological presentation, as well as acute exacerbations of oral and genital ulcers. Erythema Nodosum and Folliculitis were his main skin lesions. The ophthalmological evaluation showed bilateral cicatricial chorioretinitis. Laboratorial diagnostic procedures revealed left shift leukocytosis, high ESR, high protein level in the CSF and negative serology for B and C hepatitis, HTLV, HIV and toxoplasmosis. P-ANCA, C-ANCA, ANA and Rheumatoid factor were all found negative. Magnetic Resonance Imaging of the brain showed multiple oval- shaped T2-hyperintensity foci, with adjacent vasogenic edema, in the brainstem and basal ganglia areas – suggesting vasculitis. Treatment involved pulse therapy with Methylprednisolone, followed by Azathioprine and Prednisone. The patient has had full recovery and no other relapses.
Conclusions: This case illustrates the importance of investigating Neuro-Behçet's Disease in patients with neurological symptoms and oral/genital ulcers. The goal is to establish adequate and early treatment to improve the quality of life.

MeSH terms: Behcet Syndrome; Nervous System Diseases; Neurology
Key words: Neuro-Behçet's Disease; Central Nervous System; Rheumatology

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Cerebrovascular accident treatment procedures: an analysis of the national scenario

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Introduction: Cerebrovascular accident (CVA) is a medical emergency and it is the second cause of mortality worldwide. Due to high prevalence, systematic analyzes should be performed in order to help improve mortality curves.
Objectives: Analyze current scenario of CVA treatment procedures performed in Brazil during 12 years and correlate with results.
Methods: Literature review associated to an observational, descriptive and horizontal collection of hemorrhagic or ischemic CVA treatment data, available at DATASUS - SUS Hospital Information System (SIH / SUS) - from January 2008 to December 2019 - was carried out evaluating number of hospitalizations, public spending, complexity, mortality rate, permanence, character of care.
Results: 2,173,466 hospitalizations were reported, total expenditure of R$ 2,659,605,859.72. The highest number of hospitalizations and the highest amount spent occurred in 2019. Considering total procedures, 67,141 were performed as elective and 2,105,861 were urgent basis. 700,063 were performed in public services and 670,230 in the private sector, both of medium complexity. Total mortality rate was 16.62% - decreasing over the 12 years, with 2019 having the lowest rate, 15.72%. Mortality rate for elective procedures was 13.14% compared to 16.73% for urgent, whereas in the public sector it was 18.79% compared to 14.91% for the private.
Conclusion: Despite decreasing mortality over years, there is discrepancy between private and public services. In this scenario, high mortalityrate was found in both services although highlighted at the public sector. Better investments are needed, aiming to reduce global mortality.

MeSH terms: Acute Cerebrovascular Accident; Cerebral Stroke; Hospital Mortality
Key words: Stroke; Hospitalizations; Neurology.

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Dissecção espontânea da artéria carótida em jovem: Um artigo de revisão

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Background: Spontaneous dissection of the carotid artery is a significant cause of stroke in young people, and may be the etiology of up to 25% of ischemic strokes in this age group. Understanding the causes and clinical parameters about the disease is essential, since the perception of signs and symptoms that anticipate a cerebrovascular accident is an important prognostic factor.
Objectives: Expand knowledge about the clinical and etiological mechanisms of spontaneous carotid dissection, in addition to the possibilities of diagnostic tools, providing an early approach to the disease.
Methods: The study was carried out through the selection of scientific articles of systematic review on pathology, published in journals stored in the database of the Scientific Electronic Library Online (SCIELO), PUBMED and Google Scholar website.
Results: The pathology is associated with several factors, including systemic arterial hypertension, type II diabetes mellitus, antiphospholipid antibody syndromes, mild cervical trauma and genetic alterations. Acute ipsilateral pain to the neck, associated with unilateral throbbing headache, was the most reported symptom.
Conclusions: The perception of symptoms anticipating a cerebrovascular accident is essential to prevent secondary injuries. Although digital angiography is the gold standard test, MRI angiography and color Doppler ultrasound have been increasingly used during the acute phase of spontaneous carotid dissections.

MeSH terms: Carotid Artery Disorders, Artery Injury, Internal Carotid Artery Dissection
Key words: Carotid Arteriopathies, Dissection, Cerebrovascular Disorder

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Preliminary study on the number of deaths from neurodegenerative diseases in former Brazilian soccer players.

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Background: Neurodegenerative diseases have been reported in contact sports athletes. However, soccer has not been well characterized. Concerns were raised about the risk of neurodegenerative diseases being related to professional players in this sport.
Objectives: To compare mortality from neurodegenerative diseases among Brazilian soccer players with the general population of the country.
Methods: We conducted a retrospective cohort study. Causes of death were obtained from Brazilian teams' databases and online content/public domain.
Results: Among 1331 soccer players, 400 died. Acute Myocardial Infarction and Neoplasms were the highest causes of death, 58 and 53, respectively. We obtained a total of 35 deaths caused by neurodegenerative diseases. Alzheimer's disease (18 deaths) and Stroke (14 deaths) were the most prevalent causes. These results are similar to the causes most found in the general population of Brazil: ischemic heart disease, cerebrovascular disease, airway infections and Alzheimer's, in that order. This research had the following aspects as a limitation: the sources used were laymen, so the causes of death were not presented in a technical way in some moments; furthermore, the sampling space, still reduced, presented itself as another limitation.
Conclusion: Preliminary results showed no correlation between soccer in Brazil and the higher occurrence of neurodegenerative diseases. The data sources and the sample space that were used may have contributed to such conclusions. These observations need to be confirmed on a larger scale with the prolongation of the study.

MeSH terms: Athletes, Nervous System Diseases, Sports, Soccer, Football.
Key words: Alzheimer, Stroke, Degenerative disease.

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Cauda equina and conus medullaris syndromes due to Spinal Cord Schistosomiasis: a case report

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Context: Schistosomiasis is a prevalent disease in Brazil whose medullary form can be a serious and disabling condition. Diagnosis is clinical and laboratorial, based on neurological symptoms besides Schistosoma infection exams. Spinal Cord Schistosomiasis (SCS) can be associated with cauda equina syndrome (CES) adding "saddle" anesthesia and low back pain as symptoms.
Case Report: A 22- year-old male presenting progressive bilateral and proximal pelvic weakness associated with urinary and fecal incontinence besides mild low back pain during 4 months. Patient reports daily swimming practice in rivers. Neurological examination revealed grade 3 weakness of the proximal muscles, patellar hyporeflexia, saddle anesthesia and hypotonia of the proximal muscles. Magnetic resonance imaging of the lumbar spine showed conus medullaris fusiform enlargement, associated with T2 and STIR hyperintensity (edema), hyposignal in T1, findings suggestive of an inflammatory / infectious etiology. Laboratory tests revealed a complete blood count with mild leukocytosis and eosinophilia; positive IgG serology for schistosomiasis; increased protein levels in the cerebrospinal fluid; stool analysis was normal. The diagnosis of CES and conus medullaris syndrome due to SCS was established and treatment with prednisone and praziquantel was initiated, with significant improvement in clinical symptoms.
Conclusion: This case emphasizes the importance of early diagnosis and the initiation of appropriate therapy in order to prevent irreversible injuries in cases of CES and conus medullaris syndrome, both conditions of high morbidity that are often overlooked.

MeSH terms: Neurology; Neuroschistosomiasis; Nervous System Diseases
Key words: Schistosomiasis; Schistosoma myelopathy; Cauda Equina Syndrome

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Epidemiological aspects of Meningites in Brazil: a comparison between regions

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Background: Meningites are an inflammation of the meninges, more caused by virus, however, they are severe when caused by bacterias
Objectives: Analyze data regarding the epidemiology of meningites in Brazil.
Methods: Ecological study based on data of incidence and mortality by brazilian regions, sex and age affected by meningitis, between the year 2015 to 2020, available on Datasus.
Results: In the north were reported 1.027 cases, Pará the winner; in the southeast were found 10.882 cases, and São Paulo was the most responsible; in the northeast, 12.435 cases were recorded, with the largest number in Bahia; in the South, 19.299 cases were observed, Paraná with the greatest number; finally, the midwest with 916 cases, Goiás was the winner. 8.056 deaths were reported, with the record in the southeast region, with 51,7% of total deaths, followed by the northeast (17,3%), South 16,9%), north (7,9%) and the midwest (5,9%). There was a predominance of the diasease in males (87.189 cases) over females (51.858 cases). The age groups most affected were between 20-39 years old, followed by 1-4 years old. The most affected race were whites, with 49.648 cases, followed by browns with 26.235 cases.
Conclusion: The southestern region has higher mortality from meningitis and the South a higher incidence. The white race was the most affected and the age group between 20-39 years old.

Key words: meningitis, epidemiology, incidence
Author key-words: brasilian epidemiology, brain diseases, infection

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Mantle Cell Lymphoma recurrence and involvement of the central nervous system after bone marrow transplantation: case report.

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Introduction: Mantle cell lymphoma (MCL) is a subtype of uncommon non-Hodgkin lymphoma. The involvement of the central nervous system (CNS) is uncommon in the course of the disease.
Objective: To report a case of recurrence of MCL in the CNS as the first manifestation, after chemotherapy and bone marrow transplantation.
Case report: Male patient, 49 years old, with no previous comorbidities diagnosed with stage IV MCL (bone marrow), submitted to chemotherapy and autologous transplantation. After two years, he sought out the neurology clinic with a complaint of blurred vision. Neurological examination: without motor deficit; bilateral partial ptosis, bilateral divergent strabismus, tongue shift to the right. CSF with 230 leukocytes/mm^3, 70% of lymphocytes, glucose of 71 mg /dl and protein of 85 mg /dl; Skull MRI demonstrated bilateral and symmetrical enhancement of segments of the cisterns of the optic and oculomotor nerves; Trigeminal, facial, vestibulocochlear and glossopharyngeal, vagus and accessory nerves more exuberant on the left. CSF immunophenotyping showed CD19, CD5 and Kappa positive monoclonal, compatible with MCL recurrence. Intrathecal and systemic chemotherapy with methotrexate were initiated.
Discussion: Risk of recurrence of MCL and infiltration of the CNS is uncommon (3.9 - 5%). The patient did not show any signs of systemic involvement, only the neurological findings, which is atypical since the neurological presentation is more associated with recurrence of MCL with a course of systemic findings.
Conclusion: The authors point out that in patients with treated MCL who have neurological manifestations without systemic findings, tumor recurrence should be considered.

Key words: Lymphoma, Mantle-Cell, Central Nervous System

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Manifestations of COVID-19 infection in patients with Multiple sclerosis and Neuromyelitis optica

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Introduction: The pandemic caused by the new SARS-Cov2 coronavirus, raised concerns about the impact of COVID19 on patients with autoimmune diseases such as Multiple Sclerosis (MS) and the Neuromyelitis Optic Spectrum (ENMO), undergoing treatment with immunosuppressive, immunomodulatory and monoclonal antibodies.
Objective: To analyze the clinical evolution of COVID19 in patients diagnosed with MS and ENMO.
Methods: retrospective study including patients diagnosed with MS and ENMO at the demyelinating disease outpatient clinic at Hospital Santa Marcelina, who were diagnosed with COVID 19 from April 2020 to April 2021.
Results: 27 patients were included, with a mean age of ± 41.74 years (21 - 63 years), four with ENMO (14.81%) and twenty-three (85.19%) with Multiple Sclerosis (91.3 % with Sending MS - Recurrent (RR), and 8.7% with Secondary MS - Progressive (SP)). No patient had an outbreak, and only one (3.7%) had a pseudo-outbreak, 21 patients (77.8%) had nasal / oropharyngeal swab with positive RT-PCR for SARS-Cov2, 02 patients had negative RT-PCR and positive IgG (7 , 4%), and 04 patients (14.8%) with RT-PCR and serology not performed (presumed diagnosis of COVID19). Twenty patients (74%) had mild symptoms of COVID19, two (7.5%) with moderate symptoms, and another five (18.5%) with severe symptoms (admitted to the ICU), none of whom died. Four patients (14.8%) had an altered chest tomography (ground-glass pattern). Seven patients (34%) had some clinical or psychiatric comorbidity.
Conclusion: The manifestations and complications of COVID-19 in this group of patients were similar to those presented by the general population.

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Impact of Alzheimer's disease on the quality of life and daily activities of the elderly

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Introduction: With the increase in life expectancy, there is an increase in Alzheimer's Disease (AD). Characterized by being a degenerative and irreversible neurological disease, that leads to developing a dependence for daily activities.
Objective:To analyze the impact of AD on the quality of life and daily activities of the elderly.
Methodology:Integrative literature review, with bibliographic survey carried out on an international basis (PUBMED). Criteria for the selection of articles was: be published in English, in the period 2018-2020, available in full, whose theme was "Impacts on the quality of life that AD causes in the elderly".
Results: For the sample of this review 59 articles were selected, of which 48 articles were not specific to the topic, leaving a final sample of 11 articles included in the review. Identifying that AD has a strong impact on patient's quality of life, such as reduced autonomy and dependence on daily activities.
Conclusion: It was observed that there is a reduction in the quality of life of patients with AD, related to loss of autonomy and dependence in daily activities.Mesh-Terms: Degenerative Disease, Aged, Insanity.

Key words: Alzheimer's disease, Quality of life,older adults e daily activities.

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Epidemiological comparison of adults with TBI before and after the mandatory use of frontal airbags in Salvador

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Introduction: Traumatic Brain Injury (TBI) is an external trauma, which results in brain alterations. Law 11.910, which requires the presence of frontal Airbags, was developed as a mechanism to minimize the consequences of automobile accidents, like TBI.
Objectives: To epidemiologically compare adults with TBI before and after the mandatory use of Airbags in Salvador.
Design and settings: An ecological study in Brazil.
Methods: Data was published by the Ministry of Health through DATASUS. The selected timeframe was five years before and after the mandatory use of frontal Airbags (2014). The data collected were hospitalizations, deaths, mortality rate, age, and total value.
Results: The average mortality rate due to TBI (2009-2013) was 11.6, while decreasing from 2014- 2018 to 8.9 (reduction of 23,3%). The average amount spent in the period preceding the law was 1.250.675 reais, while afterwards it was 1.535.268 (increase of 22,76%). The age group with the most hospitalizations before the law was 20-29 years old, while after it was 30-39.
Conclusions: There was a reduction in the mortality rate after 2014, which may be associated with the mandatory use of *Airbags*. Prior to the law, the total amount spent was lower, possibly associated with a greater severity of injuries and, consequently,a higher number of deaths.

MeSH terms: traumatic brain injury; hospitalization; mortality.
Key words: airbags; death; brazil.

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Posterior Reversible Encephalopathy Syndrome in a multi- drug abuser and chronic dialysis patient

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Background: Posterior Reversible Encephalopathy Syndrome (PRES) considers two possible mechanisms, the interruption of cerebral self-regulation due to high blood pressure levels and vasospasm triggered by high pressure. The etiologies includes pre-eclampsia, immunosuppressants[1], illicit drugs and kidney diseases[2]. The clinic ranges from headache to coma[3,4].
Objective: Expose the relevance of PRES as a differential diagnosis among neurovascular pathologies.
Setting: Santa Casa de Misericórdia Hospital, Campo Grande- MS.
Methods: Clinical follow-up of the patient during the hospitalization period.
Case report: Male, 25 years, chronic dialysis kidney disease, uncontrolled hypertension, epileptic and multiple drug abuser. Admitted to emergency department with peak pressure, mental confusion, disorientation in addition to motor deficit, after epileptic crisis and abuse of drugs. First evaluation, pacient showed incomplete hemiparesis and hypoaesthesia on the left, predominantly brachio-facial (strength grade 3) and visual turbidity. Initial approach with antiepileptic and antihypertensive medication, associated with intermittent hemodialysis. In the evolution, he presented decreased strength. The magnetic resonance of the skull showed hypersignal in T2 and FLAIR of subcortical frontal-parietal and bilateral occipital predominance[1]. The arteriography of 4 vessels had presence of diffuse moderate vasospasm in the left, right carotid brain system and basilar vertebral system, compatible with the hypothesis. He underwent a new arteriography after treatment without vasospasm. Dischargedfrom the hospital with preserved bilateral sensitivity and strength.
Conclusion: Early identification of PRES allows resolute treatment once it has a favorable and benign clinical outcome[2].

MeSH terms: hypertension, benign, epileptic.

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Transcutaneous electrical nerve stimulation (TENS) in the management of post-thoracotomy pain: A systematic review

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Introduction: Thoracotomy is considered one of the most painful operative procedures in surgical practice, and postoperative pain control is a challenge.
Objectives: To evaluate transcutaneous electrical nerve stimulation (TENS) as a form of treatment for post-thoracotomy pain.
Design and setting: A systematic review conducted at the Pontifical Catholic University of Goiás.
Methods: A systematic literature review was performed in the PubMed and Lilacs databases with the terms: "Post-thoracotomy pain AND (Transcutaneous Electric Nerve Stimulation OR TENS)", being selected randomized controlled trials, clinical trials and case reports. Studies that did not fit the objectives were excluded.
Results: TENS was shown to be a safe and effective therapy in the management of acute post-thoracotomy pain in the emergency department; however, the technique did not decrease the length of hospital stay or early pulmonary complications. One such study pointed to decreased shoulder flexion pain in patients undergoing axillary thoracotomy for lung resection, with pain sensation significantly decreased in the experimental group. In consonance, other trials emphasized the importance of the association of TENS with pharmacological therapy already employed in the emergency department, because patients who received fentanyl and bupivacaine associated with TENS perceived an immediate reduction in pain intensity at rest.
Conclusion: TENS has proven to be a very effective and safe therapy in the treatment of postoperative pain in patients undergoing thoracotomy, improving their quality of life and reducing the consumption of analgesics.
Systematic Review Registration: ID=254435; https://www.crd.york.ac.uk/PROSPERO/

MeSH terms: Pain, Postoperative; Thoracotomy; Transcutaneous Electric Nerve Stimulation.
Key words: Post-thoracotomy pain; Electroanalgesia; TENS.

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Transcranial Direct Current Stimulation in the Management of Refractory Symptoms of Parkinson's Disease: A Systematic Review

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Introduction: Transcranial direct current stimulation (tDCS) is a non-invasive brain stimulation technique increasingly used in neurology.
Objectives: To evaluate the safety and efficacy of tDCS in refractory symptoms of Parkinson's disease (PD).
Design and setting: A systematic review of the literature conducted at the Pontifical Catholic University of Goiás.
Methods: A systematic review of the literature was conducted in the MedLine and Lilacs databases, with the following search strategy: "(Parkinson Disease) AND (Transcranial Direct Current Stimulation OR TDCS)". Randomized clinical trials (10 years) were included.
Results: One of the studies concluded that simultaneous tDCS of the primary motor cortex (M1) and dorsolateral prefrontal cortex (DLPC) Also, two other articles evaluated the motor response after stimulation of the left DLPC for 20 minutes, with the first realizing improved fine motor performance and attenuation of common oscillatory cortical activity in PD patients, while the second finding an improvement in balance and functional mobility when compared to placebo. Regarding cognitive and mood changes, one of the studies pointed out that a single session of tDCS on the left DLPC is insufficient to improve working memory and inhibition control.
Conclusion: tDCS was shown to be a safe and effective therapeutic option in reducing gait freezing and mood disorders, as well as improving fine motor performance and cognition. It is emphasized that further studies on the subject with a larger sample are needed.
Systematic ReviewRegistrationID=254286; https://www.crd.york.ac.uk/PROSPERO/

MeSH terms: Parkinson Disease; Transcranial Direct Current Stimulation; tDCS.
Key words: Non-invasive brain stimulation; Neurology; Parkinson's disease.

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Ramsay Hunt Syndrome complicated by Cerebral venous thrombosis (case report)

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Context: Ramsay Hunt syndrome is a condition caused by the Varicella-Zoster Virus in the geniculate ganglion and leads to peripheral facial nerve palsy and erythematous vesicular rash in the affected area. It is a rare disorder but is the

second most common cause of peripheral facial nerve palsy without trauma. Cerebral venous thrombosis is a rare cerebrovascular disease and responsible for only 0.5% of all strokes. Among its causes are oral contraceptives, infection in the central nervous system, systemic inflammations, and thrombophilia.

Case report: We report the case of a previously healthy 29 years old woman diagnosed with Ramsay Hunt syndrome followed by cerebral venous thrombosis two weeks later. Her first admission to the hospital was due to pain in the face and a pulsing type right hemicranial headache. It started in the cervical region and was irradiated to the right retroorbital and auricular area, with difficulty contracting the right eyelid, otalgia, and vertigo. She used oral contraceptives, had two cesarean deliveries, and quitted smoking at 20 years old. She had multidirectional and bilateral nystagmus with fast phase to the left, right peripheral face paralysis, and crusts in the right ear canal.

The patient was treated with aciclovir and prednisone, with good recovery. Two weeks later, she returned because of two episodes of convulsion and headache. Brain CTA (computed tomography angiography) showed cerebral venous thrombosis.

Conclusion: Cerebral venous thrombosis is a rare complication of Ramsay Hunt Syndrome. It is important to stay alert to the development of vascular complications in these patients.

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Thoracolumbar progressive myelopathy due to extra-dural arteriovenous fistula

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Context: Arteriovenous dural fistulas are the most common spinal vascular malformations and constitute a reversible cause of progressive myelopathy. This disease affects elderly men and are classically found at the thoracolumbar region.

Case report: A 69year-old man was admitted to the Neurology outpatient clinic with weakness in his left inferior limb for the past 10 years; 2 years before the evaluation, the weakness progressed also to the right inferior limb, causing inability to walk, and 1 year after the patient noticed urinary incontinence and sexual dysfunction. Physical evaluation showed grade-II paraparesis with spastic hypertonia; hypoesthesia below T-10 dermatome; hyperreflexia with clonus and Babinski sign in inferior limbs. Investigation with MRI showed abnormal hypersignal within spinal cord from T6-T7 to the medullary cone; CSF sample had hyper protein count without pleocytosis. Before the hypothesis of non- compressive, non-inflammatory and non-infectious myelopathy, we performed a spinal angiography – which diagnosed a dural arteriovenous fistula at the level of T8 connecting spinal with extradural vessels. The patient was then treated by endovascular therapy with fistula embolization.

Conclusion: Although being the most common vascular spinal malformation, arteriovenous dural fistulas are rare and underdiagnosed because of their nonspecific symptoms. The aim of treatment is the shunt occlusion but its prognosis depends on the duration and intensity of symptoms before treatment. This report's aim is to exemplify a typical case of this condition.

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An Eye of a Tiger cannot see all the true: a case series

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Background: Multiple System Atrophy is a neurodegenerative disease with parkinsonism, cerebelar ataxia and autonomic failure. Neurodegeneration with Brain Iron Accumulation diseases are neurodegenerative diseases, as the Pantothenate Kinase-Associated Neurodegeneration, with a very distinct pattern on neuroimaging, known as the "Eye of the Tiger Sign", which is rare in MSA but many studies confirm the role of striatal regions iron accumulation in parkinsonisms.

Objective: We describe MSA patients with iron accumulation in striatal regions in neuroimaging.

Methods: We report clinical cases from São Paulo State University-Brazil.

Results: 62-year-old with 5 years of bradykinesia and stiffness progressing to wheelchair, REM sleep behavioral disorder, no improvement with levodopa, disarthrophonia and choking with gastrostomy after 3 years, associated to syncope episodes. Neurological examination showed blood pressure of 105x80mmHg lying down and 80x60mmHg standing up, severe disarthrophonia, anterocapitis, severe parkinsonism, postural instability and ataxia. Neuroimaging showed the "Eye of the Tiger", "putaminal rim" and the "hot cross bun" signs. 78-year-old with 1.5 years syncope episodes, slow walking, falls, difficulty moving hands and feet and constipation. No improvement with levodopa. Neurological examination showed blood pressure of 130x80 mmHg lying down and 90x60 mmHg standing up, severe bradykinesia and stiffness, drooling, ataxia and "square-wave jerks". Neuroimaging showed "Eye of Tiger" and bilateral "putaminal rim" signs and cerebellar atrophy. In both cases were excluded all differential diagnosis.

Conclusions: Both cases fulfilled criteria for MSA, with the radiological sign of the "Eye of the Tiger". We emphasize the importance of knowing this variation of MSA to avoid diagnostic confusion.

Key words: Multiple system atrophy; Eye of the tiger; Neurodegeneration with brain iron accumulation nbia; Neurodegenerative Diseases; Brain iron accumulation; Striatal iron accumulation.

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Traumatic brain injury in Brazil: a comparative analysis between deaths and hospitalizations from 2015 to 2019

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Background: Traumatic brain injury (TBI) is a type of head injury with great relevance to the health service, affecting an average of 100,000 Brazilians/year. It's one of the main causes of trauma morbidity and mortality, becoming an important public health problem.

Objectives: Analyze the evolution of deaths, mortality rate (MR) and hospitalizations by TBI in Brazil during 2015-2019.

Methods: An epidemiological, retrospective, descriptive study was carried out, using data from the Information Technology Department of the Unified Health System (DATASUS), during 2015-2019.
Results: 514,666 hospitalizations and 48,554 deaths from TBI were reported during 2015-2019 in Brazil. In hospitalizations, the year with the highest records was 2015 (20.8%, n=106,980), while the lowest was 2019 (18.3%, n=94,055). There was a progressive reduction in hospitalizations in the period, with a decrease of 12.1% of hospitalizations in the interval. The number of deaths varied from year to year, with peak prevalence in 2016 (21.1%, n=10,264), and a progressive reduction after that year about 15.3% until 2019 (17.9%, n=8,691). Most deaths occurred in the Southeast (45.6%, n=22,144), while the Midwest (6.5%, n=3,169) registered lower rates. However, the highest MR recorded was in the North (MR=6.9), exceeding the national average (MR=6.3) in the period, while the lowest belonged to the South (MR=6.1).
Conclusion: Despite the variations between 2015-2019, there was a decrease in deaths and hospitalizations in the period. Deaths were concentrated in Southeast, however, the largest MR was in the North.

MeSH terms: Traumatic brain injury; hospitalization; epidemiologic research.
Key words: Trauma; health profile; hospital mortality.

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Relationship between the quantity of treatments and the incidence of spina bifida in Brazil

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Background: Spina bifida is the second leading cause of motor disability in childhood. Therefore, it's important to know if the therapeutic offer for spina bifida is fulfilling its demand.
Objectives: To evaluate the relationship between the number of treatments and the incidence of spina bifida in Brazil, between 2016 and 2019.
Design and Setting: Descriptive, retrospective study, with secondary data collected in the Hospital Information System of SUS (SIH / SUS) and the Information System of Live Births (SINASC), between 2016 and 2019, in Brazil.
Methods: Variables used: frequency ofspina bifida by live births and quantity of treatments.
Results: In 2016, the frequency of spina bifida by live births was 746 and the number of procedures for treating the disease was 360, resulting in a 0.48 ratio between the treatment quantity and the affected live births. In 2017, the frequency was 711 and the procedure quantity was 337, with a 0.47 proportion. In 2018, the frequency was 726, the procedure quantity 294, with a 0.4 proportion. In 2019, the frequency decreased to 694, with 288 procedures, and a 0.41 proportion. In total, there were 2,877 live births with spina bifida and 1,300 hospital procedures, with a proportion of 0.45.
Conclusions: The study shows a clear disparity between the frequency of spina bifida and the procedure quantity for this condition. In addition, the number of procedures was decreased, without a proportional declination in the disease incidence, indicating a need for greater public investment for such treatments.

MeSH terms: Bifida, Spina; Defect, Congenital; Treatment.
Keywords of the author: Dysraphism, Spinal; Abnormality, Congenital; Defect, Birth; Malformation, Fetal.

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Pure neural leprosy or amyloid neuropathy? systematic review and clinical case report

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Objective: To review the literature, including a clinical case discussion with suspicion of pure neural leprosy and final diagnosis of amyloid neuropathy.
Methods: The study was conducted on May 28, 2020. A systematic review of the literature was conducted, with searches in PubMed, Medline, Lilacs and BVS MS using the descriptors: neuritic leprosy, pure neural leprosy, primary neural leprosy, pure neuritic leprosy, amyloid polyneuropathy, amyloid neuropathies, amyloid polyneuropathy. Clinical trials, cohorts, cross-sectional, clinical cases and case studies, published in Portuguese, English or Spanish between 2010 and 2020 were included. Then, a case report with an initial suspicion of pure neural leprosy was presented. Laboratory tests, electroneuromyography, ultrasound and biopsy of the sural nerve were requested.
Results: 23 scientific texts were included. No publications with the two themes together were found. Diagnosis of pure neural leprosy and the possibility of using auxiliary resources were the most prominent themes in the studies. In the clinical case, the patient's electroneuromyography showed sensitive and motor polyneuropathy of lower limbs, symmetrical, of moderate intensity, of the mixed type (axono- demyelinating), sensitive and axonal. Ultrasonography of the sural nerve revealed changes in the contour of the deep fibular nerves and biopsy of the sural nerve demonstrated the accumulation of amorphous eosinophilic material in the nerve path and Congo red staining showed birefringence of the deposit in apple-green under polarized light. The final diagnosis was amyloidotic neuropathy.
Conclusion: Clinical diagnosis was amyloidotic neuropathy. Diagnosis of pure neural leprosy in endemic areas of Brazil is a challenge for the health system.

Key words: Leposy; amyloid neuropaty; Pure neural leprosy

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"Striatal Hand Signs" and early diagnosis of Parkinson's Disease: The "Monkey-Wrench Sign"

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Background: Striatal hand signs, first described by Charcot, are reported in 10% of advanced Parkinson's Disease patients as flexion of the metacar-

pophalangeal joints, extension of proximal interphalangeal joints, flexion of distal interphalangeal joints and ulnar deviation. Another deformation is the metacarpophalangeal joints flexion and thumb medialization (U shaped - "Monkey-Wrench sign"). We believe that mild hand deformities are present in earlier phases of the disease and may help the diagnosis of PD. **Objectives:** To identify hand deformities in PD patient.
Methods: We evaluated 36 PD patients, according to UKPDS Brain Bank Diagnostic Criteria, side of onset, disease duration, severity by UPDRS part III - left/right side, hand deformities and the "monkey-wrench sign".
Results: We had 14 patients <4 years of disease duration,9 between 4 to 10 years, 13 with >10 years. 2/3 had left side onset. 33 patients (91.67%) presented the "Monkey- Wrench sign", unilaterally or asymmetrically, and it was present in all PD patients > 4 years of disease onset, but it was presentonly in 78.6% less than 4 years. The "MW" sign was easily detected in the moreaffected side, with a mean UPDRS score of 31.1 on the side of striatal hand signscompared to the mean score of 24.7 on the less affected side.
Conclusions: Striatal hand deformities and the "Monkey-Wrench" sign may be useful to diagnosis PD, if unilateral or asymmetrical signs, as well as, it could be used to differentiate between tremors of PD and other etiologies, in a more visual way.

Key words: Parkinson disease; Hand deformities; corpus striatum; striatal hands; Monkey-Wrench Sign; Parkinson signs.

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Dravet syndrome and Dravet-like phenotype: a systematic review of the SCN1A and PCDH19 variants

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Background: Dravet syndrome (DS) is a rare and severe epileptic syndrome of childhood with a prevalence around 1/40,000 people worldwide. Approximately 80% of patients with DS present *SCN1A* pathogenic variants, which encodes an alpha subunit of a neural voltage- dependent sodium channel. *SCN1A* variants were also related to DS. There is a correlation between *PCDH19* pathogenic variants, encodes the protocadherin 19, and a similar disease to DS known as DS-like phenotype.
Objectives: To clarify the differences between DS and DS-like phenotype according to the *SCN1A* and *PCDH19* variants.
Methodology: A review from March/2019 to November/2020 was conducted in PubMed and VHL databases, following PRISMA criteria.
Results: 19 studies were included and a significant proportion ofpatients with DS carrying *SCN1A* was greater than patients with DS-like phenotype harboring *PCDH19* variants (76.6% vs. 23.4%). Considering *SCN1A* and *PCDH19*, 47 variants were pathogenic and 12 of uncertain significance; 25% were deletions and 75% were single- nucleotide variants. Autism was predominantly observed in patients with DS-like carrying *PCDH19* variants compared to *SCN1A* variants carriers (62.5% vs. 37.5%, p=0.044). In addition, it was noticed a significant predisposition to hyperthermia during seizures in patientswith variants in the *PCDH19* (p=0.003). There was no significance differences between both groups and cognitive deficit, ataxia, behavior problems, and motor deficit.
Conclusions: Thestudy is the first to point out differences between the DS and DS-like phenotype according tothe *SCN1A* and *PCDH19* variants.

MeSH terms:"Myoclonic Epilepsy","Severe Myoclonic Epilepsy of Infancy","Epilepsy"
Key words: "Dravet syndrome", "*SCN1A*", "*PCH19*", "Dravet-like syndrome"

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Effect of DBS on decreasing pain intensity in individuals with PD: a systematic review

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Background: Pain is a common non-motor symptom in Parkinson's disease (PD), causing impairment in the functionality and quality of life.
Objectives: To summarize the effects of deep brain stimulation (DBS) on pain intensity in PD.
Design: Systematic review.
Methods: A search was conducted using the Pubmed, Scielo, Embase, Lilacs, and Cochrane databases. Keywords were: "Parkinson* AND ("DBS" OR "deep brain stimulation") AND "pain". Complete available articles that measured pain intensity before and after DBS were selected.
Results: Of the 251 studies, 17 met the criteria. The sample included from 14 to 79 patients (n = 532). The time of surgery was 3 to 96 months. The subthalamic nucleus was the main surgical target. Seventeen and 389 individuals were submitted to unilateral and bilateral implantation, respectively. Globus pallidus was used as a surgical target in three studies. The unilateral implant was performed in 12 patients and the bilateral in 37. Different instruments were used to measure the pain intensity. It declined after surgery in all studies.
Conclusion: The results show that pain intensity decreased after DBS, and most studies performed bilateral stimulation in the subthalamic nucleus. This information is important in guiding the therapeutic approach in PD patients with pain. However, the different surgical parameters and instruments used to assess pain limit the summarization of results.

Mesh-Terms: Parkinson disease, pain, neurosurgery

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The Impact of Meditation on the Cognitive Functions of Patients with Alzheimer's Disease

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Introduction: Alzheimer's disease (AD) is the most common form of dementia, which has no cure and, also, effective therapies to prevent or slow the

progression of AD remain elusive. Thus, it is necessary to find another way to treat this disease

Objective: Investigate the impact of meditation on the cognitive function of patients with AD.

Methods: In April 2021, a systematic review was carried out on MEDLINE using the descriptors: "Meditation" and "Alzheimer Disease" and their variations. Studies published in the last 10 years and in English were included.

Results: Of the 40 articles found, four are part of this review. It was showed that meditation generates improvements in memory as it increases cerebral blood flow, stabilizes synapses and elevates important neurotransmitters. Aligned, it can improve sleep quality and retrospective memory function. Furthermore, daily practices help in neuropsychological conditions and generate beneficial changes in brain structure and function. Finally, it provokes changes in the brain network, such as the increased power of the theta band, involved in memory processes.

Conclusion: The results imply a positive effect of meditation on patients with AD. However, further research is needed to confirm the validity of the results.

MeSH terms: "Meditation"; "Alzheimer Disease", "Cognition".
Key Words: "Meditative Practices"; "Alzheimer", "Cognitive Functions".

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Cavernous sinus thrombosis as a serious complication of sphenoid sinusitis in children

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Introduction: The cavernous sinus is a venous plexus delimited by the dura mater and sited at the base of skull, laterally to the sella turcica and to the sphenoid sinus.

The cavernous sinus thrombosis (CST) is a serious illness that may result from infection of any tissue drained by the cavernous sinus (septic thrombosis). Septic thrombosis (ST) may occur through the suppurative process by the level of the orbit, of the upper half of the face or paranasal sinuses , constituting a critical complication of sinusitis.

Objectives: To verify the association between cavernous sinus thrombosis and sphenoid sinusitis in children, in the bibliographic productions of the last 10 years**.**

Methods:This is an integrative literature review, with a search carried out in the database of the Medical Literature and Retrieval System onLine (MEDLINE), using a combination of the following Health Sciences Descriptors (DECS): "Sphenoid Sinusitis" and "Thrombosis" And " Cavernous sinus" in " Children ". Incomplete studies were excluded from the research, carried out before 2012, totaling 7 bibliographic studies for detailed analysis.

Results:CST can result from infection of any tissue drained from the cavernous sinus. This includes the face, tonsils, soft palate, teeth and ears.Only 15% of cases of CST in patients up to 12 years of age, originated from the paranasal sinuses. However, more recent studies advance that sinusitis is currently the most common etiology. When the sinuses are the cause of CST, the sphenoid sinus emerged as the most common primary source of infection predisposing to CST, since it has important anatomical relationships with the cavernous sinus. Streptococcus has been reported as the most common organism associated with sphenoid sinusitis.

Conclusion: Although CTS is a rare clinical condition, acute and persistent sphenoid sinusitis can progress to such a condition, despite medical treatment. The main support of treatment includes early diagnosis, aggressive intravenous antibiotics and appropriate surgical treatment.

MeSH terms: Thrombosis;Child Health;Sinus Cavernous
Key words: Sphenoid sinusitis;Septic thrombosis;Neuroinfection

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Case report - Ataxia-telangiectasia: innate error of immunity and neurological aspects

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Introduction: Among more than 350 immunological deficiencies, 25% have neurological manifestations. Thus, Ataxia-telangiectasia stands out, being considered a combined immunodeficiency. In childhood, cerebellar motor findings and recurrent sinopulmonary infections, signaling early cerebellar degeneration and deficit in the combined immune response. It has an autosomal recessive inheritance pattern.

Case report: She describes herself as a female patient, 9 years old, daughter of consanguineous parents and born in Sousa, Paraíba. In the child's neuropsychomotor development, she sat down at 5 months, verbalized loose words at 12 months and started the process of ambulation at 13 months of life. While walking, the mother noticed strange walking and frequent hospitalizations due to recurrent pneumonia. From 7 years of age, there is worsening of gait and telangiectasias in the conjunctiva are evident. Subsequently, the molecular examination in order to demonstrate the possible mutation. Therefore, a mutation described as c.7913G> A (p.Trp2638 *) was found in homozygosity in exon 53 of the ATM gene. Findings: typical onset of early childhood when walking, swallowing problems with solid and liquid foods and the growth disorder. Regarding the immune system: low levels of immunoglobulins, but without lymphopenia and the worrying presence of adenomegaly, making it necessary to always pay attention to neoplasms such as leukemias and lymphomas. In disagreement, there are no: myoclonus, the highest IgM levels, cutaneous granulomas and bone deformities.

Conclusions: The case presents aspects that are very consistent with the scientific findings consolidated in Ataxia-telangiectasia, but the late molecular diagnosis.

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Neuroprotective Effects of Creatine Supplementation in Neurodegenerative Diseases

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Introduction: Creatine is important in providing energy for the resynthesis of adenosine triphosphate (ATP) and in the deposition of intracellular energy,

being present mainly in muscle fibers and in the brain. Supplementation with exogenous creatine can be used in neurodegenerative disorders that are related to bioenergetic deficits in the etiology and progression of the disease.
Objective: Highlight the neuroprotective mechanisms of creatine supplementation in neurodegenerative diseases.
Methods: In April 2021, a search was carried out on MEDLINE, with the descriptors: "Creatine" and "Neuroprotection"; and its variations, obtained in MeSH. Studies published in the last five years were included.
Results: Of the 122 articles found, four were used in this work. They concluded that creatine supplementation contributes to brain bioenergetics by increasing phosphocreatine deposits, restoring mitochondrial functions and decreasing susceptibility to apoptosis. In addition, creatineintake shortly after the diagnosis of Huntington's and Parkinson's Diseases can be used as a complementary therapy, because improve performance in tasks of memoryand intelligence. Finally, it buffers cellular concentrations of ATP, being a possible therapeutic strategy to delay or stop neurodegeneration diseases.
Conclusion: Creatine promote important neuroprotective effect, but further studies on the subject are needed.

MeSH terms: "Creatine"; "Neuroprotection", "Neurodegenerative Diseases".
Key Words: "Creatine Supplementation"; "Neuroprotective Effect", "Neurodegeneration".

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Relato de caso: Dissecção Carotídea associada a Síndrome de Eagle

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Context: Eagle syndrome is characterized by the elongation or disfiguration of the styloid process, which leads to a range of clinical manifestations resulting from the structures that are affected by the prolongation of the bone, and the classic presentation is composed of pain and foreign body sensation in the throat, otalgia, and dysphagia.
Case report: We describe the case of a 60-year-old man with an ischemic stroke due to dissection of the left internal carotid artery, associated with compression resulting from Eagle syndrome. At clinical presentation, the patient presented right hemiparesis and severe dysphagia, with NIH=18, characterizing the stroke. An angiotomography of the skull and brain was performed, which showed an image compatible with dissection of the left internal carotid artery from the prolongation of the styloid process, characterizing Eagle syndrome stylocarotid syndrome. The patient was submitted to thrombolysis with rt-PA, presenting a partial response, and surgical bone reduction. Patient evolved with partial recovery, with NIH=10, and, at the time of discharge, presented RANKIN 1, symptoms without disabilities.
Conclusion: The Eagle syndrome, while it occurs more frequently in women, in general, with the classic presentation, can evolve with a more severe picture, associated with vessel dissection and brain involvement.

Mesh-terms: Elongated styloid process syndrome; Eagle's syndrome; elongated styloid process.

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Acupuncture as a therapeutic option for tension-type headache: A Systematic Review

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Introduction: Tension headache (TTS), the most common type of primary headache, is characterized by tightness pain, typically bilateral, lasting hours or days, significantly impairing daily activities.
Objectives: To review the literature on the use of acupuncture in the management of TTS, evaluating its safety and efficacy.
Design and setting: A systematic review conducted at the Pontifical Catholic University of Goiás.
Methods: A systematic literature review was performed in the PubMed, EMBASE and Virtual Health Library databases, with the terms: "Tension-Type Headache AND Acupuncture". Randomized studies and clinical trials published in the last 10 years were selected.
Results: Two studies, one clinical trial and one randomized trial, concluded that combining acupuncture with another therapy involving movement, such as stretching, physical therapy techniques, or relaxation training, led to reduced pain intensity and improved quality of life in patients with TTS. In contrast, other randomized clinical trials concluded that relaxation training decreased the intensity, frequency of attacks, and adjunctive symptoms of headache (sleep and vitality) more than acupuncture. Finally, acupuncture was compared with the simulated control process in the prevention of TTS, but there were no statistically significant differences between the two groups evaluated.
Conclusion: The literature indicated that the combination of acupuncture with other therapeutic options was safe and effective in the management and prevention of TTS. Studies with greater scientific rigor should be conducted for a better understanding of this therapeutic option.
Systematic Review Registration: ID=254713; https://www.crd.york.ac.uk/PROSPERO/

MeSH terms: Tension-Type Headache; Acupuncture; Headache.
Key words: Neurology; Pain; Treatment.

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Anti -Iglon5 Syndrome: What we know so far? A non-systematic review

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Background: The first report of Anti-IgLON5 syndrome was in 2014. Anti-IgLON5 antibodies have a prevalence of 12 in 150,000 patients per year. However, considering the unreported patients, the prevalence can be much higher.
Objectives: Provide an overview of the current knowledge of Anti- IgLON5 syndrome.

Design and setting: Narrative review.
Methods: Non- systematic review on Pubmed database.
Results: The IgLON proteins are a family of cell adhesion molecules and the presence of antibodies against IgLON5 is crucial for the AntiIgLON5 Syndrome diagnosis. This syndrome has an expanded clinical spectrum that involves prominent sleep disorder, progressive bulbar dysfunction, gait instability with abnormal eye movements reminiscent, and cognitive deterioration sometimes associated with chorea. The main neuropathological finding is the neuronal loss with hyperphosphorylated tau protein accumulation at the hypothalamus, brainstem tegmentum, hippocampus, periaqueductal gray matter, medulla oblongata, and upper cervical cord. The exact pathogenesis is still unclear and involves a neurodegenerative process and autoimmune response. Early diagnosis is important to avoid unnecessary tests and prevent complications. Important resources for diagnosis are the antibody testing of serum and cerebrospinal fluid for IgLON5-IgG. The Anti-IgLON5 syndrome mortality is high and new studies published described a good response to immune therapy, however, depends on some clinical and analytical characteristics.
Conclusions: The Anti-Iglon5 syndrome is a pathology still poorly studied and described in the medical literature (only in case series, for example), being a syndrome probably underdiagnosed. Future studies are needed to thoroughly analyze the aspects of pathogenesis and treatment of this important pathological syndrome.

MeSH terms: Autoimmune Diseases; Sleep Wake Disorders; tau Proteins; Cell Adhesion Molecules, Neuronal.
Key words: IgLON5; Desordem do sono; Neuroimunologia; Proteína tau.

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Medical Complications at a Stroke Unit (SU) of a Tertiary Center in Brazil

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Background: Stroke is the second leading cause of death in Brazil. All stroke patients should receive care at a SU in accordance with the guidelines of the American Heart Association (AHA)/American Stroke Association (ASA) - Class of recommendation I. Our institution is provided with a SU since 2019.
Objective: To describe the rate of medical complications at our SU.
Design and setting: This is a longitudinal descriptive study settled at the ICHCFMUSP.
Methods: The incidence of complications during hospitalization at the UAVC was prospectively recorded. The rates of pneumonia, pressure ulcer, urinary tract infection (UTI), and venous thromboembolism (VTE) were analyzed. The period analyzed was from january/2019 to december/2020.
Results: 379 patients were admitted at our SU. 50 patients (13.1%) presented at least one complication. 35 patients had only 1 complication, 13 patients had 2 complications, 1 patient had 3 complications and 1 patient had 4 complications. The most frequent complication was UTIs (7.9%), followed by pneumonia (5%), pressure ulcer (2.3%) and VTE (2.3%). 4 patients died during hospitalization at the SU.
Conclusion: The rate of complications in our SU is low according to the literature.

MeSH terms: stroke; urinary tract infection; venous thromboembolism; pressure ulcer.
Key words: stroke unit; medical complications; stroke care.

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Benefits and Challenges of Cannabis Use in the Treatment of Refractory Epilepsy

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Introduction: Refractory epilepsy (RE) is a disease that causes continuous and debilitating seizures. Due to the ineffectiveness of antiepileptic therapies, there is a growing interest in drugs made with cannabidiol (CBD), a substance extracted from Cannabis.
Objective: To point out benefits and challenges of the use of CBD in the treatment of RE.
Methods: Literature review performed at PubMed, with the descriptors Epilepsy, Drug Therapy and Cannabis.
Results: It is suggested that CBD is mediated by cannabinoid receptors coupled to protein G, by blockade of NMDA receptors, by GABAergic modulation, glutamatergic synapses and / or mechanisms involving non-cannabinoid receptors. CBD can also oppose the actions of exogenous and endogenous cannabinoid agonists, due to the negative allosteric modulation. The benefits of CBD are: great therapeutic diversity, safety and tolerability, rare and mild side effects, low risk of drug interactions, and milder cognitive effects, when compared to other antiepileptic drugs. Despite the benefits, CBD has adverse effects such as drowsiness, appetite reduction, diarrhea, increased activity of liver enzymes and interaction with substances metabolized by cytochrome P450. Still, the inefficient regulation generates variation in the composition of the marketed drugs, which can lead to Δ^9-tetrahydrocannabinol (THC) intoxication.
Conclusions: Thus, it is essential that the scientific community remains open to investigate the effects of CBD, given the advantages of its use for treating RE.

MeSH Terms: Cannabidiol, Seizures, Anticonvulsants
Key-words: Advantages, Disadvantages, Therapy, Neurology

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Epidemiological profile of neurological diseases in Brazil from 2011 to 2020

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Background: Studying the epidemiology of neurological diseases is important to improve the Public System.
Objectives: To describe the epidemiological profile of neurological diseases in Brazil between 2011 and 2020.
Design and setting: Ecological study in Brazil.
Methods: Data was collected from the Ministry of Health, through DATASUS. The period analyzed was between 2011 and 2020. The data collected were region, age, deaths, mortality rate, and average stay due to neurological diseases.

Results: 1,833,363 hospitalizations were recorded, with 89,046 deaths. The age group from 50 to 54 years old was the most hospitalized (147,832 cases) and the 80 years and over had the highest mortality rate (14.9). The average stay averages were 13.1 days and the average lethality rates were 4.9. Furthermore, the highest average prevalence of cases per 100,000 inhabitants occurred in the South (142), while the lowest was in the North (49). However, there was a higher mortality rate in the North (6.2) than in the South (4.2).

Conclusions: The highest mortality rate in the age of 80 years andover may be associated whit the effects of old age. Moreover, the lowestprevalence of cases and the highest mortality rate in North is possibly related to a deficiency in the diagnosis and treatment of this diseases in that location.

MeSHterms: Neurology; Epidemiology; Public Health.
Key words: Hospitalization;Disease; Mortality.

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Mechanisms of Neuroplasticity After Pediatric Stroke: A Review

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Introduction: Stroke in childhood constitute a rare event and its incidence is increasing due to advances in neuroimaging.This study clarifies anatomic and molecular mechanisms involved in neuroplasticity after children stroke, demonstrating its specificities in motor,somatosensory and language habilities.

Methods: We used database, from 2000 to march 2021,of SpringerLink,NEJM,PubMed, AHA (Stroke),Scielo,VHL and JAMA.The research was based in the keywords "neuplasticity", "stroke" and "children"; 57 were selected including original articles, case reports and reviews, considering abstract according to the objective of the present study and methodologies that satisfy criterias of cientific valuation, considering p<0,005 as statistical significance.

Results: Reduction of ipsilesional cortex and better prognosis between the ages of 1 and 6 years were observed. About motor function, it was found persistence of some perilesionais circuits, contralateral reorganization with increasing activation of suplementary motor area, unbalance of intrahemisferics inhibitory mechanisms, increase of excitability and changes in the concentration of N-acetyl-aspartate, choline, myo-inositol and creatine. Somatosensory skills presented limited plasticity. Contralesional alterations in arched fasciculi and temporoparietal area, circuit remodelation and compromissing of complex cognitive functions were observed for language habilites.

Conclusion: Better outcomes in the ages of 1 to 6 years demonstrate the duality between early vulnerability and early plasticity. The plasticity of motor system demonstrates therapeutic targets and potencial rehabilitation markers; otherwise, the limited potencial of somatossensorial habilities indicates its premature determination. Language skills presented limited prognosis.

MeSH terms: stroke, children, neuroplasticity
Key words: neurovascular disease, young stroke, early plasticity

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Aortic dissection and stroke associated with COVID-19: case report

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Case Report A 58-year-old man, previously healthy, presented with headache, myalgia, retrosternal chest pain associated with paresthesia and paresis in upper limbs and lower limbs of acute onset. He denies fever, cough, dyspnea, or contact with patients with COVID-19. There was a difference in blood pressure and pulse in the upper limbs. No particularities in the neurological examination were noted. The electrocardiogram and enzymes of myocardial necrosis did not show abnormalities. PCR for SARS-CoV-2 was positive. Chest computed angiotomography showed acute type IA aortic dissection. The patient underwent cardiac surgery, without complications. After 48 hours of the procedure, the patient progresses with a lower level of consciousness, left hemiplegia, and anisocoria. The brain computed tomography showed extensive ischemic injury in the right middle cerebral artery territory. The patient underwent decompression craniectomy. The patient was discharged from the hospital, maintaining hemiplegia on the left side of the body.

Discussion SARS-CoV-2 is a RNA virus responsible for the current COVID-191 pandemic. Moderate to severe forms of the disease may present with acute respiratory distress syndrome (ARDS), myocarditis, and thrombotic events such as pulmonary venous thromboembolism and ischemic stroke2. There are few reports in the literature about acute aortic dissection in patients with COVID-193,4. Acute aortic dissection is characterized by rupture of the intimal layer of the vessel with exposure of the middle layer and cystic necrosis and formation of a false lumen5. The mechanisms associated with thromboembolic phenomena in SARS-CoV-2 infection remain poorly elucidated in the literature. This case report highlights a patient with severe complications of COVID-19, with the viral trigger being a possible contributor to the condition of acute aortic dissection and stroke.

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Epidemiological profile of TBI in children under 10 years old before and after the implementation of the child seat law in Brazil

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Background: The Car Seat Law (2008) aims to minimize the impacts of traffic accidents on children under 10 years old, including the Traumatic Brain Injury (TBI).
Objectives: To compare the epidemiological profile of TBI in children under 10 years old before and after the implementation of the Child Seat Law in Brazil.
Design and setting: Ecological study in Brazil.
Methods: Data was collected from the Ministry of Health, through DATASUS. The decade prior (1998- 2007) and subsequent (2009-2018) to the implementation of the Law were analyzed. The data collected included children of 10 years or less, average length of stay, hospitalizations, deaths, and mortality.
Results: The average mortality between 1998-2007 was 2.31, while between 2009-2018 was 1.59, reducing 30.8%. There was also a reduction of 11% in the average stay averages, which went from 3.6 to 3.2 days. There was a 30.7% decrease in the lethality rate, from
2.3 to 1.6. The median of hospitalizations before the Law was 14,230, while afterwards it was 12,851.
Conclusion: There was a significant decrease in the average mortality rate, lethality rate and average stay averages since the Law. This may suggest the Law's effectiveness in protecting children under 10 years of age.

MeSH terms: Neurology; Epidemiology; Traumatic Brain Injury.
Key words: Hospitalization; Health Systems; Mortality.

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Medium cerebral artery thrombosis – radiological fing: hyperdense MCA sign – case report

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Introduction: Vascular diseases are the leading cause of death in the world. Although major advances in neuroimaging and stroke treatment have contributed to a decrease in mortality, strokes occupy second place in the list.
Case report: A 75-year-old man is admitted to emergency with an altered neurological examination: right hemiplegia, Broca's aphasia and dysphagia. Conscience was preserved. Computed tomography (CT) was performed, which showed the radiological finding of hyperdense MCA sign, confirming the diagnosis of ischemic stroke with involvement of the left middle cerebral artery branch. The treatment, in this case, was outside the criteria for thrombolytics.
Discussion: Irrigation of the brain is done by Willis polygon. One of the essential branches is the medium cerebral artery (MCA), the most important termination of the internal carotid arteries, responsible for blood supply of the dorsolateral hemifacial of both cerebral hemispheres, irrigating the frontal, parietal and temporal lobes. The imaging exam in suspected cases of stroke focuses on confirming its diagnosis and etiology, location of the lesion, extent of ischemic evolution, therapeutic treatment and prognosis. CT is the main modality of neuroimaging for stroke and an important radiological finding is the hyperdense artery sign, which is more common in MCA and demonstrates an evolving or impending infarction and is secondary to a plunger housed in this vessel. Therefore, it is an important early tomographic sign of ischemic stroke found on non-contrast blood CT.
Conclusion: Ischemic stroke is the most common etiology among strokes. The diagnosis must be based mainly on anamnesis and image exam, such as a CT scan. The CT performed helps to guide treatment, prognosis and clinical evolution. Finally, the recognition of the hyperdense MCA sign, found in the first 6 hours, is also extremely helpful for stroke classification.

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Dyke-Davidoff-Masson Syndrome: A case Report in a patient presenting with drug-resistant epilepsy and pseudoseizures

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Context: Dyke-Davidoff-Masson (DDM) syndrome is a rare neurological condition, first described in 1933. Characteristics include cerebral hemiatrophy, contralateral hemiparesis, seizures, and cognitive dysfunction, combined into different degrees and patterns. Brain magnetic resonance imaging (MRI) is used to perform diagnosis throughout its specific findings**.**
Case Report: A eighteen-year-old female presented to our service with a history of cognitive dysfunction and seizures since early childhood, which persistence even with adequate use of antiepileptic drugs. During Investigation were found signs and symptoms compatible with DDM syndrome, and evidence of pseudoseizures captured in a video electroencephalography monitoring.
Conclusion: DDM syndrome is a rare condition that must be part of differential diagnosis in patients with seizures and cerebral hemiatrophy. Management is based on adequate control of seizures and other comorbidities.

MeSH terms: Drug Resistant Epilepsy; Nervous System Malformations; Magnetic Resonance Imaging.
Key words: Síndrome de Dyke-Davidoff-Masson; Atrofia Cerebral; Epilepsia; Diagnóstico por imagem.

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Case of aluminium poisoning, with differential diagnosis for amyotrophic lateral sclerosis (als)

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Introduction: Essential metals in high quantities can accumulate and reach toxicity. In the CNS, they lead to neurodegeneration, causing movement and cognitive disorders.

Case Report: White man, 59 years, sanitation agent, uses PPE irregularly. For 1 year presented progressive speech disorder, paresis, emaciation, dysphonia, tongue atrophy, limbs fasciculations and abnormal reflexes; normal tonus/sensibility. Bulbar/limb electroneuromyography and serum dosage of metals in contact were requested, revealing muscles denervation, axonal diffuse polyneuropathy with postganglionic injury and elevated seric Aluminum (Al), (35,7ug/L). The management was work leave, Nortriptyline, and dietary supplementation. It evolved with reduction in seric Al (3,3ug/L); the physical examination remained unaltered. The condition stabilized after treatment.
Discussion: Al exposure causes oxidative stress/neurotoxicity, leading to neuronal degeneration. Axonal sensorimotor neuropathy, progressive asthenia, emaciation, fasciculations, aphasia, ataxia, tongue atrophy, and organs injuries can be found. In this case, the clinical presentation differs from ALS because of sensibility commitment and postganglionic alteration, compatible with chronic axonal neuropathy.
Conclusion: Although ALS is the most common MND, atypical cases need further investigation to diagnose and treat correctly.

Key words: Aluminum Poisoning, Sensorimotor Polineuropathy, Motor Neuron Disease.

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Evaluation of social cognition in post stroke patients: a hemispheric analysis

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Introduction: Social cognition is an increasingly explored field of research in the study of post-acquired brain injury psychiatric disorders, encompasses a number of domains including theory of mind (ToM). The ToM refers to the ability to understand, infer emotions, and predict the behavior of others. ToM deficits can impair information processing, and the laterality of the brain injury can influence the level of impairment.
Objectives: To investigate whether laterality of the post-stroke hemispheric lesion influences performance on ToM tasks.
Methods: Cross-sectional observational study, with chronic post-stroke subjects, aged ≥18 years, without cognitive deficits suggestive by Mini Mental State Examination (MMSE). The volunteers were submitted to a single evaluation using the Theory of Mind Task Battery (ToM TB) in its version translated and adapted to Portuguese (Brazil). The participants were allocated into two groups: group with right hemisphere injury (RHI) and group with left hemisphere injury (LHI). Comparative statistics were performed based on the ToM TB scores between the two groups using Student's t-test.
Results: Thirty-eight participants (RHI=22 and LHI=16) were included. There was no difference between the RHI and LHI group regarding social cognition assessed by ToM TB (t=1.63; p=0.11).
Conclusion: The laterality of brain injury appears to not influence the level of performance on ToM tasks in stroke survivors.

Key words: Cognition, social cognition, theory of mind.

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Analysis of Parkinson's Diasease mortality in Brazil

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Background: Parkinson's disease is a progressive neurodegenerative disease marked by extrapyramidal symptoms that promote unproductiveness and dependence.
Objectives: The study aimed to assess the variation in the mortality rate from Parkinson's Disease in Brazil between the years 2009 and 2019. Design and setting: Descriptive and retrospective study in Brazil.
Methods: Data were collected through the SIM in DATASUS database. The population consisted of all patients who died from Parkinson's Disease in the proposed period, selected according to the CID G20. The data were stratified by incidence of deaths per 100.000 inhabitants, gender and age group. For statistical analysis, SPP software version 21.0 was used.
Results: Between 2009 and 2019, there were 36.621 deaths due to Parkinson's Disease. The incidence of death per 100,000 inhabitants was 1.26 in 2009; 1.36 in 2010; 1.44 in 2011; 1.53 in 2012; 1.51 in 2013; 1.65 in 2014; 1.64 in 2015; 1.75 in 2016; 1.81 in 2017; 2.01 in 2019; and 2.18 in 2019. Considering all deaths, there is a predominance of males (54.7%) over females (45.3%). Besides, in relation to the age group, the groups with the highest number of deaths were those between 70 and 79 years old (30.9%) and with more than 80 (57.7%).
Conclusions: There is an increase in the Parkinson's mortality rate between 2009 to 2019. Furthermore, the data are in agreement with the existing epidemiological literature, given the fact that the highest prevalence of deaths from Parkinson's occurs in men over 70 years. **MeSH terms:** Parkinson Disease, Epidemiology, Mortality.

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Classifying pain in dystonia: a way to improve pain outcome measure in dystonia

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Background: Pain is a frequent and incapacitating non-motor symptom in dystonia. Evidence indicates that pain in dystonia is not only of muscular origin, but pain's descending modulatory systems are impaired in dystonia. There is much to be learned about this topic. Still, we do not have a simple and straightforward way to classify, evaluate pain, and assess its improvement after pharmacological, surgical, and non-invasive treatments.
Objective: To improve the classification system for pain in dystonia.

Design and setting: This are the preliminary results of a multicentric study that at this moment selects patients in the Hospital das Clinicas da Faculdade de Medicina da Universidade de Sao Paulo and in the Hospital Sao Paulo da Universidade Federal de São Paulo.
Methods: We evaluated 36 patients with hereditary/idiopathic dystonia of any distribution. These results are preliminary finds of this multicentric assessment. We applied the Burke-Fahn-Marsden (BFM) dystonia scale, two pain scales (*Douleur Neuropathique* - DN4 and the short-form Brief Pain Inventory - BPI), and our developed classification system.
Results: Patients (54.9 ± 14.6 years, 41.7% male) had a BFM motor and disability subscores of 17.6 ± 6.8 and 4.5 ± 5.7, respectively, and 15 patients (41.7%) had chronic pain. Four patients had chronic pain non-related to dystonia, and 11 patients had chronic pain directly related to dystonia. Six patients had a second chronic pain, one of which was aggravated by dystonia, and five were directly associated with dystonia. DN4 was 2.1 ± 1.9, and BPI pain severity 5.2 ± 2.0 interference 5.0 ± 3.2.
Conclusions: Chronic pain is prevalent in dystonic patients and is frequently directly related to dystonia.

MeSH terms: Dystonia; Pain; Classification.
Key words: Dystonia; Pain; Non-motor symptoms; Classification.

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Epidemiological overview of epilepsy by Brazilian macro-regions

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Introdution: Studying the epidemiology of epilepsy is important for the knowledge of this disease in the national territory, and also to improve the Public System.
Objectives: Describe the epidemiological profile of epilepsy in Brazilian regions between 2010 and 2019.
Methods: Refers to an ecological study with secondary data from the Ministry of Health, through DATASUS. The period investigated was from January 2010 to December 2019, in Brazilian regions. The variables explored were region, sex, number of hospitalizations, average length of stay and mortality rate.
Results: 507,443 hospitalizations were identified, with the highest numbers of cases being in the Southeast (44.34%) and the lowest in the North (5.43%). There was a predominance of hospitalizations in males (58%).The mortality rate varied between 2.97 (Northeast) and
1.44 (South). Southeast had the longest stay (6.8 days) and the shortest was in the South (4.4 days). **Conclusions:** After analyzing this study, males have the highest rate of hospitalization and the Southeast has the highest number of hospitalizations and average length of stay for epilepsy, which may be associated with the fact that this region has the largest absolute population. Although, the Northeast had the highest mortality rate, a situation possibly related to a lower integration of the health system compared to the other regions.

MeSH terms: Neurology; Epilepsy; Epidemiology.
Key words: Hospitalization; Length of stay; Health Systems; Patients; Disease; Brain.

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Effect of transcranial direct current stimulation in the first weeks after stroke: a preliminary study

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Background: There is limited information about effects of transcranial Direct Current Stimulation(tDCS), delivered within the first weeks post-stroke, on performance of the paretic upper limb and on connectivity between motor areas in the affected and unaffected hemispheres.
Objectives: We compared changes in Fugl-Meyer Assessment of Motor Recovery(FMA) scores, connectivity between the primary motor cortex of the unaffected(M1UH) and the affected hemisphere(M1AH), as well as between M1UH and the premotor cortex of the unaffected hemisphere(PMUH) before and after 6 sessions of cathodal tDCS targeting the primary motor cortex of the unaffected hemisphere(M1UH) early after stroke in 13 patients.
Methods: This hypothesis-generating substudy was a randomized parallel, two-arm, double-blind, sham-controlled clinical trial performed at the Albert Einstein Hospital. Subjects were randomized active(N=6) or sham(N=7) groups.
Results: Clinically relevant differences in FMA scores(≥ 9 points) were observed more often in the sham than in the active group. Between-group differences in changes in FMA scores were not statistically significant(Mann-Whitney test, p=0.133) but the effect size was -0.619(rank biserial correlation). Connectivity measures(Fisher's z- transform of ROI-to-ROI correlations) between M1AH-M1UH increased in 5/6 participants in the active, and in 2/7 in the sham group after treatment. Between-group differences in changes in connectivity(M1UH-M1AH or PMUH-M1AH) were not statistically significant. In contrast with M1AH-M1UH connectivity, improvements in motor performance were more frequent in the active than in the sham group.
Conclusions: Effects of cathodal tDCS on motor performance and on Resting-state Functional Magnetic Resonance Imaging may have distinct underpinnings in subjects at an early stage after stroke.
Trial registration number Clinicaltrials.gov - 024555427

Mesh-terms: Stroke, magnetic resonance imaging, neurological rehabilitation.
Key words: Stroke, transcranial Direct Current Stimulation, resting-state functional Magnetic Resonance Imaging, connectivity, motor cortex.

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Improvement of non-motor symptoms and quality of life after DBS stimulation for dystonia: one-year follow-up

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Background: DBS is an established treatment option in refractory dystonia, and motor outcomes have been extensively evaluated instead of the usually neglected NMS (e.g., pain).

Objective: To describe the non-motor symptoms (NMS) after Deep Brain Stimulation (DBS) surgery for refractory generalized inherited/idiopathic dystonia in a prospective study.
Design and setting: A prospective study that evaluated patients in the Hospital das Clinicas da Faculdade de Medicina da Universidade de Sao Paulo.
Methods: This study evaluated patients before and one year after DBS surgery. We applied the following scales: Burke-Fahn-Marsden Rating Scale (BFMRS), Hospital Anxiety and Depression Scale (HADS), Non-Motor Symptoms Scale for Parkinson's Disease (NMSS-PD), Parkinson's Disease Questionnaire-8 (PDQ8) Brief Pain Inventory (BPI), Neuropathic Pain Symptom Inventory (NPSI) and McGill pain questionnaire.
Results: 11 patients (38.35 ± 11.30 years) underwent surgery (36.3% women). Motor BFMRS subscore was 64.36 ± 22.94 at baseline and 33.55 ± 17.44 after surgery (p=0.003, 47.9% improvement on motor symptoms). HADS scores remained unchanged. NMSS-PD had a significant change after DBS, from 70.91 ± 59.07 to 37.18 ± 55.05 (p=0.013, 47,5% improvement). Seven patients reported pain before DBS surgery, and after one year, four patients reported chronic pain (i.e., pain improved by 42.28%). BPI's severity and interference scores were 4.61 ± 2.84 and 4.12 ± 2.67, respectively before surgery, and 2.79 ± 2.31 (0.00–6.25) and 1.12 ± 1.32 (0.00–3.00) after DBS (p=0.043 and p=0.028). NPSI total score was 15.29 ± 13.94 before DBS, and reduced to 2.29 ± 2.98 afterward (p=0.028). McGill's total score was 9.00 ± 3.32 before DBS, achieving 2.71 ± 2.93 after surgery (p=0.028), mostly driven by the sensory sub-score.
Conclusions: We found that DBS improves NMS in dystonia, including chronic pain, anxiety, gastrointestinal symptoms, besides the already established improvement in QoL and motor symptoms.

MeSH terms: Dystonia; Pain; DBS.
Key words: Dystonia; Pain; Non-motor symptoms; DBS.

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Multisystem atrophy: a case report with clinical and functional findings relevant to functional Physiotherapy

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Introduction: Multiple System Atrophy (MSA) is a severe neurodegenerative disease that has parkinsonian, autonomic, cerebellar, and pyramidal features. It is prevalent at 3.4 to 4.9 cases per 100,000 population, and is most common after the age of 60. It is called Striatonigral Degeneration, with a predominance of parkinsonian symptoms; it is known as Olivopontocerebellar Atrophy, with cerebellar symptoms, and Shy-Drager syndrome with autonomic symptoms. Physiotherapy plays an important role in the rehabilitation of kinetic-functional impairments.
Objective: To report the case of a volunteer with SMA in order to highlight the neurological findings for neurofunctional rehabilitation.
Methods: This is an observational, cross-sectional case report study that was conducted at the Clínica Escola de Fisioterapia da Universidade de Franca (UNIFRAN), with the approval of the CEP (CAAE 83164918.2.0000.5495), of a 55-year-old male individual, referred to physiotherapy, diagnosed with SMA. Neurological evaluation was performed in the sector, of sensitivity, movement, tone, reflexes, motor coordination, balance, gait and function.
Results: The individual reports that 4 years ago he started having difficulty walking and talking. He was diagnosed with Parkinson's disease. He underwent a new evaluation, arriving at the current diagnosis. In the physical therapy evaluation dysautonomia, dysarthria, dysdiadochokinesia, dysmetria, hypertonia by rigidity, akinesia and bradykinesia, trunk flexion posture, balance deficit, tetraparesis and fetinated gait were observed.
Conclusion: The impairments found impair the patient's ability to perform several ADLs. This study emphasizes the value of neurofunctional physiotherapeutic semiology for an effective therapeutic treatment that promotes independence and quality of life possible for the individual with SMA.

Key words: Multiple system atrophy; Physical therapy; Syndrome.

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Cannabis Therapy in the Management of Fibromyalgia: A Systematic Review

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Introduction: Fibromyalgia is a painful syndrome of little known etiology, characterized by generalized pain with difficult management. Thus, cannabis therapy, a therapeutic option for other painful conditions, becomes an alternative.
Objective: To review the literature on cannabis therapy in the treatment of fibromyalgia.
Design and Setting: A systematic review conducted at the Pontifical Catholic University of Goiás.
Methods: Systematic review. Randomized studies and clinical trials published between 01/2011 and 01/2021 were selected. Incomplete studies and those that did not fit the objectives were excluded.
Results: When analyzing the combination of inhaled CBD and THC, it was concluded that, regardless of the dosage, neither showed significantly greater response than placebo. Studies pointed out that THC-rich cannabis oil, at starting dose of one drop a day, reduced pain, fatigue, and depression scores; moreover, the therapy proved tolerated and without serious adverse effects. Third-level evidence indicated better effects of nabilone on sleep than amitriptyline, without significant differences for pain, mood, and life quality.
Conclusion: Different approaches to cannabis therapy for patients with fibromyalgia lead to diverse effects, with some not proving effective and others promoting pain reduction, sleep and life qualities improvements and satisfactory effects on depression and fatigue scores. Hence, scientifically relevant studies should be done on this subject. .
Systematic Review Registration: ID= 254722; https://www.crd.york.ac.uk/PROSPERO/

MeSH terms: Fibromyalgia; Cannabis; THC; CBD.
Key words: Nabilone; Amitriptyline; Medical Marijuana.

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Assumed hemorrhagic stroke in a emergency of inland hospital: a case report

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Context: Hemorrhagic stroke (HS) is characterized by cerebral vessel´s rupture, causing potentially fatal hemorrhage. Approximately 20% of HS are due to spontaneous intracranial hemorrhage, being risk factors: age over 55, systemic arterial hypertension, smoking, obesity, physical inactivity and alcoholism.

Case Report: Male, 84 years old, previously hypertensive, is brought by family members after being found unconscious. He was admitted to hypertensive emergency room, with irregular respiratory rate, anisochoric pupils (mydriasis on the right) non-photoreactive, Glasgow Coma Scale 3 and urinary loss. He was intubated without complications and later developed bradycardia (44 bpm), keeping hypertensive (160/90 mmHg), suggesting Cushing´s Triad (CT). Capillary bloody glucose of 98 mg/dl and laboratory tests showing: hemoglobin 9,3; platelets 184000; negative troponin; urea 52; creatinine 1.7; sodium 136; potassium 3.9. Due to the abrupt installation in a previously hypertensive patient, with unilateral mydriasis on physical examination and the development of CT, the diagnostic hypothesis were HS associated with intracranial hypertension. A skull´s scancomputed tomography or lumbar puncture were not requested because were unavailable at hospital. Patient was removed to a specialized servisse, 12 hours after arrival.

Conclusion: Mortality after stroke is known to be substantially lower when patients are treated in high-volume regional centers and have access to qualified interventionists who specialize in neuro-intensive treatment. As it is a servisse without resources for definitive treatment, the patient was stabilized in the best way within the hospital condition, with priority being the removal of the patient as soon as possible, in order to reduce morbidity and mortality.

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Non-epileptic seizure caused by selective serotonin reuptake inhibitors (SSRI) - case report

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Context: Seizures are the most frequent clinical emergency neurological manifestation, corresponding to 1-5% of the visits, except for trauma. Several conditions have the potential to reduce the seizure threshold, and the use of antidepressant drugs as selective serotonin reuptake inhibitors is one of those reported. The seizure triggering risk related to SSRIs use is low, being 0.1%, perceptibly lower than that of tricyclic antidepressants, with a 1% rate.

Case report: Male patient, previously healthy, 23-year-old, was seen at the Emergency Room in Rio Branco after a generalized seizure lasting 3 minutes. Complementary exams, including computed tomography, were all normal. Magnetic resonance imaging of the skull without atypical findings and electroencephalogram showed dysrhythmia by waves and discrete spicules. Patient reported using escitalopram (esc) 20mg for 3 months after 10mg progression dose, in use for 1 year, without clinical improvement. Due to the seizure event, medication management was switched for sertraline 50mg intake. After 2 months, the patient had a new generalized seizure, preceded by prolonged depersonalization. Complementary exams were normal, 10mg of esc was reestablished and the patient ceased with the seizures.

Conclusions: The diagnostic hypothesis: patient's seizure threshold is low, and seizures are triggered by SSRI higher doses adverse effect. Due to case rarity and SSRI efficacy and tolerance, it is suggested to encourage the discussion about administration safety of these drugs.

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Use of eye biomarkers in pre-clinical diagnosis of Alzheimer's Disease

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Background: Alzheimer's disease (AD) has an unknown etiology, but the main pathophysiological hypothesis consists of the accumulation of extracellular beta- amyloid (Aβ) plaques and the formation of intracellular neurofibrillary tangles of phosphorylated tau1,2. As brain changes follow the appearance of clinical symptoms, there is a difficulty in making the diagnosis and early treatment3,4. The detection of biomarkers in the retina guaranteed the preclinical diagnosis of AD, in an efficient and economical way5.

Objectives: To highlight the application of ocular biomarkers in the early diagnosis of AD.

Methods: This is a narrative review with search in the sources PubMed, Cochrane and TripDatabase using descriptors: "Alzheimer Disease", "Biomarkers" and "Retina". Seven articles were used, published from 2017 to 2021.

Results: In patients with pre-clinical AD, accumulation of Aβ was detected with the formation of specifically smaller retinal plaques when compared to brain plaques, but quantitatively equivalent to the load of this protein in the brain and the severity of this pathology[6]. Thus, associated with the great advance in retinal imaging exams, AD can be diagnosed early by analyzing the structure of the retina and ocular blood flow in a non-invasive and efficient manner[5,7]. Instruments and systems for conducting eye exams, such as optical coherence tomography and retinography, are increasingly present in medical services, which makes it possible to carry out regular and constant tests in the population[1,5].

Conclusions: Further studies are required to verify the long- term application of ocular biomarkers in medical practice.

MeSH terms: Alzheimer Disease; Biomakers; Amyloid Abri protein, human.
Key words: Retina; Diagnóstico Precoce; Tomografia de Coerência Óptica; Nervo Óptico.

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Surgical correction of iatrogenic lesion of the median nerve after endoscopic decompression: Case report

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Introduction: Carpal tunnel syndrome is neuropathy of compressive origin, surgical treatment can present complications that are difficult to solve, among them, painful neuromas of the peripheral nerves, affecting 2–60% of patients with nerve damage. There is no consensus on the ideal treatment for painful neuroma. Consequently, numerous modalities to treat neuroma pain are described.

Case report: Female, 45 years old, presented with a left hand carpal tunnel syndrome clinic. There is a report of having undergone a surgical procedure for decompression of the carpal tunnel with endoscopy, progressing with worsening of symptoms. Another surgical procedure was performed (conventional open route) in the region of the left wrist with intra-op visualization of total nerve rupture. Neurorrhaphy of the median nerve was performed. Patient came to our service complaining of severe pain (VAS 9/10) in median nerve topography associated with paresis of the muscles innervated by the same. Neuroma resection and sural nerve grafting for the tenar motor branch, ulnar and radial median group and patient evolved with significant pain improvement (VAS of 2/10).

Discussion: A wide variety of surgical techniques are described to treat painful neuroma. In this case, the success of the chosen tchnique is evidenced by the drop of 07 points in the VAS.

Conclusion: It is evident that the endoscopic correction of carpal tunnel syndrome is not without complications and should be indicated with caution. It is necessary to carry out more studies that can evidence the best conduct for each case

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Malignant cerebral infarction (MCI): Review of the benefits of decompression craniectomy (DC)

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Brasília: Centro Universitário do Planalto Central Apparecido dos Santos, 2021

Background: MCI is caused by occlusion of the middle cerebral artery (MCA) or internal carotid artery. Causing large ischemias, which edema can exert a mass effect, usually between the 2nd and 5th day, resulting in intracranial hypertension, herniation and even death.

Objective: Review data related to the benefits of DC, elucidating the procedure, prognosis and indications of the method.

Method: Review on MEDLINE and PubMed platforms. The descriptors: "craniectomy" AND "malignant infarction". Were selected 9 articles dated between 2016 and 2021.

Results: MCI has some clinical (Youngs, NIHSS>15, neurological deterioration) and radiological predictors (Impairment> 50% of the ACM territory, midline deviation> 5mm, MRI with DWI> 145 cm3). These patient's clinical aim is to reduce intracranial pressure (ICP), however, as a consequence of the worse prognosis in clinical therapy, there's a possibility of intervention by DC, which is a surgical technique that relieves ICP and prevents secondary injuries. It reduces the mortality rate and increases the patient's survival up 3x compared to clinical management, but at the expense of low quality of life. Patients ≤60 years with loss of consciousness, must have an indication for DC within 48 hours after ictus. The indication should be better evaluated and a thorough discussion with family members.

Conclusion: DC minimizes injuries and the risk of herniation. However, despite decreasing mortality, it can lead to complications and poor prognosis, although it isn't uncommon the indication for the procedure and an approach to palliative care.

Keyword: Decompressive craniectomy. Edema. Cerebral infarction.

MeSH terms: Herniation. Edema. Ischemias.

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Analysis on hospitalizations for cerebral vascular accident in the several regions of Brazil: Epidemiological Study

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Introduction: Stroke is one of the most relevant public health problems, being one of the most prevalent pathologies and one of the main causes of temporary or permanent disability. Stroke patients are discharged from the hospital with sequelae such as inability to communicate, triggering social isolation and consequent depressive conditions. In addition, you may develop residual functional disability that is a source of dependency in activities of daily living.
Objective: To analyze the prevalence of hospitalizations for stroke in different regions of Brazil, for a better understanding of this pathology.
Methods: The study carried out was an epidemiological study. Statistical data from the database of the Department of Informatics of the Unified Health System (DATASUS), from February 2020 to February 2021, were used, using the unspecified hemorrhagic or ischemic stroke filters, North region, Northeast, South, Southeast and Midwest.
Results: The regions with the highest incidence were the Southeast region, followed by the Northeast region, between February 2020 and February 2021. The total number of cases was 163209. Thus, the representative percentage of hospitalizations in the Southeast region was 43, 11% of total hospitalizations for the entire period. In the Northeast region, it was 27.26%.
Conclusion: Thus, according to the results presented, it is concluded that the highest incidence of cases is in the Southeast, followed by the Northeast. This fact may be closely related to risk factors and quality of life. Therefore, the knowledge of this statistic is extremely important so that interventions can be developed to mitigate this case.

Key words: stroke, epidemiology, hospitalization

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Botulinum toxin type A in the treatment of Myofascial Pain Syndrome: A Systematic Review

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Introduction: Myofascial pain syndrome (MPS) is a regional painful condition characterized by the presence of trigger points in the affected muscles, and botulinum toxin type A (BoNT-A) is a possible therapeutic option.
Objectives: To evaluate the safety and efficacy of botulinum toxin in the management of MSD.
Design and setting: A systematic review conducted at the Pontifical Catholic University of Goiás.
Methodology: A systematic review was conducted in the PubMed, IBECS and VHL databases: "(Myofascial Pain Syndromes OR Myofascial Trigger Point Pain) AND Botulinum toxin". Randomized studies, clinical trials and case reports published in the last 10 years were selected.
Results: Two randomized trials concluded that application of BoNT-A, regardless of the application site, did not show significant improvement in pain intensity compared to the control group. Also, another multicenter, randomized trial reported that application of ToNB-A to the masseter muscles did not result in improvement of SDM within three months of application. Finally, a clinical trial reported improvement in visual numeric scores of myofascial pain in the scapular girdle in subjects who received a second dose (P = 0.019).
Conclusion: BoNT-A was not effective in improving SDM at any site of application and in any dosage studied, except in a single study, therefore insufficient to state whether subsequent doses have better results.
Systematic Review Registration: ID=254527; https://www.crd.york.ac.uk/PROSPERO/

MeSH terms: Botulinum Toxins, Type A; Myofascial Pain Syndromes; Pain.
Key words: Myofascial Pain; Botulinum Toxins; Trigger Point.

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Transcranial Direct Current Stimulation in the Management of Chronic Low Back Pain: A Systematic Review

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Introduction: Chronic Low Back Pain is a condition associated with changes in different brain regions, related to pain, posture and emotions.
Objectives: Review the current literature about the efficiency and safety of Transcranial Direct Current Stimulation in the management of Chronic Low Back Pain.
Design and setting: This is a systematic review of the literature conducted at the Pontifical Catholic University of Goiás.
Methods: A systematic review of literature was conducted in the PubMed, BVS and Lilacs databases, with the following research strategy: "(Transcranial Direct Current Stimulation or TDCS) and (Low Back Pain)". Randomized studies, clinical trials and case reports published in the last 10 years were selected.
Results: A clinical trial showed that TDCS of the primary motor cortex (M1) for 20 minutes improved posture, balance and pain intensity of patients with CLBP. Also, a randomized clinical trial concluded that this technique, at 2-mA intensity, showed a significant reduction in CLBP. On the other hand, two randomized clinical trials showed that the results obtained did not support the application of the TDCS method for the treatment of CLBP, since the observed groups did not show considerable difference after stimulation. In addition, another double-blind controlled study also showed that TDCS over M1 did not influence the quality of patients' CLBP.

Conclusion: A conflict was noticed between the conclusions of the articles used to compose this review, that's why more studies with scientific rigor are needed.
Systematic Review Registration: ID:254669; https://www.crd.york.ac.uk/PROSPERO/

Mesh Terms / Key words: Transcranial Direct Current Stimulation; CLBP; TDCS

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Effects of *Euterpe oleracea* Martius (açaí) consumption on the nervous system: a literature review

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Background: *Euterpe oleracea* Martius, popularly known as açaí, is an abundant palm in the Amazon region. Its fruit is consumed after pulper processing, to obtain the açaí drink, whose flavonoid-rich composition draws attention to its antioxidant properties and can be used in neurodegeneration processes, slowing the progression of dementia and neurological disorders.
Objectives: to list what is known at the time of this review regarding the effects of the consumption of the pulp, juice or extract of the fruits of Euterpe oleracea Mart. on the nervous system.
Methods: systematic review of the literature carried out in the PubMed database using the descriptors provided by the DeCS platform: (effects) AND (euterpe oleracea) OR (açaí) AND (nervous system). A total of 33 results were obtained. Using inclusion and exclusion criteria, 24 articles were selected.
Results: a positive action of this plant was observed in the modulation of free radicals and prevention of premature aging, which reveals the ability of açaí to delay the natural deterioration of cognitive function that occurs with advancing age. In addition, flavonoids act in the perivascular sheath, aiding in the growth of neuronal cells, among other things, such as the containment of neurotoxin- induced neuronal lesions and protecting from others neurotoxical compounds. Finally, the *Euterpe oleracea* was able to attenuate depressive symptoms and epileptic seizures.
Conclusions: there is a need for further studies on this topic, in order to ratify the findings that are known to date, opening the way for new strategies to protect the nervous system's functions.

MeSH terms: Antioxidants, neurotoxins, protective agents.

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Cannabidiol and the Management of Pediatric Neurological Disorders: A Systematic Review

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Introduction: Due to an increase in cases of neurological disorders refractory to conventional treatments in pediatrics patients, other therapies have been sought.
Objectives: To analyze the safety and efficacy of CBD in the management of neurological disorders in children.
Design and setting: A systematic review conducted at the Pontifical Catholic University of Goiás.
Methods: This is a systematic review carried out in PubMed, Lilacs and MedLine databases, with the descriptors: "(Pediatric OR Neurology) AND (Cannabidiol OR Cannabis)", being selected only the randomized studies, meta-analysis and clinical trials published in the last 10 years.
Results: One randomized trial concluded that daily oral CBD solution reduced the frequency of seizures in pediatric patients with Lennox-Gastaut syndrome (LGS). In addition, another study concluded that CBD (20 mg/kg/day) is associated with up to a 50% decrease in seizures in children with SLG and Dravet syndrome. Furthermore, it was pointed out that the association of oral CBD (2 to 5 mg/kg/day) with antiepileptic drugs caused a mean reduction of 36.5% of severe seizures. Finally, CBD enriched with 0.25% THC reduced spasticity, dystonia and pain intensity in children with complex motor disorder.
Conclusion: CBD was shown to be safe and effective as a treatment for refractory epilepsies and complex motor disorder in pediatric patients, with no serious side effects reported.
Systematic Review Registration: 254878; https://www.crd.york.ac.uk/PROSPERO/

MeSH terms: Cannabidiol; Nervous System Diseases; Pediatrics.
Key words: Neurology; Cannabis; child.

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Cannabidiol in the treatment of Dravet Syndrome: a literature review

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Background: Dravet syndrome (DS) is a rare treatment-resistant epileptic encephalopathy, with a high mortality rate, resulting from mutations in the SCN1A gene (encoding the α1 subunit of the NaV1.1 channel). Studies show that cannabidiol is effective in reducing the frequency of seizures.
Objective: Analyze the efficacy of cannabidiol for the treatment of refractory epilepsy in DS.
Methods: In April 2021, the PubMed database was queried to search for the terms "Cannabidiol" AND "Dravet Syndrome", with the filters: Clinical trial, Randomized controlled trial and the articles were limited to the last 5 years. With this, 8 articles were found, of which 3 were selected. Exclusion criteria: (1) articles that didn't evaluate the effectiveness of treatment (2) review articles.
Results: A randomized, double-blind study of 120 patients, which a dose of 20 mg/kg/day was used, found that cannabidiol use led to lower frequency of seizures, reducing from 12, 4 to 5.9 seizures per month; and 5% of participants were seizure-free. A similar reduction was documented by an open clinical trial, which there was a reduction of 39.5% in total seizure frequency and 2.9% were seizure-free. Additionally, another randomized, double-blind study reported a percentage reduction in seizure frequency of 48.7% for the group of patients given 10 mg/kg/day, and 45.7% for the group given 20 mg/kg/day.
Conclusion: In DS patients, cannabidiol shows efficacy to reduce the frequency of seizures. However, more studies are needed to validate its application.

MeSH terms: Cannabidiol, Epilepsy, Seizures, SCN1A
Key words: NaV1.1, Drug Resistant Epilepsy, Dravet Syndrome

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Epidemiological analysis of live births with microcephaly in Brazil

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Introduction: Microcephaly is a congenital malformation in which babies are born with a head circumference equal to or less than 32 cm. This pathology can be the result of a number of different factors: chemical substances and biological agentes, such as bacteria, viruses and radiation.

Objectives: To characterize the epidemiological profile of cases of live births with microcephaly in Brazil.

Methods: This is a descriptive and observational epidemiological study. Data from the Informatics Department of the Unified Health System (DATASUS) were extracted, about the number of live births with microcephaly between 2009 and 2019, in Brazil, according to: year, state and ethnicity.

Results: 6,267 live births with microcephaly were recorded. The year of 2016 was responsible for the largest number of cases (n = 2,276; 36, 3%). As for ethnicity, brown births represent the majority, with 3,957 (63.1%) cases, followed by white ethnicity, with 1,562 (24.9%) cases. The state of São Paulo, with 1,265 (20.2%) cases, had the highest number of live births with microcephaly, followed by the state of Pernambuco, with 929 cases (14.8%), and Bahia, with 704 cases (11.2%).

Conclusions: The number of live births with microcephaly was more frequent in the years 2015 and 2016. São Paulo, Pernambuco and Bahia were the most affected states. It was found that individuals born with brown and white ethnicity were responsible for the majority of cases of live births with microcephaly. In this sense, public health policies are necessary aiming to decrease the incidence of births with the studied pathology.

Key words: Neonatal Diseases, Congenital Abnormalities, Craniofacial Abnormalities.

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Complementary Exams for Dementia Diagnosis

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Background: It is estimated that by 2050, over 130 million people will have dementia. These syndromes are neuropathologies that can be diagnosed with higher accuracy with a support of complementary exams.

Objectives: Review literature about de importance of complementary exams for a better management of dementia syndromes.

Methods: A search was carried out in the databases PubMed/MEDLINE, LILACS and Google Scholar using the DeCS descriptors: "dementia", "mental status and dementia tests" and "diagnosis". Nine articles, from 2005 to 2020, in English and Portuguese, were submitted to critical analysis.

Results: A clinical evaluation, biomarkers and neuroimage techniques can improve diagnosis management of dementia syndromes. Changes in the early stages include memory loss. Therefore, Mini Mental State Exam can be used. The biomarkers include ß-amiloid and tau protein in the cerebrospinal fluid. Other exams can detect the lack of vitamin B12 and folate, hypothyroidism and infectious diseases. The computed tomography (CT) is fundamental to exclude secondary causes. In magnetic resonance the brain is seen atrophied.

Conclusions: This review shows studies that indicate the relevance of complementary exams for the diagnosis of dementia. It could be seen that the association of molecular analysis and neuroimage can be benefic for a better diagnosis.

MeSH Terms: Dementia, diagnosis, mental status and dementia tests, neuroimaging.

Key words: Alzheimer, Lack of memory, Laboratory tests, Alternative Diagnosis.

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Pompe disease: case report in siblings

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Introduction: Pompe disease (PD) affects lysosomal digestion due to absence or low action of the enzyme acid α-glucosidase (GAA), with accumulation of glycogen, causing overflow of enzymes and autophagy, which affects striated muscle. PD is divided into infantile, juvenile, and adult clinical forms, with severity determined by amount of residual GAA activity.

Case: P1) 45-year-old man admitted with acute respiratory failure (RF), starts mechanical ventilation. History of weakness, dyspnea, dysphagia. He had decreased proximal muscle strength at lower limbs (LL). Sequencing of GAA gene: autosomal recessive deficiency of two variants. Apnea-hypopnea-index

(AHI):10.5. GAA enzyme replacement therapy (ERT) was requested. Judicially denied by disease progression. P2) 40-year-old man presented with loss of muscle strength at LL for 15 years, associated with snoring, daytime somnolence. Brother with similar complaints. He had proximal muscle weakness at LL. Positive genetic panel for PD. AHI:23.5. Judicially released ERT treatment and reported improvement.
Discussion: Adult form of PD manifests itself with mild phenotype, with presence of residual GAA activity, which causes different clinical expressions. Main manifestations are symmetric proximal muscle weakness in LL and Gowers' sign. Frequent death cause in late form is RF, which occurs early, unlike other neuromuscular diseases. In Brazil, PD is underdiagnosed, with approximately 2500 cases. Treatment is performed with Myozyme®, an ERT, not available in SUS, which makes treatment difficult.
Conclusion: PD is a serious condition, with high underdiagnosis because of its similarity to other myopathies, which allows disease progression. Furthermore, the variability of GAA mutations allows for distinct phenotypes.

Key words: Glycogen Storage Disease Type II; Siblings; Enzyme Replacement Therapy

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The incidence of stroke in pediatric patients in Brazil

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Background: Stroke is rare in pediatric patients, but it is of paramount importance due to its serious complications. The study of the incidence of strokes in these patients is important for us to be able to adequate public health policies.
Objectives: To evaluate the incidence of strokes in pediatric patients in Brazil.
Design and setting: Descriptive, retrospective study, carried out using data from the Hospital Information System (SIH/SUS), from 2011 to 2020.
Methods: Variables: brain stroke not specific for the hemorrhagic or ischemic type, mortality, hospitalizations, sex, ethnicity and age group from 0 to 19 years of age.
Results: During the period from 2011 from 2020, there were a total of 6912 cases of stroke in the age group from 0 to 19 years; the highest incidence in 2019 (10.59%) and the lowest incidence in 2020 (8.65%.) The age group from 15 to 19 accumulated the greatest number of cases (60.40%). The total mortality rate was 8.12% (561 cases). The highest mortality rate was observed between 15 and 19 years of age (62.03%), and the lowest between 5 and 9 years of age(4.63%). The incidence was slightly higher in males (50.41%).
Conclusions: Similar annual stroke rates were identified during the analyzed period, demonstrating the need for interventional actions to reduce its incidence. The non-specification of the hemorrhagic or ischemic types is a limiting factor, since the prevention management is different in each case. There was a higher prevalence, as well as a higher mortality rate, from 15 to 19 years.

MeSH terms: Strokes; Pediatrics; Brazil.
Keywords of the author: Acute Cerebrovascular Accident; Child; Public Policy; Public Health; Incidence.

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Alzheimer's in Paraná-Brazil Incidence on Hospitalizations and Mortality Rate 2014-2019

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Introduction: Alzheimer's disease, is an progressive neurodegenerative pathology. Is the most prevalent dementia condition in the world, which entails many expenditures for public health.
Methods: The analysis if there was a reduction or increase in the number of hospitalizations and mortality, between the interval from 2014 to 2019, with the age groups from 59 years to more than 80 years. The database used to collect information was the DATASUS.
Results: The number of interactions related to Alzheimer's disease in Paraná, in the age group 50 and 59 years between the years 2014 (2) and 2019 (2), there was no change in the percentage of cases. The group 60 and 69 years 2014 (8) and 2019 (7), a reduction of 12.50% is found. The 70 and 79 years old, 2014 (16) to 2019 (13); reduction 18.75% of hospitalizations. The population 80 and over, 2014 (26) and 2019 (29) there is and increase of 11.54% of cases. Mortality rates, 50 and 59 years 2014, in which no mortality rate was obtained in 2019 (50), there was an increase of 50 units. 60 to 69 years from 2014 (12.5) to 2019 (14.29) there is an increase of 14.32%. 70 to 79 years old, 2014 (6.25) to 2019 (7.69) we have an increase of 23.04%. The age group of 80 years and more in 2014 (19.23) to 2019 (27.59) there was an increase of 43.47%.
Conclusion: Thus, demonstrating the importance of medical and family care for the elderly, providing them with quality of life.

Key words: Alzheimer's; Alzheimer's disease; Incidences; Hospitalizations; Paraná

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Transcranial Magnetic Stimulation (TMS) and its cortical targets in the treatment of fibromyalgia: a systematic review

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Background: Fibromyalgia (FM) is a non-inflammatory disease with unknown etiology expressed by diffuse musculoskeletal pain, whose definition and management are subjects of controversies. Thus we aimed to review the literature on efficacy and main cortical targets of TMS for FM.
Methods: A systematic review was carried out in PubMed databases, along with the terms DeCS/MeSH: "Fibromyalgia AND (Transcranial Magnetic Stimu-

lation OR TMS)". Randomized studies and clinical trials published in the last 10 years were selected. After exclusion, 11 articles remained.
Results: The references found for TMS in the treatment of FM indicate average reduction in pain symptoms (29%). TMS showed significant improvement in pain measured by visual analog scale and was more advantageous in clinical and functional improvement, but less efficient in psychiatric conditions. In female patients, active use of repetitive high-frequency TMS was significantly better on pain, quality of life (QoL) and depression. Another study showed that 20 sessions produced significantly lasting pain inhibition and improved QoL when operated at 10 Hz. Moreover, the right dorsolateral prefrontal cortex or the left motor cortex can have antidepressant and pain-modulating effects. Evidence also points to an important improvement in physical and general fatigue, as well as greater chance of clinical improvement in pain intensity.
Conclusions: Evidence on TMS for FM available so far is promising, with potential to represent a valuable and safe therapeutic option. However, more and larger studies are needed to elucidate mechanisms and effectiveness better.
Systematic Review Registration: ID = 254533; https://www.crd.york.ac.uk/PROSPERO/

Mesh words: Fibromyalgia; Chronic Pain; Transcranial Magnetic Stimulation
Key words: Chronic pain; Quality of life; Depression

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Evaluation of adult and elderly performance in MoCA and verbal fluency test in Recife-PE

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Background: Considering the increase in life expectancy, the use of screening tests contributes to the detection of cognitive decline. However, different socioeconomic conditions can influence the performance of individuals.
Objectives: To compare the performance of participants in the Montreal Cognitive Assessment (MoCA) and the Verbal Fluency Test (VFT), assessing the influence of schooling on the score.
Design and setting: Cross-sectional, descriptive study, with 21 participants without cognitive complaints, between January and April 2021, in Recife, Pernambuco.
Methods: Data were analyzed through SPSS software, Shapiro-Wilk test and Pearson's correlation coefficient (PCC).
Results: In all, 21 MoCA tests were applied (Average score: 19.8 points; SD = ± 4.3). The population has a mean age of 56.2 years (SD = ± 10.2), education of 11.8 years (SD = ± 3.5), and a predominance of females (93.5%). In the VFT, the total average performance resulted in 11.5 words (SD = ± 5.1), the first interval, 6.1 (SD = ± 2.5), the second, 2.8 (SD = ± 1, 9) and the third, 2.1 (SD = ± 2.1). There was a correlation between the performance in MoCA and VFT (PCC = 0.717; P = 0.01), and between performance and years of schooling (MoCA: PCC = 0.688; P = 0.01 vs VFT: PCC = 0.489; P = 0.02).
Conclusions: Both tools were correlated with the participant's level of education. However, VFT obtained a lower correlation.

MeSH terms: Alzheimer Disease; Cognition; Mental Status and Dementia Tests.
Key words: Cognitive impairment, Cognitive screening tools, Neurocognitive disorders.

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Analysis of the performance of adults and elderly people in the mini-mental state examination in Recife-PE

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Background: The Mini-Mental State Examination (MMSE) is the most widely used cognitive screening test in the world. However, there is no standardization as to the cutoff points to be used in Brazil, and the influence of education on performance is still under debate.
Objectives: To analyze the performance of individuals in the MMSE, comparing the results according to different scoring criteria and correlating it with schooling.
Design and setting: Cross-sectional, descriptive study with 18 individuals, from January to April 2021, in Recife, Pernambuco. Individuals over 40 years old, with schooling from 4 years on, were included.
Methods: Data were analyzed using the SPSS software, Shapiro-Wilk test, and Pearson's correlation coefficient (PCC).
Results: The population is composed predominantly of women (89%), with an mean age of 56.3 years (SD = ± 8.58), education level of 12.4 (SD = ± 4.26) and an average score of 25.7 points (SD = ± 2.31). Performance was correlated with education (PCC = 0.589; P = 0.001). The fields with the highest prevalence of errors were the copy of the pentagons (61.1%), and the writing of the authorial sentence (44.4%). The percentage of individuals with cognitive decline varied according to the criteria used, ranging from 33.3% to 77%.
Conclusions: Education is correlated with test performance. The variation in the prevalence of individuals who scored below the cutoff point shows that standardization of the assessment could minimize possible disparities.
MeSH terms: Alzheimer Disease; Cognition; Mental Status and Dementia Tests.
Key words: Cognitive impairment; Cognitive screening tools; Neurocognitive disorders.

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Analysis of care in neurosurgery outpatient clinic in Paraíba

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Background: Currently the public health system encompasses numerous demands, including in the neurology and neurosurgery sector. The wide outpatient search shows several symptoms, with pain being one of the most prominent.
Objectives: To analyze the consultations performed in a neurosurgery clinic, aiming to understand the main demands found at secondary health care.
Design and setting: Retrospective and descriptive study, conducted through the analysis of data from a neurosurgery outpatient clinic in the state of Paraíba.

Methods: Conducted through the analysis of data from 73 patients relative to a neurosurgery outpatient clinic, during the period between 11/24/2020 and 12/15/2020. The variables were: gender, age and diagnostic suspicion.
Results: A predominance of females was found (65.7%) and, among all patients, the youngest patient was 8 years old and the oldest was 83 years old. Among the patients, it was possible to observe an important presence of Headache (28.7%), followed by Back Pain (17.7%) and Psychiatric disorders (6.9%), the other patients presented several diagnoses, such as Cerebellar Syndrome (1.37%) and Neoplasms (5.5%). There was found male predominance in Sequelae of Stroke, Parkinson's Disease, Spinal Pathologies, Autism, Brachial Plexus Injury, Carpal Tunnel Syndrome and Complex Painful Syndrome. Furthermore, it was noted equivalence of occurrence in both sexes of Neuropathic Pain, Convulsion, Post- Herpetic Neuralgia and Trigeminal Neuralgia.
Conclusion: The search for regional standards and their comparison to the world scenario is important to assist in clinical diagnosis, besides helping in the allocation of resources and studies.

MeSH terms: Neurosurgery; Ambulatory Care; Epidemiology; Pain.

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Etiology, Incidence And Risk Factors For Meningitis After Craniotomy

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Background: Meningitis after craniotomy can cause devastating outcomes.
Objectives: Estimate the risk of meningitis after craniotomy (MAC). Find the most prevalent pathogens. Assess the impact of meningitis over length of stay and mortality. Find the main risk factor for MAC.
Design and setting: Multicentric, longitudinal and quantitative analysis of data collected between 2013-2017 from nine different hospitals from Minas Gerais, Brazil.
Methods: Surveillance data was based on NHSN/CDC protocols. Observed outcomes were meningitis, hospital death and total length of stay. Twenty-three variables were analyzed in *Epi-Info* in a two-tailed statistical test with a significance level of 5%.
Results: 4,549 patients were analyzed. Risk of MAC was 1.9% (95%CI=1.6%; 2.4%). The mortality rate in patients without infection was 9%, increasing to 33% in infected patients (P<0.01). Length of hospital stay (HS) in uninfected patients (in days): mean=18, median=7, standard deviation=36. HS in infected patients: mean=56, median=37, standard deviation=63 (P<0.001). The duration of the procedure ≤4 hours presented a 1.5% risk of MAC compared to 2.5% *versus* ≥4 hours (RR=1.7; P=0.041). From 88 MAC cases, pathogen was identified in 68 (77%): *K.pneumoniae* (20%), *S.aureus* (16%), *A.baumannii* (13%), *P.aeruginosa* (9%), *Staphylococcus sp* . (8%), *Acinetobacter sp*. (7%), *S.epidermidis* (5%) among others (20%).
Conclusion: MAC risk was 1.9%. Mortality rate was high compared to literature. Meningitis caused threefold increase on HS. Procedure duration ≥4 hours was the main risk factor, presenting RR of 1.7. The most prevalent etiologic agents were *K.pneumoniae* and *S.aureus*. Considering the findings, infectious surveillance is paramount for patient safety.

MeSH terms: "Meningitis/etiology", "Meningitis/mortality", "Craniotomy/complications", "Bacteria/surgery", Klebsiella pneumoniae.

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Effects of *euterpe oleracea* Martius (açaí) consumption on the nervous system: a literature review

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Background: *Euterpe oleracea* Martius is an abundant palm in the Amazon region. Its fruit is consumed after pulper processing, to obtain the açaí drink, whose flavonoid-rich composition draws attention to its antioxidant properties and can be used slowing the progression of dementia and others neurological disorders.
Objectives: to list what is known at the time of this review regarding the effects of the consumption of the pulp, juice or extract of the fruits of Euterpe oleracea Mart. on the nervous system.
DESIGN AND SETTING: literature scan carried out in the PubMed database.
Methods: made using the descriptors provided by the DeCS platform: (effects) AND (euterpe oleracea) OR (açaí) AND (nervous system). A total of 33 results were obtained. Using inclusion and exclusion criteria, 24 articles were selected.
Results: a positive action of this plant was observed in the modulation of free radicals and prevention of premature aging, which reveals the ability of açaí to delay the natural deterioration of cognitive function that occurs with advancing age. In addition, flavonoids act in the perivascular sheath, aiding in the growth of neuronal cells, containment of neurotoxin-induced neuronal lesions and protecting from others neurotoxical compounds.
Conclusions: there is still a need for further studies on this topic to ratify the açaí potential, in order to opening the way for new strategies to protect the nervous system's functions.
As a literature scan, this study does not have a PROSPERO registration.
MeSH terms: Antioxidants, neurotoxins, protective agents.

Author Key words: amazon ecosystem, euterpe, nervous system, therapeutic.

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The relationship of diabetes mellitus with Alzheimer's disease: a literature review

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Introduction: Alzheimer's disease (AD) is closely related to diabetes mellitus (DM), and AD is also considered to be type 3 diabetes (T3D). Glycogen synthase kinase-3β (GSK-3β) may be the potential link between DM and AD. GSK-3β is one of the main factors that lead to insulin deficiency and insulin resistance, and insulin resistance is a characteristic of the development of DM. In AD, GSK-3β plays an important role in hyperphosphorylation of the tau protein (tau) associated with microtubules, which is one of the pathological features in AD.

Objective: To analyze DM as a factor for the development of AD.
METHODOLOGY: This is an integrative review of the literature, which is a construction of a comprehensive analysis of the literature with pre-defined steps, carried out through PubMed, 1.501 articles were found, of which 10 were selected, through the simultaneous crossing between the descriptors "Diabetes mellitus", "Alzheimer ". Articles written in Portuguese and English published between 2016 and 2021 were inserted.
Results: DM associated with insulin resistance affects psychomotor efficiency, attention, learning memory, mental flexibility, speed and executive function of the brain, thus being an independent risk factor for cognitive impairment and damage to the central nervous system, hyperglycemia, which can cause increased oxidative stress leading to progressive functional and structural abnormalities in the brain.
Conclusion: The risk of dementia in patients with DM is higher than in non-diabetic patients and it is also well known that DM2 / insulin resistance is involved in AD.

MeSH terms: Diabetes Mellitus. Alzhwimer. High-fat diet. **Key words:** Insulin resistance. Genetics. Insanity.

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Treatment of middle cerebral artery aneurysm associated with Moyamoya disease: literature review

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Background: Moyamoya disease (MMD) is a steno-occlusive cerebral angiopathy. The incidence of intracranial aneurysms (IA) associated with MMD is high (3.4-14.8%) when compared to the general population (1-3%). IA in the middle cerebral artery (MCA) associated with MMD are rare, with only 25 cases described in the literature.
Methods: Search on the PubMed platform, in English, with the MeSH terms "Moyamoya Disease", "Intracranial Aneurysm" and "Middle Cerebral Artery". There were 151 results, of which 7 were included in the review.
Results: Sumi et al. and Larson et al. reported non-ruptured IA of the M1 segment, treated by surgical clipping and wrapping, respectively. Endo et al. chose to clip a ruptured IA in the M1 segment, followed by anastomosis between the superficial temporal artery and the MCA, excluding the IA . Liu et al. reported a non-ruptured MCA IA in a pediatric patient, treated through an encephalo-duro-arterio-synangiosis; the IA was excluded. Peltier et al. performed an indirect revascularization using the multiple bur-hole technique in a pediatric patient with non-ruptured IA in the M1 segment, excluding the IA. Rivera et al. opted for the conservative approach of a ruptured IA in the M1 segment, which was successful. Yan et al. described 19 IA in the MCA associated with the MMD, without specifying the adopted therapeutic.
Conclusion: Due to the low number of cases, no recommendation can be made, and treatment should be individualized.

MeSH terms: Moyamoya Disease, Intracranial Aneurysm, Middle Cerebral Artery, Treatment
Key Words: Cerebral Angiopathy, Aneurysm, Literature Review

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Creutzfeldt-Jakob disease Heidenhain variant: case report with progressive cognitive decline recorded by videos

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Context: Creutzfeldt-Jakob disease (CJD) is a rapidly progressive neurodegenerative disease. Heidenhain's variant has isolated visual symptoms that persist even without any cognitive decline for a few weeks. **Objective:** To report a case of the Heidenhain variant of the CJD with evolution documented.
Methods: Case report:A 67-year-old woman was admitted to the emergency room with a report of "seizures and dementia for 1 month". It all started in August 2020 with a decrease in visual acuity. The son started to record the evolution of the disease in vídeos on his mobile phone. It got worse, with an inability to reach objects and optical apraxia,psychomotor slowing, abnormal repetition of acts and impairment of judgment. MRI of the brain (normal) and EEG was performed, with diffuse slowing of the base activity. It evolved with intermittent myoclonus and abulia. Extensive investigation for encephalitis: normal. Treatment with acyclovir and pulsetherapy with methylprednisolone were performed.
Results: new brain MRI: restricted area following the diffusion and T2 / FLAIR hypersignal exclusively cortical involving both posterior hemispheres. Also new EEG: generalized periodic discharges. The 14-3-3 protein was detected in her CSF.The patient died 4 months after the onset of the condition due to infectious complications.
Conclusions: The Heidenhain variant of CJD should be considered a differential diagnosis in all patients who have isolated visual complaints, especially if associated with cognitive complaints. The video recording of the patient allows a detailed analysis of the clinical picture and becomes an important diagnostic complementation tool.

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The autistic spectrum disorder and its relation to intestinal dysbiosis

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Introduction: Autistic Spectrum Disorder (ASD) is characterized by a neurodevelopmental disorder, in which the child has persistent deficits in verbal and / or non-verbal communication, social interaction and behavior. One of the factors related to the cause of ASD are nutritional aspects, such as intestinal dysbiosis.
Objective: To analyze the relationship between imbalance in the intestinal microbiota and the pathophysiological characteristics of ASD.
Methodology: This is a systematic review, carried out in the Pubmed, SciELO databases, in order to answer the question: what is the relationship between intestinal microbiota imbalance and ASD? 139 articles were found, of which

12 were selected, through the simultaneous crossing between the descriptors "Autistic Disorder", "Dysbiosis". Articles written in Portuguese and English published from 2016 to 2021 were inserted.

Results/Discussion: Most children with ASD exhibit gastrointestinal symptoms, such as constipation and diarrhea, and greater intestinal permeability, with major differences in the composition of microorganisms in the gastrointestinal tract (GIT). Patients with ASD have a lower microbiota diversity in the GIT. However, it is not possible to identify the origin of this change, since children with ASD often have changes in diet and eating behavior, which could alter the microbiota.

Conclusion: It is still complex to understand what are the main causes of ASD. The gut-brain axis is an important associated factor both in the etiology and in the clinical manifestations of ASD. The use of diets, together with the modulation of the microbiota, by the use of probiotics and specific antibiotics, are possibilities for promising therapy.

MeSH terms: Autistic Disorder. Dysbiosis. Nutritional status.
Key words: Obesity. Microbiota. Gastrointestinal Tract.

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Neuromyelitis optica (NMO): treatment during pregnancy

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Brasília: Centro Universitário do Planalto Central Apparecido dos Santos, 2021.

Background: NMO is a demyelinating autoimmune disorder of the CNS which affects the optic nerves and the spinal cord.
Method: review based on papers from 2016 to 2020. Platforms used: MEDLINE and Pubmed. The descriptors: "NMO" AND "Treatment".
Objective: to review therapeutic approaches and restrictions for NMO during pregnancy.
Case report: G.V.L, 17 years, 23 weeks pregnant, diagnosis of NMO in Dec/2020, with progressive loss of visual acuity and limbs paresthesia. The patient received intravenous methylprednisolone pulses 1g/5 days, followed by 7 sessions of plasmapheresis (PLEX), showing partial symptoms remission, prednisone 60 mg was maintained. March/2021: she presented symptoms reissue, cranial MRI w/o: nerves signal alteration, chiasma and bilateral optical tracts. Spine MRI w/o: slight signal alteration in the dorsal root of the spinal cord, which extends from C1 to C4. Other 5 sessions of PLEX were attempted, without improvement.
Results: during pregnancy, intravenous glucocorticoid, Rituximab and Eculizumab proved to be safe in the treatment of NMO. PLEX is indicated in cases of remissions resistant to medications. The therapy with immunosuppressants, such as methotrexate, mycophenolate mofetiland mitoxantrone, isn't recommended. These immunosuppressants can cause miscarriage or pose a risk to the fetus. However, the immunosuppressant azathioprinehas a safety profile in pregnancy; furthermore, it is considered the most appropriate maintenance treatment in combination with prednisone.
Conclusion: due to the risk ofmiscarriage and teratogenicity, NMO treatment during pregnancy is restrict to intravenous glucocorticoids, rituximab and eculizumab, and in specific cases PLEX.

Key words: NMO. Pregnancy. Treatment.
MeSH terms: Disorder. Autoimmune. Optica.

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Different names for stroke: same concept?

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Background: In Brazil, a number of names are used to refer to a stroke event, such as "spill", "thrombosis", and "beginning of stroke".
Objective: To analyze the attitudes (call to the emergency service and refer a hospital as the best treatment site) of individuals who identify a "stroke setting" in comparison to other terms.
Design and setting: Cross-sectional study involving 1,477 individuals (36,4±14.8years, 52.5% female, 13,0±4,4 schooling years) from Brazil's northeastern.
Methods: We applied a survey to volunteers who were on public areas. The researcher exposed the volunteers to a typical case of stroke and asked "what is happening with this person?", "what should you do in this situation" and "what is the best place to medically treat this person?".
Results: 825/1477 (55.9%) answered "stroke", 26.4% "spill", 7.7% "infarction" and 2.6% "thrombosis"; 16.9% did not define what happened. Calling to the emergency service was the attitude of 592 (40.1%). A hospital was the best place for 75.4%. Individuals who answered "spill" were more often men (p<.001), non-white (p=.050), from Bahia state (p<.001) and had fewer years of education (p=.001). Individuals who answered "thrombosis" and "beginning of stroke" were older (p=.046) and of poorer education (p=.026). The answer to "what to do" and "best place for treatment" was not different among any of these groups.
Conclusion: Despite demographic and regional differences in how to name a stroke event, the idea related to them is the same. Awareness campaigns should use other terms than stroke to improve the comprehension of lay population.

MeSH terms: Stroke, Awereness, Education.
Key words: Stroke, medical emergency, education, symptoms.

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Rhinocerebral Murcomycosis: Reflection of the World Diabetes Epidemic

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Introduction: The human body is a structure composed of billions of specialized cells, each activity goes through the control of the Central Nervous System (CNS). Neuroinfections are pathologies that affect the CNS, for example, we have Murcomycosis, a progressive infection caused by opportunistic fungi of the order Mucorales, with high frequency in Immunodepressed patients, Diabetes Mellitus (DM) is the main underlying pathology associated with the development of Rhinocerebral Murcomycosis, which represents 50% of the cases, with a mortality rate of 70% (Sidrim, 2012, p.168).

Objective: To highlight the main symptoms associated with Murcomycosis and Diabetes Mellitus.
Methodology: Literary review of the Scielo, Shola.google PubMed and library collections, from 2012 to 2021, with the descriptors: Mycosis, Diabetes mellitus and Central Nervous System.
Results: It was evidenced that 90% of the diagnosed cases refer to patients with a high degree of immunodepression, mainly due to DM, the main symptoms include unilateral facial pain, headache and fever, frequently resulting in necrosis of the paranasal sinuses.
Conclusion: Considering the findings of Murcumicosis associated with DM, it becomes essential to apply informative strategies regarding healthy eating and physical habits, protected by an efficient policy aimed at reducing the incidence of the disease as a basis, the diagnosis of Murcomycosis can be reduced.

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Brain Ischemia associated with COVID-19 and PFO - Case Report

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Context: COVID19 has better known respiratory impacts than cardiovascular[1] and high D-dimer as the most significant coagulation parameter[2]. Otherwise, paradoxical embolism due to Patent Foramen Ovale (PFO) and Ischaemic Cerebral Vascular Accident (iCVA) mechanisms associated are poorly documented[3, 4]. We aimed to report an associated case of iCVA and PFO and highlight COVID19 hypercoagulability triggering thromboembolisms.
Case report: CTT, 76y, female, hypertensive, former-smoker was hospitalized with right-hemiplegia, transcortical aphasia, dysarthria by iCVA and evolved with headache, odynophagia, fever, chills. RT-PCR-SARS-Cov2: positive; chest-CT: 25% bilateral pulmonary involvement, ground-glass opacities. 8days later, was transferred to ICU-COVID-HU-UFJF; D-dimer=827. In 30days, went to ward with O2-dependent pulmonary sequelae; CT-angiography excluded Pulmonary Thromboembolism. Searched iCVA mechanism, ECO detected PFO=2.8mm and Interatrial Septum aneurysm. Prescribed anticoagulants. Subsequently, presented right-clonus, further previous Rankin-Scale=5. Requested brain-MRI pointed lobar hemorrhage with mass effect in recent iCVA's territory (left-Middle Cerebral Artery). After 10days, a head-CT evidenced partial resorption and reduced mass effect. Patient was discharged taking rivaroxabana.
Conclusions: Retrospectively, we suspected that COVID19 hypercoagulability triggered Deep Vein Thrombosis and the consequent PFO paradoxical embolism, which caused iCVA. Therefore, vascular pathologies in COVID19 deserve further studies. Treatment for secondary prevention in iCVA by PFO is uncertain[3].

MeSH terms:cerebrovascular accident; coronavirus; hypercoagulability; paradoxal embolism; patent foramen ovale
Key words: interatrial septum aneurysm; hemorragic transformation; clonus; mass effect.

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Polyradiculoneuropathy and encephalitis secondary to sarcoidosis in young patient

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Context: Neurosarcoidosis is common in 50-70% of cases of sarcoidosis, but polyradiculoptia in sarcoidosis is rare in 1.3% of cases.
Case Report: a 48-year- old woman diagnosed with Sarcoidosis after skin, evolved with sporadic paresthesia of the lower limbs. The use of Methotrexate controlled the disease. However, she developed acute pancreatitis secondary to the treatment and suspended it. After 2 months, the patient presented paraparesis. In view of probable polyradiculoneuropathy, Human Immunoglobulin was administered. However, she evolved with mental confusion, flaccid tetraparesis and global arreflexia. CT of skull showed paramedian bridge hypodensity and left cerebellum, suggestive of vasculitis, and normal liquor. Methylprednisolone was administered. And despite the treatment, patient worsened with decreased level of consciousness and respiratory failure. MRI of skull showed hypersignal in bilateral temporal region, suggesting viral encephalitis secondary to immunosuppression, after methylprednisolone and immunoglobulin. Thus, Aciclovir was administered and there was improvement in the use of BIPAP.
Discussion: Other differential diagnoses were considered: Guillain-Barré syndrome, inflammatory and chronic demyelinating polyneuropathies, spirochete infections, fungi or toxoplasmosis. The diagnosis of neurosarcoidosis is mainly due to MRI, high sensitivity and low specificity. Neural tissue biopsy is gold standard, but difficult to access.
Conclusion: This clinical history shows an atypical involvement of the Central and Peripheral Nervous System for sarcoidosis: a viral encephalitis after polyradiculopathy and vasculitis treated.

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Epidemiological profile, temporal trend and geographic location of the occurrence of meningitis in Alagoas (2008-2017)

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Background: Meningitis is a neuroinfection of multivariate etiologies, high morbidity and mortality and social impact.

Objectives: To describe the epidemiological profile and analyze the trend and spatial distribution of meningitis in the state of Alagoas, Brazil, in the period 2008-2017**.**

Methods: The ecological study is based on confirmed processes of meningitis and deaths from disease. Data were collected from the National Notification System. Clinical and epidemiological variables were analyzed, such as incidence and mortality rates. The regression model was used as a regression model for inflection points. A spatial sample was performed by a local empirical model, followed by global and local Moran statistics. Confidence interval of 95% and significance of 5% were considered.

Results: 1365 cases were reported to Alagoas state, 59.6% male, 60.7% aged up to 19 years and 89.8% brown. Regarding the clinical profile, standing out: bacterial meningitis (24.3%), serum group Y (14.0%) and diagnosis by chemocytology (32.7%). Inflation decreased from 4.97/100 thousand in 2008 to 3.23/100 thousand in 2017 (AAPC -7.3%; p <0.001). Growth rate in growing trend from 10.3% in 2008 to 15.85% in 2017 (AAPC 4.7%; p <0.001). The capital city of Maceió presented a greater exchange of notified cases (40.7%). The highest incidence rates are those of Marechal Deodoro (36.00 / 100 thousand) and Maragogi (29.63/100 thousand). The priority municipalities were in the eastern region.

Conclusions: The study showed a reduction in the incidence of Meningitis and heterogeneous spatial distribution in the state of Alagoas.

MeSH terms: Meningitis. Incidence. Ecological studies.

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Analysis of the epidemiological profile of hospitalizations for Epilepsy in Brazilian regions between 2015 and 2019

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Background: Epilepsy is a chronic neurological disease with the highest incidence in the world, affecting 1.3% of the Brazilian inhabitants. On average, 10% of the world population can be affected by an epileptic seizure. Thus, knowledge of the epidemiology of hospitalizations for epilepsy enables better health planning.

Objective: To analyze epidemiology of hospitalizations in Brazil's regions in 2015-2019.

Methods: It is an observational and retrospective study of the descriptive epidemiological profile, using data from the Hospital Information System (SIH/DATASUS). Variables: year, region, age group, sex and color/race.

Results: There were 263,881 hospitalizations from 2015 to 2019 in Brazil. The Southeast region has the highest hospitalization rates between 2015 and 2019, reaching 42.32% of the cases, while the North region has the smallest, adding 5.5% (n = 14,530). In the epidemiological profile of hospitalizations prevails: the male gender, with 57.65% (n = 152,134), surpassing in 36.14% the female gender, with 111,747; the age group of 1-4 years (n = 45,702), exceeding in 378,9% the age group greater than or equal to 80 years (n = 9,543); the brown race, with 36% (n = 94,091), followed by white (34.4%), black (3.8%), yellow (1.2%) and indigenous (0.14%).

Conclusion: There was a higher prevalence of hospitalizations for male epilepsy, aged 1-4 years, brown race and in the Southeast region. Therefore, through this study, resolutive actions can be taken in the face of such problems.

Key words: Neurology, Brazil, Regions.

MeSH Terms: Epilepsy, Hospitalizations, Prevalence

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Application of the proposed flowchart for assessing intracranial compliance with a non-invasive b4c sensor in the management of critical patients

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Work performed by Startup Brasileira brain4care in São Paulo

Introduction: Volume variations that result in increases in intracranial pressure (ICP) are directly associated with a reduction in intracranial compliance (ICC) and its non-invasive monitoring allows changes to be identified early.

Objectives: To evaluate the application of an ICC assessment flowchart in a patient with traumatic brain injury (TBI).

Methods: This is a case report of the application of the ICC assessment flowchart to a patient with TBI.

Results: 40-year-old male patient with TBI, subarachnoid hematoma. The first monitoring showed a curve with an altered ICC, a P2/P1 ratio of 1.2, suggesting a reduction in the ICC, with the presence of Lundberg B waves, and the administration of rocuronium bromide started. After 24 hours, it presented a P2/P1 ratio of 0.88, suggesting adequate ICC, the medical team opted to reduce norepinephrine and sedation. On the following day, the patient was agitated, saturating 86%, blood pressure 113 x 60 mmHg, and a P2/P1 ratio of 1.08, suggesting a reduction in ICC. The clinical team deepened the sedation, resulting in decrease a P2/P1 ratio to 0.73, suggesting a possible risk to low cerebral blood flow, resulting in a new adjustment of sedation and ventilatory parameters, evolving with hemodynamic improvement and a P2/P1 ratio of 0.82, suggesting adequate ICC.

Conclusions: The flowchart guided the medical team to use the information of ICP curve by the non-invasive sensor, supporting clinical decision making and improving the quality of the patient care and safety.

Key words: Intracranial pressure, ICP curve, intracranial compliance

MeSH terms: Intracranial Pressure, Compliance, Clinical Decision-Making, Cerebrovascular Circulation, Brain Injuries, Traumatic

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Factors associated with activity limitation in new leprosy cases in a hyperendemic municipality in the Northeast, Brazil: a cross-sectional study

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Background: Leprosy is a neglected, chronic and infectious tropical disease, caused by Mycobacterium leprae. It presents with skin and peripheral nerves alterations, responsible for irreversible physical disabilities. Brazil is one of the main countries endemic for the disease, persisting as a public health problem; its position is the first in the world in terms of prevalence coefficient.
Objectives: To analyze the magnitude and factors associated with activity limitation in new leprosy cases diagnosed in the reference center in northeastern Brazil.
Methods: This is a cross-sectional study, carried out in a reference center located in the municipality of Juazeiro - Bahia, between January and June 2018, involving 50 people diagnosed with leprosy. Clinical and sociodemographic variables were collected in addition to the application of the SALSA scale (Screening of Activity Limitation and Safety Awareness) for the analysis of functional limitation. The data were structured using Microsoft Excel software and, for analysis, IBM SPSS Statistics for Windows was used. Logistic regression was used with the calculation of the Odds Ratio to identify the factors associated with functional limitation. A 95% confidence interval and a 5% significance level were adopted.
Results: The presence of functional limitations was registered in 32% (n = 16) of the cases analyzed, especially female (56.3%), elderly (37.5%), low education (87.6%), dimorphic form (62.5%), multibacillary classification (75.0%) and degree 2 of physical disability (50.0%). Functional limitation was associated with: age group ≥ 45 years (OR 3.80; p = 0.047), multibacillary age (OR 4.28; p = 0.021) and OMP score ≥ 6 (OR 4.69; p = 0.041). 75% of individuals with limitations were aged ≥ 45 years and were multibacillary.
Conclusions: The factors associated with functional limitation were age equal to or greater than 45 years, multibacillary classification and OMP score greater than or equal to six. Early diagnosis and timely treatment in the routine of health services can contribute to the prevention of physical disability and functional limitations.

MeSH terms: Leprosy. Epidemiology. Disabled Persons.

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Association of genetic markers with ischemic stroke in pediatric patients with sickle cell anemia

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Introduction: Sickle cell anemia (SCA) is characterized by complex clinical heterogeneity. Amongst them, ischemic stroke (IS) stands out because it affects 8% to 12% of patients up to the age of 20, with a mortality rate of 20% in untreated cases.
Objectives: To evaluate the association of SNPs -786T/C *NOS3* and C667T *MTHFR* in the occurrence of IS in SCA pediatric patients undergoing regular blood transfusion. **Methods:** Ninety SCA pediatric patients 12.1±3.3 years old being followed-up at HEMORIO/RJ, divided into Patients with IS in hypertransfusion (n=20) and Patients without IS not transfused (n=70).
Results: IS Group: genotypic frequencies: -786T/C *NOS3*, 4 (20%) CC, 4 (20%) CT and 22 (60%) TT; C667T *MTHFR*, 3 (15%) TT, 2 (10%) CT and 15 (75%) CC. Group without IS: genotypic frequencies: -786T/C *NOS3*, 1 (1.4%) CC, 25 (35.7%) CT and 44 (62.8%) TT; C667T *MTHFR*, 1 (1.4%) TT, 18 (25.7%) CT and 51 (72.8%) CC. Chi-square test revealed association of SNPs -786T/C *NOS3* (*p = 0,017*) and C667T *MTHFR* (*p = 0,004*) with the occurrence of stroke in SCA patients, in which the frequency of homozygous mutants is higher in the IS group than in the control group (-786T/C NOS3 20% vs. 1.4% and C667T MTHFR 15% vs. 1.4%).
Conclusions: The polymorphisms evaluated influenced the occurrence of IS in SCA pediatric patients especially when carrying recessive alleles. Studies with larger sample sizes and similar inclusion/exclusion criteria is needed.

MeSH terms: SNPs; Sickle Cell Anemia; Ischemic Stroke
Key words: Genetic Markers; Heredity; Cerebral infarction; NOS3, MTHFR

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Magnetic resonance and its diagnostic accuracy of glioblastoma: narrative review

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Introduction: Glioblastoma (GBM) is the most common and lethal Central Nervous System (CNS) malignant cancer, and the exclusion of differential diagnoses - eg primary central nervous system lymphoma (PCNSL) - often occurs via various Magnetic Resonance Imaging (MRI) methodologies.
Objective: To describe which best image sequences are critical for greater accuracy in the diagnosis of GBM and for their distinction from other CNS tumors.
Methods: This is a literature narrative review, initiated by research in Pubmed database, using associated
Key words: "Glioblastoma" and "Magnetic Resonance"; and filters: systematic reviews + last 5 years publications. Productions that didn't meet the objective were discarded.
Results: MRI has accuracy for diagnosing GBM using the combination T2 + FLAIR + T1 with pre and post-gadolinic contrast. Diffusion and perfusion-weighted MRI association show an improvement in specificity. Computed tomography is used when MRI is unviable, identifying calcifications or hemorrhages and determining the lesion location and surgical potential. Also, spectroscopic MRI, diffusion tensor imaging and PET 18F-FDG, and 11C-MET were reported as important additional diagnostic criteria. Diffusion MRI (DWI) is a non-invasive, convenient, economical, and quick procedure when compared to GBM biopsy. Therefore, adding reliable evidence for moderate differentiation between GBM and PCNSL through DWI.
Conclusion: Reliable methods are needed for GBM accurate diagnosis and its differential diagnoses, using at least T2 + FLAIR + T1, and physiological exams to enhance specificity.

MeSH terms: Brain Neoplasms, Glioblastoma/diagnostic imaging, Magnetic Resonance Imaging

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Gamification as a Neurology Teaching Method

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Background: Digital games play an important role in the learning process, and are used to teach languages and train surgeons. Based on theoretical frameworks that prove the relevance of games in teaching, we began developing a computer game that simulates a hospital, so that medical students could analyze clinical cases from different areas of medical science, including neurology, while playing a game.

Objectives: Create a game to teach medicine in a ludic manner.

Design and Setting: The game is being developed by Doctors, Programmers, Engineers, students of Medicine, Information Technology (IT), Design and Architecture from Brazil and Peru, in a startup incubator from Centro Universitário de Belo Horizonte, in partnership with the Universidad Científica del Sur, Lima, Peru.

Methods: Medical students, under the supervision of Doctors, defined behavioral algorithms, based on Brazilian guidelines, and outcomes (i.e. gain or loss of points, clinical improvement or worsening) addressing different topics in Medicine. Design students created the artistic elements.IT students programmed the prototype of the game using *Unity* software.

Results: Anexpandable minimum viable product was obtained, with artistic elements of two characters, one being a non-playable character, a scenario, and a dialogue script based on a clinical examination of a patient.

Conclusion: The software is running, withthe launch of the pre-alpha version in December 2021. A scoring system will be included for qualitative assessment of the player, as well as feedback reports to educate the player. We speculate this game will improve accuracy and clinical skills of medical students.

MeSH terms: Learning/methods, Games, Experimental, Neurology/education, Education/methods.

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SleepUp, a Digital Therapeutics Platform for Insomnia

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Background: Cognitive-Behavioral Therapy for Insomnia (CBTi) is the gold-standard treatment for chronic insomnia. Although effective, CBTi is not easily accessible due to a shortage of specialized professionals and high treatment costs. Online CBTi (CBTi-O) has been proposed as a more accessible and affordable treatment option. CBTi and CBTi-O are equally effective, and some apps have already been approved by regulatory agencies in USA (Somryst™) and UK (Sleepio™).

Objetives: SleepUp is a digital therapeutics solution for insomnia, intended to provide evidence-based treatment in an easily accessible format.

Methods: The treatment program is based on CBTi-O, composed by seven therapeutic modules (sleep hygiene, relaxation and meditation, psychoeducation, stimulus control, cognitive restructuring, sleep restriction and paradoxical intention). Users are monitored with a sleep log and validated questionnaires assessing insomnia symptoms, sleepiness, sleep quality and sleep hygiene. Additional therapy modules are included, encompassing mindfulness and other meditation techniques. For refractory cases or for those with comorbidities, remote appointments with medical doctors and psychologists specialized in sleep medicine are available.

Results: SleepUp is an early-stage startup and its solutions for sleep and insomnia are being constantly developed and improved. The app is already available in Brazil and USA, both for Android™ and IOS™ devices. Preliminary results demonstrate that the treatment is effective, reducing insomnia symptoms in 28%, (n=1700), improving sleep hygiene scores in 32% (n=100) and increasing sleep efficiency in 16% (n=2500).

Conclusion: SleepUp aims at providing a more accessible alternative to the treatment of insomnia, based on CBTI-O, an effective and safe therapeutic approach.

MeSH terms: Mobile applications; Sleep; Sleep initiation and maintenance disorders; Cognitive behavioral therapy; Telemedicine.

Key words: CBTi; Medical app; Sleep; Sleep quality; Software; Treatment.

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Most common arrhytmias in patients with spinal cord injury

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Introduction: The spinal cord injury is a public heatlh problem, and it can have three different origens: traumatic, compressive and congenital. The consequences are partial or total insufficiency of the spinal cord due to the interruption of motor and sensory nervous tracts. This injury results in clinical manifestations such as: autonomic dysreflexia, conduction disorders and loss of pain and touch sensitivity.

Objectives: To describe the main cardiac conduction disorders on patients with spinal cord injury trough the guiding question: "What are the most common arrhytmic disorders in patients with spinal cord injury?"

Methods: A integrative review was made in the MEDLINE and LILACS databases combining the MeSH descriptors: 'Arrhytmias, cardiac" and "Spinal cord injuries". Furthermore, the inclusion criteria was articles produced in the past ten years that answer the guiding question.

Results: After na analysis, 6 out of 15 articles were selected to compound this review. The main disorders founded were tachycardia, sinus node dysfunction, atrial and ventricular fibrillation and bradychardia, the most founded disorder. There was also descripted the possibility for these patients to envolve into a distributive choque.

Conclusion: Bradycardia was the main arrhythmic impairment found in patients with spinal cord injury, followed by ventricular and atrial fibrillation and tachycardia, with the severity of bradyarrhythmias being associated with the level and severity of the spinal cord injury.

Key words: Arrhytmias, cardiac; Spinal cord injuries; autonomic dysreflexia

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Ramsay Hunt syndrome - a case report

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Context: Ramsay Hunt syndrome is uncommon, with an incidence of 5 / 100,000 people (1), characterized by the triad of ipsilateral peripheral facial paralysis, otalgia and vesicles in the ear canal and / or auricular pavilion (1,2,3). It results from the reactivation of the Varicella Zoster virus in the geniculate ganglion and may extend to other cranial pairs, causing inflammation, edema and nerve dysfunction (1,3). As the second leading cause of peripheral facial palsy (1), its importance lies in a lower likelihood of recovery with a worse prognosis compared to Bell's palsy (4).
Case report: M.R.S, female, 54 years old, went to the emergency room due to ophthalmological complaints (blurred vision, diplopia, floaters, photophobia), nausea and vomiting, associated with vertigo, headache and facial hypoesthesia on the left. With the worsening of the condition, she was referred to the neurology service of the municipal hospital São José, presenting dysarthria, vesicular lesions in the left external auditory canal, preserved tactile sensitivity, MRC grade V and facial paralysis on the left (House Brackmann grade IV). Lumbar puncture and cerebrospinal fluid analysis were performed to discard other pathologies of the central nervous system. The diagnosis of Ramsay Hunt syndrome was established and treatment with Acyclovir and prednisone was started. After worsening renal function, drug therapy was suspended and venous hydration increased. She continued with improved renal function and was discharged with valacyclovir and corticosteroids.
Conclusions: Theimportance of early diagnosis and treatment is emphasized in order to avoid permanent sequelae of the disease (1,3).

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Participation of calcium channels in the action of angiotensin II in astrocytes

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Background: The renin-angiotensin-aldosterone system is the main regulator of blood pressure and blood volume, with most effects being mediated by angiotensin II (Ang-II) - responsible, in the central nervous system, for actions such as thirst and sodium appetite. Astrocytes are believed to mediate such a response, as they express receptors for Ang-II and respond directly to dehydration with impacting morphological changes in the synaptic microenvironment. Many of its functions involve L-type calcium channels (LTCCs).
Objectives: Evaluate the participation of LTCCs in the effects induced by Ang-II in cultured hypothalamic astrocytes.
Methods: The effect of incubation with verapamil on the morphological responses induced by Ang-II was evaluated in hypothalamic astrocyte culture, by analyzing the expression of the cytoskeletal protein GFAP and the cell viability by the MTT assay, by immunofluorescence.
Results: Incubation with Ang-II reduced the cell area considerably due to GFAP expression in relation to the control group (DMEM $p < 0.05$), an effect reversed by the association with verapamil. Cell viability was shown to be reduced only in the DMSO group ($p < 0.001$), indicating that the results observed on GFAP expression did not result from cell death.
Conclusion: Incubation with Ang-II alters the astrocyte morphology, reducing its area, effect at least in part, blocked by the action of Verapamil, indicating the participation of LTCCs in the mediation of this process.

MeSH terms: astrocytes, angiotensins, verapamil. Angiotensin-II, neuroglia, hypothalamus.

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Stroke secondary to thrombotic microangiopathy

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Introduction: Thrombotic thrombocytopenic purpura (TTP) is a hematological disease resulting from the ADAMTS 13 plasmatic protein deficit. It can be congenital or sporadic, and is usually autoimmune. Pathological platelet adhesion occurs, leading to microthrombi in capillary and arterial circulation, microangiopathic anemia and ischemia. The clinical picture includes thrombocytopenia, renal dysfunction, fluctuating neurological symptoms, microangiopathic hemolytic anemia, and fever.
Methods: Case report of a 51-year-old male hypertensive patient, diagnosed with idiopathic thrombocytopenic purpura (ITP) 10 years ago and submitted to splenectomy 5 years ago, who developed acute cholecystitis. He underwent urgent colecistectomy, and on the fourth postoperative day presented sudden space and time disorientation, transcortical motor aphasia and right faciobrachial paresis, with ipsilateral Babinski and Hoffman signs.
Results: Brain CT showed left frontoparietal hypodensity. During hospitalization, there was worsening of renal function, increased LDH, and thrombocytopenia. Hematoscopy identified signs of intravascular hemolysis (erythrocyte fragmentation, reticulocytosis, helmet erythrocytes). Direct Coombs was negative. There was no history of heparin use. TTP was diagnosed, and fresh frozen plasma and prednisone 1mg/kg were prescribed. There was resolution of thrombotic microangiopathy, with subsequent increase of platelet levels, decreased LDH and improved hematoscopy.
Conclusions: This case illustrates a rare cause of stroke and an unusual association of two hematological conditions: ITP and TTP. The treatment of TTP consists of replacement of deficient ADAMTS13 protein through plasmapheresis or fresh frozen plasma. The use of immunosuppressants is also associated, initially with glucocorticoids, followed by rituximab or splenectomy in order to prevent recurrences.

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Benefits of using cannabidiol in the treatment of dyskinesias in patients with Parkinson's

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Introduction: Parkinson's disease (PD) is a neurological, chronic, and progressive disease that causes the death of brain cells, especially in the area responsible for the production of dopamine, which, among other functions, controls body movements. The first signs of PD are usually hand tremors, muscle stiffness, pain, dizziness, sleep disturbances, respiratory and urinary systems. In this context, cannabidiol (CBD) has been a source of research to improve institutional motor disorders.

Objectives: Compile scientific evidence on the use of cannabidiol to improve dyskinesias in patients with Parkinson's.

Methodology: This is an integrative literature review, through the selection of scientific articles, available in the virtual databases: PubMed, Scielo, and Google academic, published between the years 2018 to 2021.

Results: CBD has a positive effect, bradykinesia, tremors, stiffness and psychotic, mood and sleep disorders, quality of life, its adverse effects are observed with low frequency. In addition, there seems to be a beneficial drug interaction between CBD and levodopa (l-DOPA), the drug of choice for the treatment of this disease. The prolonged use of this drug causes a type of dyskinesia, known as DOPA- induced dyskinesias (LIDs). Thus, modulation of the endocannabinoid system through CBD presents itself as a possible promising therapy for the control of PD and LIDs.

Conclusion: Studies induced expressive results regarding the use of CBD to treat PD. However, as there is still no consensus, specific studies are carried out to assess the safety of using CBD in patients with long-term PD and its possible beneficial interaction with antiparkinsonian drugs.

Key words: Endocannabinoids, Parkinson's Disease, Neurodegeneration

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Rhodopsin stimulation in neural circuits by neuromodulation in optogenetics: current findings on the use of Deep Brain Stimulation (DBS)

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Introduction: Optogenetic neuromodulation describes a contemporary technique of brain modulation that has been increasingly studied, both in the field of genetic engineering and in neuroscience, for the treatment of diseases such as epilepsy, schizophrenia, parkinson and essential tremor. Through it, we seek to alter neurons, making them sensitive to light stimulation. For this, viral vectors are used to insert opsin genes into neural tissue.

Objective: to describe the most recent scientific findings related to the use of DBS using Optogenetics techniques.

Methodology: use of databases, SCIELO, PUBMED, LILACS and American Association of Neurological Surgeons using the following descriptors: Genetic Engineering. Deep Brain Stimulation. Optogenetics. Rhodopsins.

Results: The use and Deep Brain Stimulantion (DBS) or Pronfunda Cerebral Stimulation (ECP) for therapeutic intervention in patients with movement disorders is performed through the insertion of a tungsten wire in specific areas of the central nervous system with the passage of electric current from microampers for milliseconds. However, over time, this causes plasticity, associated with gliosis and loss of DBS effectiveness. In addition, scientific evidence shows that cerebral neuromodulation by optogenetics in patients with dystonia, depression and obsessive compulsive disorder (OCD) is also already a reality with significant and approved results.

Conclusions: Optognetics can replace classic DBS for the treatment of several neurological comorbidities with safety and space-time precision, with minimal side effects, when compared with that technique.

MeSH terms: Rhodopsin. Neuromodulation. Optogenetics. Deep Brain Stimulation

Key words: Deep Brain Stimulantion. Pronfunda Cerebral Stimulation. Neuromodulation.

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Carotid endarterectomy as the treatment of choice for clearing the internal carotid artery in transitional ischemic attacks

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Introduction: TIAs are ischemia, caused by stenosis of the carotid and vertebral arteries. Those who have a TIA are at risk of ischemic stroke and myocardial infarction, with carotid endarterectomy being an intervention.

Objective: To analyze the benefits of carotid endarterectomy using drugs.

Methods: Literature review, in bases such as PUBMED, MEDLINE, descriptors: "Endarterectomy", "Ischemic Attack", with operator "AND" and "OR". Those with two descriptors were selected in the summary and date between 2010-2020, English / Portuguese language, resulting in: 17 articles.

Results: The internal carotid artery (ICA) is located in the neck as a branch of the common carotid artery, being one of its branches the middle cerebral artery (MCA), the main artery affected in strokes and TIAs. Thus, ACI ischemia causes a risk of thrombosis in MCA, the treatment of carotid stenosis requires drugs to prevent atheroma, as well as antiplatelet drugs to reduce embolic events[1]. In some cases, carotid endarterectomy or carotid stent implantation is complementary. Therefore, patients with TIA or stroke, who have "transient, fluctuating or persistent unilateralmotor weakness or speech disorder or eye symptoms", should undergo endarterectomy if they have moderate-severe stenosis of the extracranial internalcarotid artery in the first days of presentation[2]. Thus, endarterectomy is the treatment of choice and stenting should only be offered to symptomatic patients.

Conclusion: Therefore, endarterectomy has been shown to be safe for patients with internal carotid artery stenosis, indicating the prevalence in relation to the stent.

Key words: Endarterectomy, Ischemic Attack, Transient, Carotid Stenosis.

MeSH: Stenosis, Surgery, atheroma.

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Nursing care for patients diagnosed with epilepsy: bibliographic research

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Background: Characterized as a seizure crisis, the transient occurrence of signs and/or symptoms resulting from brain electrical impulses, in an unorganized, excessive and repeated manner. It's the responsibility of the health team, including nursing, to provide information to the population about the disease.
Objective: Identify, through scientific articles, nursing care for patients diagnosed with epilepsy. Design and setting: Bibliographic and descriptive research on nursing care for patients diagnosed with epilepsy, a search for scientific articles was carried out in Latin American and Caribbean Health Sciences and Nursing Database, which are part of the Virtual Health Library
Methods: Articles available, online, in Portuguese, Spanish and English, published from January 2008 to December 2018.
Results: Five articles were analyzed, which identified the nursing care provided to patients diagnosed with epilepsy. The articles were categorized as: "training of nurses on epilepsy care" in four articles that describe the development and implantation of a plan to take care of epilepsy by nurses, the care for patients with specialist nurse in epilepsy and training of nurses to be specialist nurses; and "education and training of parents of children diagnosed with epilepsy" in an article that describes a tool development by nurses to help parents and family to take care of a child with epilepsy.
Conclusions: The nurse with the health team is very important in the participation of explanatory processes of individual and family adaptation, as they can identify the limitations that must be worked on and they assist in the development of solutions.

MeSH terms: Nursing Care, Epilepsy, Nurse's Role and Epileptic Syndrome.
Author´s Key words: Epileptic seizures, Epileptic outbreaks, Convulsive outbreaks, Nursing care, Role of the nurse.

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Case Report: High-grade glioma resection in the Broca area without functional loss

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Context: The Broca's (BA) and Wernicke's Area (WA) are fundamental for the language function. Surgical interventions in proximal areas can cause functional deficits. The left brain (LB) contains BA and WA in 92.5-97% of the right-handed individuals and 2/3 of the left-handed. The mapping of these functional areas is done with functional magnetic resonance (fMRI), which identifies which cerebral hemisphere is responsible for to the language function. In slow-growing tumor lesions, there might be plasticity in these areas, which allows tumor resection with functional recovery. In high-grade tumors, growth is fast and there is usually no significant plasticity. This article aims to demonstrate that even in high-grade tumors, brain plasticity in language areas can occur.
Case report: T.R.P., male, 20 years old, right-handed, with type-2 neurofibromatosis. Evaluated due to the epileptic seizure with a lesion suggestive of high-grade glioma (IV-WHO) affecting the lower frontal gyrus in magnetic resonance imaging.
Results: Undergoing surgical resection with awake craniotomy for functional language mapping. Functional studies have shown that the anatomical area corresponding to BA had no function and was surgically removed. T.R.P. evolved without functional deficits and fMRI showed complete resection of the Broca's area and the anatomo-pathological exam confirmed that the tumor was a high-grade Glioma (IV-WHO).
Conclusions: Even in the presence of a fast-growing lesion, the possibility of brain plasticity in the language areas should be considered. When plasticity is found, complete resection of the tumor is possible using invasive brain mapping, which has a direct impact on prognosis and survival.

Key words: neuronal plasticity; neurofibromatosis type 2; wernicke's area; prognosis; fMRI.

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Diffusion-tensor imaging (DTI) and tractography (DTT) in the surgical planning of brainstem cavernous malformations

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Background: Brainstem Cavernous Malformations (BSCMs) are vascular alterations that allow blood to pass into the central nervous tissue. When surgery is indicated, the preoperative use of DTI/DTT appears to improve prognosis.
Objectives: Analyze the use of DTI/DTT in the surgical planning of BSCMs and their prognostic repercussions.
Methods: An integrative review in which 25 articles in English from the last 14 years were found in the Pubmed database in April 2021, using the descriptors "brainstem", "cavernous malformations" and "diffusion tensor imaging" and the boolean operator "And". 4 articles from 2015 to 2021 were selected. Exclusion criteria: (1) Reviews; (2) Case reports; (3) Unrelated topic.
Results: BSCMs commonly distort the region's tracts, whose location and direction can be determined by DTI/DTT, offering a safer surgical planning. In a series with 10 BSCMs patients, in which 5 underwent preoperative DTI, 64% of the analyzed fibers presented some deformation, with 2 patients needing to have their surgical plan altered. A randomized clinical trial analyzed 23 BSCMs patients who underwent preoperative DTI/DTT and 24 conventionally evaluated, surgical morbidity and the percentage of patients with worsened motor deficits were lower in the DTI/DTT group (30,4% and 1,7%) than control (79,2% and 37,5%), indicating that such techniques may have better results.
Conclusion: Preoperative DTI/DTT appears to be related to a better prognosis and surgical safety. However, further studies are needed to confirm its effectiveness in improving the prognosis of BSCMs patients.

MeSH terms: Diffusion Tensor MRI; Diffusion Tractography, Cerebral Cavernous Malformation, Brain Stems
Key words: Cavernoma, White Matter tracts, Vascular Disorders, Prognosis

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The relationship between tension headache and screen exposure in children and adolescents

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Background: Primary headaches are idiopathic or genetic conditions without a known secondary cause. Primary tension-type headache is characterized by bilateral, non-throbbing pain, of mild to moderate intensity. Nowadays, with greater exposure to electronics, a relationship was observed between screen time and increased tension headache among children and adolescents.
Objective: Elucidate the association between tension-type headache and increased screen exposure among children and adolescents.
Methods: A literature review was carried out after analyzing scientific articles from 2014 to 2020, on Scielo, UPTODATE and Pubmed, in Portuguese and English.
Results: With technological development and behavioural changes, the use of electronics has grown among children and adolescents. However, its overuse causes consequences such as a sedentary lifestyle, stress, reduced socialization and complaints of headache. In children, the most prevalent primary headaches are tension-type and migraine. The tension-type headache is characterized by bilateral location, in pressure, with photophobia or phonophobia, without nausea or vomiting. The hypothesis that best explains the association between tension headache and screen exposure is that consecutive periods of electronic activities cause sustained muscle tension and pain. Furthermore, there is an influence of genetic factors, diet and psychological stress. Therefore, it is necessary to raise awareness of the importance of an approach to avoid triggers for headache in children, such as controlling screen time and maintaining healthy habits.
Conclusions: The correlation between excessive screen time and headache is substantial and admits an educational performance by health professionals to avoid harmful consequences to growth.

MeSH terms: Headache, Electronics, Child.
Key words: Cefaleia Tensional, Tela, Adolescentes.

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AGenesis of the internal carotid artery (ICA agenesis): an integrative review

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Introduction: The ICA agenesis is a rare anomaly, an incidental finding whose incidence is lower than 0,01%. It is predominantly asymptomatic, because of the development of a collateral circulation, though it can present nonspecific symptoms, that result from insufficient blood flow, due to the development of atherosclerosis in vessels that previously supported the blood flow in the absence of the ICA, and by the association with brain aneurysm.
Objectives: Conduct an integrative review about the ICA agenesis, describing the aspects and importance of vascular changes.
Methods: It is an integrative revision that includes articles indexed in the SCIELO and PUBMED databases, using descriptors, with articles from the last 5 years.
Results: The ICA agenesis can be unilateral or bilateral, predominantly on the left side. The main collateral pathways are the Circle of Willis and the transcranial collateral vessels of the external carotid artery. Differential diagnosis, like total occlusion or dissection, should be excluded by the inspection of the carotid canal in the CT, because the demonstration of a normal carotid canal excludes developmental anomalies of the ICA. The MRI and the angiography, combined with CT and Doppler ultrasound allow an accurate diagnosis.
Conclusion: It is important to consider the possibility of ICA agenesis in the investigation of nonspecific symptoms, when other more prevalent causes have already been discarded, since these patients have an increased incidence of several other intracranial diseases, such as cerebral aneurysms with an association of 25-44%, that if identified in time, can avoid severe damages.

Key words: neurology, brain, intracranial aneurysm, carotid artery diseases
MeSH terms: Artery carotid; Internal; Agenesis

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Analysis of Cognition and Postural Control of Individuals Post Hospitalization by COVID-19

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Background: Cognitive damage is observed in those hospitalized by COVID-19, which may be associated with hypoxia and sedation, but it is not established whether there is an association with postural control.

Objective: To verify the correlation between cognition and postural control of individuals hospitalized by COVID-19.
Design and setting: Prospective cohort study at a referral hospital for the treatment of severe cases by COVID-19.
Method: The primary end point was cognition (10 CS) and the secondary end points with postural control (Brief Best Test), mobility (Time Up and Go - TUG) and muscular endurance and strength (time to sit and stand 5 times and 1 minute [min]). Data analysis was performed using the JASP software and a significance level of $p < 0.05$ was adopted. For descriptive analysis, mean, standard deviation and frequency were used. Pearson's coefficient test was used to analyze possible correlation between variables.
Results: As preliminary results, 91 patients with average age (59.29 ± 11.37) years, 54.94% female and 45.05% male were evaluated. There was a weak negative correlation between 10CS and Brief ($r = -0.270$; $p = 0.013$), a strong positive correlation between 10CS and sitting and standing time 5 times ($r = 0.404$; $p < 0.001$) and a negative correlation between 10CS and sitting test and raise 1 me. ($r = -0.342$; $p = 0.002$). There was no association between 10CS and TUG over 12.6 seconds.
Conclusion: In patients who presented cognitive deficit after hospitalization due to COVID-19, an association with deficit in postural control, resistance and muscle strength was observed.

Key words: Cognition; Postural Control; COVID-19.

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Arteritic bilateral anterior ischemic optical neuropathy: case report

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Introduction: Arteritic anterior ischemic optic neuropathy (AAION) is infarction in anterior segment of optic nerve in which there is thrombotic occlusion of short posterior ciliary arteries due to granulomatous inflammation of giant cell arteritis (ACG).
Case report: Male patient, 66 years old, complaining of loss of vision in left eye (LE) for 28 days, and in right eye (RE) for 8 days, accompanied by left hemicranial headache, pulsatile, irradiation from frontal to cervical region, of strong intensity, prevalent at night. Report of pain on chewing, chills, night sweats, neck pain and headache for 2 months. On examination, there was no light perception and bilateral non-reactive pupils. At simple retinography, LE with pale optical disc (OD), attenuation of retinal vascularization, atrophic and whitish areas; RE with OD with undefined borders, peripapillary hemorrhages and areas of retinal pallor. At fluorescent retinography; LE without arterial filling; CBC, discrete anisocytosis, thrombocytosis and microcytosis; ESR, 71mm/h in first hour; CRP, 113.6 mg/L. At, doppler USG of temporal arteries, significant increase in thickness of the myointimal layer, causing hemodynamic repercussions, with monophasic flow.
Conclusion: Meeting 4 of 5 criteria of American College of Rheumatology, diagnosis of AAION was made. The condition was already irreversible at the time of examination.

MeSH terms: "Optic Neuropathy, Ischemic"; "Giant Cell Arteritis"; "Ciliary Arteries"
Key words: "Ischemic Neuropathy"; "Arteritis"; "Optic Nerve "

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Optic neuropathy secondary to probable optic nerve glioma: case report

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Introduction: Optic neuropathies are a group of pathologies that course with potentially irreversible visual dysfunction. Among compressive causes, optic nerve glioma (GNO) is one of the main ones.
Case report: A 12-year-old black school-age female patient seen in February 2020, reported progressive low visual acuity on the right eye (RE) for 6 years. Ectoscopy revealed café au lait spots all over body and hyperchromic nodular lesion in left axilla. Ophthalmologic examination showed acuity of 20/400 in RE and 20/20 in the left eye (LE), relative afferent pupillary defect in RE. At biomicroscopy, irian Lisch nodules. Magnetic resonance imaging (MRI) showed fusiform thickening of intraorbital portion of right optic nerve (ON) with mild enhancement upon gadolinium infusion. Optic neuropathy was secondary to probable GNO. Ophthalmology and neurology management was expectant. Upon return, patient reported intermittent headache and functional and aesthetic discomfort due to axillary lesion, and presented a new MRI with findings similar to the first. Simple retinography showed global pallor in right ON and temporal pallor of left ON.
Conclusion: The case presented, in which delay in access to specialized care resulted in blindness, highlights the importance of ophthalmologic screening in NF1. Manifestations resulting from the syndrome, with biopsychosocial repercussions, emphasize importance of multidisciplinary care.

MeSH terms: "Optic Nerve Glioma"; "Toxic Optic Neuropathy"; "Optic Neuropathy, Ischemic"
Key words: "Neuropathy"; "Glioma"; "Optic Nerve"

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Atypical Manifestation of Polyneuropathy in Covid-19

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Context: Neurological manifestations of Sars-CoV-2 are progressively emerging. Cases of Guillain-Barré syndrome and its variants, with onset about 5-10 days after influenza symptoms, have been described. This paper reports a case of polyneuropathy with onset 90 days after a sore throat episode and persistence of IgM positivity in serology for Sars- Cov-2. We aim to raise awareness of this possibility**.**
Case Report: A 56-year-old male, hypertensive, presented with sore throat on April 21, 2020. Serology for Covid-19 was performed with positive IgM. There was complete improvement of the symptom. At the end of July, he started a symmetrical paresthesia in the feet with ascension to the knees and, on August 20, paresthesia in the hands too. So, he went to IAMSPE (SP) and tactile and painful hypoesthesia in hands and feet, hypopalesthesia in lower limbs, a fall in the lower limbs upon Mingazzini's maneuver, global hyporeflexia and talon gait were found. Just the following tests were changed: second Cov-

id-19 serology IgM and IgG positives; ENMG: sensory motor polyneuropathy, primarily axonal, with signs of chronicity and without signs of acute denervation in the current. Started gabapentin and physical therapy. Patient still has paresthesia in hands and feet, but with partial improvement**.**

Conclusion: This case alerts to neurological symptoms of Covid-19 in the medium and long term.

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Radiological clinical evaluation of cerebral venous thrombosis

Maely Moreira de Abrantes

Background: Cerebral venous thrombosis (CVT) is a rare disorder, accounting for 0.5- 1% of cerebrovascular diseases and, in general, affects young people. Occurs due to occlusion of venous sinuses and cerebral veins, which are responsible for the venous drainage of the brain. Symptoms and clinical course are extremely variable, making diagnosis difficult.

Objective: The present study aims to conduct a review of the literature on the clinical radiological evaluation in patients with cerebral venous thrombosis.

Methods: This is a literature review based on the medical literature and scientific articles indexed in the Scientific Eletronic Library Online (SCIELO) and VHL- Brazil.

Results: The evolution, introduction and use of relatively recent imaging techniques have contributed to the early diagnosis and treatment of patients with CVT. Skull computed tomography (CT) is usually the first examination performed in emergency care and can be normal in up to 50% of cases. Skull MRI associated with cranial angioresonance (MRA) are currently the exams of choice for the diagnosis of CVT in the acute, subacute and chronic phases. These tests allow a detailed assessment of the thrombus and tissue changes resulting from CVT. Digital angiography of the skull by catheterization is an invasive method and is considered the gold standard method for the diagnosis of CVT. It is reserved for cases in which NMR is not conclusive or when considering the performance of an endovascular procedure.

Conclusions: Imaging studies are of great importance in the diagnosis. Although the venous angiographic studyis essential, it is also important to observe the conventional sequences in order to allow acorrect diagnosis.

Key words: Brain, Cerebrovascular disorders, radiology.

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Ischemic stroke in azygos anterior cerebral artery: a case report

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Context: The azygos anterior cerebral artery (azygos-ACA) is a rare variant that involves a common trunk in segment A2 (above the anterior communicating artery). Its prevalence is 0.3–2%.

Case report: Male patient, 59 years old, diabetic, smoker, with congenital heart disease (long congenital QT) was admitted to the hospital on 01/07/2020 with traumatic brain injury followed by a seizure crisis (1st episode). Upon admission, he had Glasgow 13 and a cranial tomography showing small left frontal hemorrhage, then conservative treatment with phenytoin 100mg every 8 hours was initiated. The following day, there was a decrease in the level of consciousness (Glasgow 7), with orotracheal intubation being performed and a new skull tomography was performed revealing a slightly enlarged left frontal contusion area, right subdural hematoma, bifrontal hypodensity and left caudate nucleus. Mannitol (100ml / 6h) was indicated and phenytoin (100mg/ 8h) was maintained. On 16/07/2020, the cranial angiotomography showed hypoflow of the anterior cerebral artery and an anatomical variant showing that such artery emerged from a single trunk. The next day, he was still intubated, with Glasgow 6 and no interaction with an examiner.

Conclusions: It is concluded that the patient had a bifrontal ischemic stroke (evidenced by the 2nd tomography) and this, occurred due to an obstruction of the azygos-ACA (rare variant), explaining its bilaterality. This situation led to traumatic brain injury, syncope and a severe decrease in the level of consciousness. Given the possible repercussions, the anatomical recognition of this variant becomes important.

MeSH terms: Artery, Anterior Cerebral ; Ischaemic Stroke; Anatomic Variation
Key words: Variação anatômica, Artéria cerebral anterior ázigos, AVC

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Predictive factors in the prognosis of victims of trauma crisis in brain

Maely Moreira de Abrantes

Background: Among mechanical traumas, traumatic brain injury (TBI) is the main determinant of deaths and sequelae in polytrauma patients. TBI is defined as any traumatic injury to the brain that results in anatomical injury such as skull fracture or scalp injury, functional impairment of the meninges, brain and its vessels or momentary or permanent brain changes, of a cognitive or physical nature.

Objective: The present work aims to conduct a literature review on the factors that are predictive in the prognosis of victims of traumatic brain injury.

Methods: This is a literature review based on the medical literature and scientific articles indexed in the Scientific Eletronic Library Online (SCIELO) and VHL-Brazil.

Results: Several factors are related to a worse prognosis in patients suffering from TBI, and the most cited are: score equal to or less than 8 on the Glasgow Coma Scale (ECG) on admission; age over 60 years; tomographic changes showing diffuse axonal lesion or cerebral edema; pupils with abolished photomotor reflexes; arterial hypotension at admission; hyperthermia and male sex. Studies address that the initial clinical-neurological severity, measured by ECG, has the greatest significant influence on the evolution of patients, showing that the initial clinical manifestation points out the severity of primary and secondary injuries associated with TBI. As well as ECG, several other factors such as the brain's susceptibility to injury, the extent and severity of the injuries, the presence of global or focal injuries, associated injuries and the initial response to treatment are also cited as useful in determining the evolution of cases of victims of TCE.

Conclusions: It was found that the TBI is themain responsible for high lethality rates in polytrauma patients worldwide and from obtaining these data in recent years, studies have been deepened in order to search for theprognostic factors for TBI. The identification of these indicators has represented a major advance in the search for alternatives to guide the treatment of the patient and estimate the final result.

Key words: Traumatic Brain Injuries, Mortality, Prognosis.

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Analysis of static balance in a patient with parkinson's disease after using *Nintendo Wii Fit*® games: a case study

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Introduction: Parkinson's disease (PD) is characterized by involuntary tremors, weakness, festive gait, due to impaired balance, and neuropsychiatric disorders. Baropodometer and stabilometer are used to measure the strength of the feet and analyze the gravitational displacement, respectively. The Nintendo Wii® allows playful interaction to exercise balance.
Objectives: To analyze static balance of PD patients after using Wii Fit® pre and post intervention.
Methods: The baropodometric and stabilometric evaluation before and after the intervention took place at the University of Fortaleza. Plantar surface, mass division and pressures were evaluated with a baropodometer. Static balance was assessed with a stabilometer. The games used were Penguin Slide, Table Tilt Plus, Tilt City.
Results: The left (L) hindfoot mass division went from 16.02 to 27.51%. The anteroposterior oscillations of L foot and right (R) varied from 50 to 49%. The average pressure of R foot was 35.67 to 25.97 kpa. As the appointments passed, the scores on the Wii went up. In the static analysis, it was found the patient presented a better variation in mass division of the L hindfoot, frontal gravitational center L and R and mean pressure on the R foot. The benefits found in the applicability of Wii Fit® as a therapeutic tool result in improvement in correction of posture and balance, enabling better locomotion and motivating the patient.
Conclusion: The interaction with virtual reality in a patient with PD is promising for complementary motor treatment, as it delays the evolution of symptoms, improving static balance and providing greater functionality.

MeSH terms: Video Games, Parkinson Disease, Postural Balance, Proprioception.
Key words: Baropodometria, Estabilometria, Equilíbrio Estático, Interação Lúdica, Realidade Virtual, Reabilitação Neurológica.

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The catastrophization of pain is related to the patient and not to the migraine

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Background: Catastrophization is a psychological aspect of pain that alters its perception and expression.
Objective: Assess catastrophization in migraine.
Design and setting: Cross-sectional observational study conducted by online survey, 2020.
Method: Online survey of individuals suffering from migraine attacks at least twice a month, for at least one year. Confidentiality was assured. The participant gave details of his/her headache (including via a visual analogue pain scale) and answered the Hospital Anxiety and Depression Scale and the Catastrophization Scale questionnaires.
Results: The survey identified 242 individuals with migraine attacks at least twice a month. The median scores observed in this group of individuals were 7 for pain, 11 for anxiety, 7 for depression and 2 for catastrophization. Catastrophization had no correlation with the duration or intensity of migraine pain. There was no correlation between catastrophization and headache frequency or the monthly amount of headache medication taken. High scores for catastrophization were identified in one third of the participants. High scores were not associated with age, headache duration, pain severity, frequency of attacks or traits of depression or anxiety. There was a moderate association between both depression and anxiety traits with catastrophization.
Conclusion: Catastrophization seems to be a trait of the individual and appears to be unrelated to the characteristics of the migraine.

MeSH terms: headache; migraine disorders; catastrophization.
ey words: pain; depression; anxiety.

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The role of metabolic syndrome in Alzheimer's disease

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Background: Metabolic syndrome (MS) leads to the deposits formation of insoluble protein aggregates, neuroinflammation, oxidative stress, neuronal insulin resistance, progressive insulin resistance, desensitization and β-amyloid amyloidosis in the brain, besides direct ischemic effects which are closely associated with Alzheimer's disease (AD).[1]
Objectives: The present study seeks to understand the role of the metabolic syndrome in the pathophysiology of Alzheimer's disease and to describe preventive and therapeutic interventions.
Methods: PUBMED and Web of Science were the databases used, the following descriptors were used to search the articles: "Alzheimer Disease" OR "Alzheimer Dementia" AND "Metabolic Syndrome".
Results: The studies in general have shown that MS is related to AD through brain insulin resistance, triggered by oxidative stress and neuroinflammation. It is related to the progressive atrophy of brain regions involved in the progression of AD. Insulin resistance in the brain is related to the progressive atrophy of the brain regions from initial progression of AD. These regions are cingulate cortices, medial temporal lobe, prefrontal gyri and other regions.[3] Thus, there is an inhibition of the mechanisms of beta-amyloid removal, leading to its accumulation, which generates neuroinflammation, that in turn potentiates insulin resistance in the central nervous system, contributing to the genesis and progression of cognitive damage.[2,3]
Conclusions: Insulin resistance plays a major role in the initiation and perpetuation ofcognitive impairment in AD. Furthermore, the components of the MS associated with AD, when treated with preventive and therapeutic measures, break this association by promoting rebalancing of the metabolism.

MeSH terms: Metabolic Syndrome; Alzheimer disease; Neurodegenerative diseases.
Key words: Cognition; Hyperglycemia; Central Obesity; Dyslipidemia; Hypertension.

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Analytical study of the evolution of hospitalizations for Parkinson's disease in comparison with the region, race, sex and age range in Brazil in the last 10 years

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Background: Parkinson's disease is a chronic and degenerative central nervous system neuropathy, caused by decrease of the dopamin hormone. The therapy is symptomatic, neuroprotective and restorative, however it´s still very disabling in advanced stages.
Objectives: Report the number of cases of the disease in different social sectors, to establish link between etiology and health promotion.
Methods: An analytical epidemiological study carried out by research at DATASUS that analyzes the number of Brazilians admissions for Parkinson's Disease, between January/2011 to December/2020, associating these to the incidence according to age group, race, region and sex.
Results: Observing Brazil's hospitalizations, since 2011, due to Parkinson's Disease, noticed: 9,210 cases, being 5,303 (57.58%) male. In the regional proportion, Southeast had the highest incidence with 4,050 cases, followed by South with 2,470, Northeast with 1,800, Midwest with 519 and North with 371. Segregating in states, São Paulo had the highest number 2239, followed by Rio Grande do Sul with 1155. Regarding race, whites with 4,355 cases had the highest incidence, followed by browns with 1825. In the proportion curve between 2011-2020, there's reduction of approximately 1,012% of the registered average. Assessing the age group, there's higher incidence between 70-79 years followed by 60-69 years.
Conclusions: It's noted that the incidence of Brazilian hospitalizations for Parkinson's Disease has increased substantially since 2011. Furthermore, the numbers described are hospitalizations, reflecting higher numbers if the total cases are evaluated, in addition to underreporting. So, it's necessary to invest in methods for early diagnosis seeking to improve the prognosis.

Key words: dopamine, central nervous system, datasus, epidemiology

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Neurological examination as an impressive factor in the dizziness assessment

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Context: Dizziness or vertigo is a very common clinical manifestation, usually of labyrinthic origin. However, an accurated neurological clinical examination is crucial for the diagnosis of central origin.
Case report: D.F.A, 40 years old, female, white, Brazilian. She has been reporting of intense dizziness for a few months and relevant postural instability. She reports two previous hospitalizations, without a closed diagnosis, and is then referred to the specialist. On clinical examination, she had bilateral internuclear ophthalmoparesis and bidirectional nystagmus in her right eye. Requested magnetic resonance imaging (MRI) of the skull suggestive of demyelinating lesions in the wall of the fourth ventricle, pons and, especially, in transition between medulla oblongata and spinal cord, compatible with Neuromyelitis Optica (NMO) with manifestations of trunk syndrome. After pulse therapy, she obtained a good clinical evolution, with the maintenance of sensory deficits as a result of the injury, but with significant improvement in bilateral ophthalmoparesis and balance. Some studies already report brainstem involvement in patients with NMO, describing the presence of brainstem´s signals.
Conclusion: In the case in question, therefore, the patient remained for almost two months without an accurate diagnosis, being the neurological examination the crucial factorfor the suggestion of a disease of central origin, reporting a case of onset NMO with of brainstem´s signals.

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Horner`s Syndrome after internal jugular vein catheterization: a case report.

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Context: Central venous catheterization of the internal jugular vein is a common procedure that can be complicated with Horner`s Syndrome, caused by a direct lesion of cervical sympathetic pathways, pneumothorax compression, or carotid dissection. This entity should be considered when assessing new anisocoria in intensive care scenarios.

Case Report: We report the case of a 64-year-old woman, who presented anisocoria during an intensive care unit hospitalization. She had been admitted with severe COVID-19 and need for mechanical ventilation. Her anisocoria was more evident in the dark, with right miosis, ipsilateral semi-ptosis, and preserved photoreaction reflexes. Before the anisocoria, she had a venous catheter inserted in her right jugular vein. Further evaluation showed a right pneumothorax, which was promptly drained after the mispuncture. The cervical arterial angiotomography showed no signs of carotid dissection.
Conclusion: New anisocoria in critical patients is usually associated with impairment of the parasympathetic tonus, either by the use of topic or inhalatory anticholinergic drugs or cerebral herniation syndrome. However, in these situations, the anisocoria is more appreciable in light, with disruption of photoreaction in the greater pupil and ipsilateral ptosis. Therefore, we believe our patient developed an iatrogenic Horner`s Syndrome, secondary to a catheterization mispuncture, leading to a direct lesion of sympathetic pathways and their compression by the pneumothorax. Beyond parasympathetic pharmacologic blockade or cerebral herniation, Horner`s Syndrome constitutes a valuable differential diagnosis when evaluating patients with new anisocoria in the ICU.

Mesh-terms: horner, catheter, anisocoria

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Mortality profile of Parkinson's disease in Brazil between 2010 and 2019

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Background: Parkinson's disease is a chronic and degenerative condition. Recognizing its mortality profile can be useful in order to search for protective and risk factors.
Objectives: Analyze the rates of deaths from Parkinson's disease in Brazil between 2010 and 2019.
Design and setting: Descriptive documentary study with data collected from the Mortality Information System (SIM), made available by the Information System of the Unified Health System of Brazil.
Methods: A statistical analysis of deaths due to ICD G20 from the SIM database was performed.
Results: In the analyzed period 340,291 deaths due to diseases affecting the CNS were recorded, with Parkinson's disease being the second largest cause, behind Alzheimer's disease. In the evaluated period, 34,208 deaths due to Parkinson's disease were registered in Brazil. There was a steady increase in these values over time, with 2019 being the year with the highest number of deaths (n = 4,575). Most deaths occurred in white individuals (74.3%) and males (54.8%). Regarding the age group, those aged 80 or over had higher mortality (57.8%), followed by those aged 70 to 79 (30.9%) and 60 to 69 (8.9%). The level of education was mainly from 1 to 3 years (26.3%), with less than 7 years of schooling, together, accounting for 57.2% of deaths, not counting those ignored.
Conclusions: The higher prevalence of deaths among men, especially above 80 years of age, may be related to menopause and its protective factor among women. Lower levels of education also contributed to higher mortality, which correlates with studies that demonstrate that higher levels of education may delay the clinical onset of the disease. In view of this, mapping the profiles and analyzing the protective and risk factors can contribute to the awareness of the population and the consequent reduction of their morbidity.

MeSH terms: Parkinson Disease; Risk Factors; Brazil

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Chronic traumatic encephalopathy in military and sportsists: a factual problem?: a systematic review

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Background: Chronic traumatic encephalopathy (CTE) is a progressive neurodegenerative disease linked to tau protein associated with recurrent brain trauma, clinically marked by mood, personality, cognitive and behavioral changes.
Objectives: The objective of the study was to demonstrate whether athletes and military personnel can really be victims of CTE and to elucidate this same pathology.
Design and setting: This is a systematic review, based on the PRISMA guidelines and a literature review with a summary of the evidence found.
Methods: Articles were selected, published from 1934 to 2020, in PubMed and Scielo using the descriptors: "chronic traumatic encephalopathy", "cerebral concussion", "players", "boxers", "athletes" and "military". Inclusion criteria were: studies available in English, Spanish and Portuguese published, with randomized clinical trial, cohort study or meta-analysis.
Results: In 52 articles, 14 were selected for qualitative synthesis in the results table that addresses chronic traumatic encephalopathy in football, soccer and rugby players, boxers and the military. Neuropathologically, CTE is characterized by cerebral atrophy, a pelvic septum cavity with fenestrations, dense diffuse immunoreactive inclusions and a TDP-43 proteinopathy. Microscopically, there are extensive neurofibrillary tangles and spindle-shaped and filiform neurites throughout the brain.
Conclusions: American football players, boxers and military men are more likely to trigger CTE, due to the constant mechanical shocks from their heads. The most frequent clinical manifestations were: headache, aggression, dementia, executive dysfunction and suicide. CTE is definitely diagnosed only at autopsy.

Key words: chronic traumatic encephalopathy; cerebral concussion; boxers; athletes; military.

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Gray matter heterotopy as a cause of seizure: purpose of a case diagnosed in adults

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Context: Epilepsy affects more than 50 million people worldwide, which is an important cause of morbidity and functional limitations. Cortical development malformations represent about 8% of epilepsy cases, and are associated with cognitive deficits, that are frequently diagnosed in childhood.
Case report: L.G.M, female, 35 years old, was attended in an emergency department with psychotic symptoms, aggressiveness and lowering of the sensorium. Computed Tomography (CT) scan of the brain evidenced hypodensity and loss of cortico-medullary differentation in the left temporo-parietal region. The neuro-

imaging findings motivated the referral to our service for investigation. Upon admission, has been shown a history of frequent focal motor and non-motor seizures associated with cognitive deficit since the age of 12. During hospitalization, a Magnetic Resonance Imaging (MRI) of the brain was performed, which showed subependymal heterotopy of gray matter (Figures 1 and 2). Since then, the monotherapy treatment with carbamazepine aiming at seizure control was chosen.
Discussion and conclusion: Cortical development malformations can be classified into three groups of abnormalities, such as: 1) neuronal and glial proliferation and apoptosis; 2) neuronal migration; 3) cortical organization. A heterotopy of the gray matter is related to the migration disorder of the germinal matrix neurons on the wall of ventricle lateral to the cortex. It is the most frequent anomaly of cortical development. The perception of cognitive deficit associated with epileptic seizures should always awaken to the need for early investigation by image examination, in particular brain MRI, in order to diagnose possible malformations of cortical development.

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Management of trauma cranioencephalic (MTC) in kids against the pandemic of COVID-19: a integrative review

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Introduction: The SARS-CoV-2 pandemic affects all the segments, including the healthcare centre services. Thus, understanding how emergency care is performed in cases of TBI in pediatric patients is essential.
Objectives: To analyze changes in trauma management in children since measures to combat the pandemic have fostered a change in hospital routine. Design of study and location: The work was carried out with students from Goiás, Distrito Federal, Amazonas, Espírito Santo and São Paulo who organized themselves at a distance to deal with relevant and current issues in an integrative manner.
Methods: Integrative review based on the PubMed and SciELO research databases.
Results: In clinical management, light TBI corresponds to most pediatric cases, therapy consists of monitoring and stabilising the patient. In surgical management, the main objective is decompression of the cephalic mass and surgical intervention in the resolution of parenchymal hematomas. Neuroimaging exams are also essential for good conduct and evaluation; However, the concern with the excessive use of these grew and, therefore, it was necessary to reduce the number of unnecessary requests, avoiding hospital expenses. In addition,telemedicine assists in care ensure greater protection, since it reduces the risk of contagion.
Conclusion: Therefore, it is evident that the SARS-CoV-2 pandemic affected the treatment of TBI cases in children. Thus, there was a need for restructuringin the hospital routine.

MeSH terms: Brain Injuries OR Craniocerebral Trauma AND child AND coronavirus.
Key words: imaging exams, pediatrics and injuries.

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Efficacy of mesenchymal stem cells in the treatment of ischemic stroke

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Background: Ischemic stroke is one of the main causes of long-term disability in adults. In the search for therapies for neurological sequelae after stroke, several studies have been investigating the use of stem cells, especially mesenchymal stem cells (MSC).
Objectives: To evaluate the efficacy of stem cell therapy in patients with neurological deficits due to stroke.
Methods: A literature review was conducted based on clinical studies published on PubMed and Cochrane databases between 2013 and 2021. The search strategy (mesenchymal stem cells) AND (stroke) was used and 4 articles were selected.
Results: In the selected studies, we observed the use of autologous or allogeneic MSCs, derived from bone marrow or umbilical cord. The cells were transplanted using intravenous, intra-arterial or intracerebral routes. The articles demonstrated safety in the use of MSC, with no reports of serious adverse effects causally related to cell therapy. The evaluation of efficacy was performed through the analysis of neurological condition scales such as the NIHSS, the modified Rankin Scale and the Fugl-Meyer Scale. The trials showed improvements in at least one of the scales after therapy, and the benefits focused, mainly, on the motor function of the patients. MSC are associated with the secretion of factors that promote inflammatory immunomodulation, angiogenesis and neurogenesis, contributing to brain repair.
Conclusions: The use of MSCs in the treatment of ischemic stroke is safe and has therapeutic potential for repairing ischemic brain tissue. However, further studies are needed to prove the efficacy of MSCs in the rehabilitation of stroke.

MeSH terms: Mesenchymal Stem Cells, Stroke, Cell- and Tissue-Based Therapy, Rehabilitation
Key words: Ischemic stroke, Cell therapy, Cerebrovascular Disease

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Nutritional risk patients management in a stroke reference center

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Introduction: Nutritional screening should be used as a tool nutritional risk early identification, aiming at intervention for the prevention of malnutrition and rehabilitation.
Objectives: Report nutritional risk management protocol in patients admitted for suspected stroke.
Methodology: Experience report on the working method of nutrition team at a stroke reference center. **Results:** Nutrition screening by a Dietist is applied within 72 hours of admission of all patients admitted to the acute/integral stroke unit. First, NRS-2002 tool is applied, in which the following items are considered: BMI <20.5Kg/m^2; weight loss in the past three months; reduction in food intake in the last week; metabolic stress and age (≥70 years old). Those with a speech-language diagnosis of dysphagia are also considered at nutritional risk. After, anthropometric measurements: weight and height are measured with walking patients, or knee height, brachial and calf circumference of those with cognitive and/or motor disabilities. Individualized nutritional therapy (oral/enteral) is prescribed. In addition, cases are discussed in a multiprofessional daily round to define actions during rehabilitation and in the discharge process (conter- referral to primary care, nutrition advice and continuity of nutritional therapy at home).
Conclusions: Establishing a nutritional risk management protocol is important for early identification in post-stroke patients, since nutritional status is directly related to a good prognosis and long-term quality of life.

MeSH terms: Stroke; Nutritional Status; Nutritional survey; Hospital nutrition service.
Key words: Artificial nutrition; Cerebrovascular disease; Dietetic protocol; Nutritional tools.

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Number of hospitalizations for stroke before and during the new Coronavirus pandemic in Salvador-BA

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Introduction: Salvador was deeply affected by Sars-CoV-2. Because of the fear of contamination, many stopped seeking medical attention for the prevention and treatment of serious illnesses, such as stroke. This is defined as the appearance of a sudden neurological deficit caused by an alteration in the blood vessels of the CNS, being classified as ischemic and hemorrhagic.
Objectives: To describe a relationship between the number of strokes hospitalizations from January / 2019 to March / 2020, which preceded the new Coronavirus pandemic, and the period of social isolation, from March / 2020 to October / 2020.
Methods: The study was done with aggregated data, being longitudinal observational (time series) based on data collected in the SUS Hospital Information System (SIH / SUS) available at DATASUS.
Results: A peak of hospitalizations for stroke is observed in April / 2019, with 350 cases. During the same year, hospitalizations fluctuated between 200 and 300 cases. At the beginning of 2020, this number remained on schedule, with an average of 250 hospitalizations. As of April, however, there is a fall, with May / 2020 reaching the lowest number of hospitalizations recorded in the entire period studied. This deviation is also observed in the remaining months of 2020.
Conclusion: The pandemic may have a direct relationship with the number of hospitalizations in Salvador. Due to fear of contamination, there was a significant drop in the number of consultations, increasing the likelihood of deaths from stroke.

MeSH terms: stroke, coronavirus, death.
Key words: covid-19, hospitalizações, medo, pandemia.

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The use of biomarkers in Duchenne muscular dystrophy – a literature review

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Background: Biomarkers are indicators associated with a disease, used for diagnosis, monitoring progression and prognosis. In Duchenne Muscular Dystrophy (DMD), they are very important. Although the literature describes various types of biomarkers for it, there is no consensus of their appropriate use.
Objective: Describe the use of biomarkers associated with DMD.
Methods: This literature review used articles searched in PubMed using the formula: ("Duchenne Muscular Dystrophy") AND ("Biomarkers"). Those that corroborate with the objective of this review were included. Model's studies and studies that evaluated biomarkers in other diseases were excluded.
Results: Cohort and case-control studies propose a staging score that evaluate the infiltration of fat into the muscles and the edema in magnetic resonance imaging (MRI) sequences. Other studies indicate that the relation between volume and cross-sectional can be a prognostic biomarker. Some clinical trials already use these MRI markers to evaluate the effectiveness of their therapies. Creatine Kinase, a serum marker, has been shown in clinical trials to be a good biomarker in diagnosis' moment. However, due to its low specificity, it is not used in prognosis. In model studies, miRNAs have been shown to be useful in various spheres, and can be used as biomarkers in muscular dystrophies, helping with diagnosis, staging and treatment.
Conclusions: The use of biomarkers in DMD is not well defined, for financial reasons and lack of more concrete evidence. Therefore, further studies are needed.

MeSH terms: Duchenne Muscular Dystrophy, diagnosis, biomarkers.
Key words: literature review, creatine kinase, magnetic resonance imaging, muscular dystrophy, miRNA.

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Effects of tDCS on pain and anxiety modulation in patients with fibromyalgia: systematic review with meta-analysis

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Background: The prevalence of fibromyalgia (FM) is estimated between 2% - 4% of the world population and is characterized by musculoskeletal pain accompanied by fatigue, depression, anxiety and sleep disorders. Therapeutic treatment for FM tends to be unsatisfactory, requiring the search for new therapeutic measures.
Objectives: Analyze the evidence regarding the use and use of Transcranial Direct Current Stimulation (tDCS) in the modulation of pain and anxiety in patients with FM. Design and setting: A systematic review was carried out with meta-analysis.
Methods: A search was performed in MEDLINE/PubMed, Web of Science, Scopus and Physiotherapy Evidence Databases (PEDro). Randomized clinical trials published between 2010 and 2021 that used tDCS to treat pain and anxiety were included. Articles that used tDCS associated with other techniques were excluded. Methodological quality and risk of bias were assessed using the PEDro Scale and the RoB 2.0. RevMan 5.3 software was used for meta-analysis.
Results: Six studies were included, totaling 225 participants. Anodic stimulation (AE) over the left dorsolateral prefrontal cortex was better for pain control than tDCS sham (-1.56; 95% CI: -1.78 to -1.34; p <0, 00001). AE on the primary motor cortex (M1) was better for pain control than tDCS sham (-1.45; 95% CI: -2.54 to - 0.36; p <0.00009), however , no difference was observed between AE over M1 and tDCS sham to improve anxiety (-0.63; 95% CI: -4.89 to 3.62; p = 0.52).
Conclusions: The tDCS cam be effective for treating pain. More research needs to be done.
Systematic Review Registration: The review was registered in PROSPERO with protocol: CRD42020189944.

MeSH terms: Therapeutics, Chronic Pain, Pain Intractable.
Key words: Dor musculoesquelética, Doenças Reumáticas, Reabilitação.

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Is non-invasive neuromodulation effective in the treatment of gestational depression? A systematic review with bibliometric analysis

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Background: The gestational period is a period of high prevalence of mental disorders, including depression, requiring effective therapeutic measures.
Objectives: systematize the effects of Transcranial Direct Current Stimulation (tDCS) and Transcranial Magnetic Stimulation (TMS) in the treatment of depression during pregnancy.
Design and setting: Systematic review with bibliometric.
Methods: Articles were searched in the databases: MEDLINE/PubMed, Web of Science and Scopus. Randomized clinical trials, case-control studies and case series, published between 2011 and 2020, that used tDCS and TMS to treat depression in pregnant patients were included. Studies that used transcranial electrostimulation associated with another technique (except the pharmacological one) were excluded. The quality of studies was evaluated independently by the reviewers according to the Cochrane Handbook for Systematic Reviews for Interventions for assessing bias. Software R was used to perform bibliometrics.
Results: Seven studies were included, totaling 102 participants. The stimulated area was the dorsalateral prefrontal cortex (CPFDL). Two studies used tDCS with an intensity of 2 mA and application for 20 minutes and 30 minutes. Five studies used TMS, of which 2 used a frequency of 1 Hz, 2 used 25 Hz and 1 used 10 Hz. The University of Pennsylvania sets up the research center with the most affiliated articles, 8 in total. The author with the greatest impact was Kin, D.R. (index h: 6, index g: 7, index m: 0.462, total of publications 7, beginning: 2009).
Conclusions: tDCS and TMS proved to be effective for the treatment of symptoms of depression during pregnancy.
Systematic Review Registration: The review was registered in PROSPERO with protocol: CRD42021235355.

MeSH terms: Therapeutics, Depression, Depressive Disorder, Pregnancy.
Key words: Complicações na Gravidez, Trimestres da gravidez, Reabilitação

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Transcranial direct current stimulation in pain modulation in fibromyalgia: systematic review with bibliometric analysis

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Background: Fibromyalgia (FM) affects the population's physical and mental health and is characterized by changes in brain activity and pain reporting.
Objectives: To systematize and discuss the effects of tDCS on pain improvement in patients with FM as well as the "state of the art".
Design and setting: Systematic review with bibliometric.
Methods: Articles were searched in the databases: MEDLINE / PubMed, Web of Science, Scopus and Physiotherapy Evidence Database. Randomized clinical trials, published between 1996 and 2021, that used tDCS to treat pain in patients with fibromyalgia were included. Studies that used tDCS associated with another technique (except pharmacological) were excluded. Methodological quality and risk of bias were assessed using the PEDro and Rob 2.0 scale. Software R. was used to perform bibliometrics.
Results: Nine articles were included, totaling 306 participants. The main stimulated areas were the primary death cortex (M1) (6 studies) and left dorsalateral prefrontal cortex (CPFDL) (4 studies). Eight studies used the intensity of 2 mA and application for 20 minutes. Both stimulation of M1 and CPFDL showed effects on pain improvement greater than tDCS sham. As for the research institutes, Havard Medical School and the Federal University of Rio Grande do Sul lead the ranking. The author with the greatest impact was Fregni, F. (index h: 12, index g: 17, index m: 0.800, total publications 17, beginning: 2006).
Conclusions: tDCS proved to be effective for the treatment of pain in FM. The production of studies is limited.

Systematic Review Registration: The review was registered in PROSPERO with protocol: CRD42021242124.

MeSH terms: Therapeutics, Chronic Pain, Pain Intractable.
Key words: Dor musculoesquelética, Doenças Reumáticas, Reabilitação.

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Transcranial direct current stimulation in the treatment of pain in women with fibromyalgia: Randomized double-blind clinical trial

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Background: Among the diseases that encompass chronic pain is fibromyalgia (FM), a syndrome characterized by changes in the functional, chemical and structural networks of the brain.
Objectives: To analyze the effects of anodic Transcranial Direct Current Stimulation (tDCS) on the Primary Motor Cortex (M1) for 26 minutes for 10 sessions in the treatment of pain in patients with FM.
Design and setting: Randomized double-blind clinical trial to be carried out at the Municipal Physiotherapy Clinic of Fátima do Sul - MS, Brazil.
Methods: This is a Research protocol that is in progress. Forty women aged between 18 and 60 years with a medical diagnosis of FM will be selected. Participants will be randomly assigned to two groups (active tDCS and tDCS sham). There will be 10 consecutive sessions. The anode will be positioned at M1 and the cathode in the right sub-orbital region. The intensity will be 2mA applied for 13 minutes, a break of 20 minutes followed by another 13 minutes of stimulation. In the tDCS sham group, the device stays on for 30 seconds and turns off automatically. Participants will be evaluated at the beginning, after 10 sessions and after 30 and 90 days with the visual analogue scale, inventory of attitudes towards pain (primary outcome).
Results: this will be the first clinical trial to use this prochotole. Potential limitations include patient compliance.
Conclusions: we hope to demonstrate the effects of tDCS on FM and direct further studies.
Clinical Trial Registration: Registered in the Brazilian Registry of Clinical Trials (RBR- 8wc8rjq).

MeSH terms: Therapeutics, Chronic Pain, Pain Intractable.
Key words: Dor musculoesquelética, Doenças Reumáticas, Reabilitação.

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Epidemiological profile analysis of patients hospitalized for stroke between 2015 and 2019 in Brazil

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Background: Stroke is the second leading cause of death in Brazil and can lead to significant losses that impact patients' quality of life and the Brazilian Health System.
Objectives: To evaluate the epidemiological profile (EP) in 5 years (2015-2019) of patients hospitalized for stroke in the Sistema Único de Saúde (SUS).
Methods: Cross-sectional study on stroke data in Brazil, from January 2015 to December 2019, collected from SIH/DATASUS, based on the analysis of hospital admission authorizations (HAA), related to gender, age group (AG) and mortality rate (MR).
Results: In this period, there were 768,181 HAA approved, 42.04% in the Southeast, followed by the Northeast, with 28.90%. In relation to the years of this period, 2015 had fewer hospitalizations (145,980) and 2019 had the highest number (163,247). In relation to AG, 70 to 79 years was the most affected (26.19%) of total hospitalizations in the period, followed by 60 to 69 years (24.97%). The majority of hospitalizations were male (52.10%). MR of the disease was also analyzed, which was 15.57% in Brazil in the period, being higher in North (18.38%) and lower in South (12.3%).
Conclusion: Stroke significantly affected all Brazilian regions in the period. It is noteworthy that the regions with the lowest HDI (North and Northeast) had the highest MR due to the disease. The traced EP showed a higher prevalence in males and individuals aged 70 to 79 years, which is an important public health data.

MeSH terms: Brain, Hospitalization, Mortality
Palavras-chave: Acidente Vascular Cerebral, Epidemiologia, Saúde Pública

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Morphometry and anatomic variations of the posterior cerebral artery in Northeast Brazil

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Introduction: The posterior cerebral artery (PCA) is a vessel of the Circle of Willis. Variations are observed in the first segments of the PCA and its branches, especially in the thalamoperforating arteries (TPAs) and in the artery of Percheron (AP). Anatomical presentation of these arteries is of relevant clinical importance for safer neurosurgical approaches.
Objective: To identify the most frequent PCA and TPA patterns and the morphometry of P1 and P2 branches in Northeast Brazil.
Methods: This is an observational study. Nine Circle of Willis from human brains were isolated. PCA morphology, TPAs classification and prevalence of AP were evaluated. The length and diameter of the P1 and P2 segments of the PCA were measured. Values of $p < 0.05$ were considered significant.
Results: The adult pattern was found in 7 specimens bilaterally. There were two (22.22%) cases of unilateral PCA trifurcation. No vascular fenestration or bifurcation was found. The type of TPA was mainly bilateral multiple (36,3%). The prevalence of AP was 18,2% (n = 2). No differences were observed between the right and left sides in the evaluated morphometric variables ($p > 0.05$).
Conclusions: Adult pattern of PCA was the most frequent and trifurcation of PCA, a rare anomaly, was found in 22,2% of specimens. TPAs were mostly bilateral multiple type. No differences between sides in the length and diameter

of the segments P1 and P2 were found. These data can contribute to safer approaches to neurological pathologies in this population in Northeast Brazil.

MeSH terms: Anatomic variations. Hemodynamics. Cerebral Arterial Circle.
Key words: Morphology; Anatomy; Morphometry.

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Spinal cord lesion and ischemic stroke after chiropractic: a case report

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Context: Chiropractic is a form of spinal manipulation used to treat cervical pain. This therapy is considered safer than chronic use of anti-inflammatory drugs, opioids or spine surgery. However, chiropractic may cause severe complications such as myelopathy and ischemic stroke.
Case report: A 48-year-old woman was admitted to our hospital due to acute tetraparesis. During a chiropractic session for chronic neck pain, patient referred lancinating cervical pain, weakness in the upper and lower limbs, and numbness below the level of the neck. Neurologic examination showed grade two tetraparesis with preserved arm abduction. Pain and vibratory sensation were reduced in trunk, upper and lower limbs. We considered a C5 level spinal cord injury. Cervical spine magnetic resonance imaging revealed a transdiscal fracture of C5-C6 vertebrae. The fracture led to an epidural hematoma and spinal cord compression. Cervical spine displayed ligamenta flava thickening, which may be associated with an undiagnosed ankylosing spondylitis. We also found bilateral vertebral occlusion of V1 and V2 segments. Cerebellar restricted diffusion suggested posterior circulation stroke. We believe that rigidity associated with ankylosing spondylitis favored spinal fracture during chiropractic. Patient was treated with 24mg/day of dexamethasone and 100mg/day of aspirin. Spinal cord decompression surgery was indicated. Unfortunately, in the last follow-up there was no improvement in patient motor status.
Conclusions: Transdiscal C5-C6 fracture led to compressive myelopathy and cerebellar stroke. Safety of chiropractic should be better investigated in specific populations such as ankylosing spondylitis patients.

MeSH terms: spinal cord trauma, chiropractic, ankylosing spondylitis
Key Words: compressive myelopathy, spinal fractures, spinal manipulation

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Bilateral anterior cerebral infarction associated with anatomical variation in a patient with COVID-19: a case report.

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Context: Cardiovascular diseases are the main cause of death in Brazil. Amongst them, cerebrovascular disease is the second greater cause of death and the first in disability. Despite its overall high incidence, initial presentation with bilateral anterior circulation involvement is rare. The association between COVID-19 and stroke is still unclear, nethertheless, a prothrombotic state has been consistently described.
Case report: A 80-years-old male, with past medical history of atrial fibrillation in regular use of apixaban, treated for severe COVID-19 Pneumonia for 13 days of hospitalization, was admitted seven days after discharge, presenting loss of consciousness followed by a not witnessed fall. At first evaluation the patient was somnolent, eye opening to tactile stimulation, motor aphasia, right central facial palsy and crural predominant double hemiparesis. Tomography study revealed bilateral hypoattenuation at superior frontal and cingulate girus. Angiotomography identified a hipoplasic A1 segment of anterior cerebral artery. Addtional findings included segmental pulmonary embolism and aorta intraluminal thrombus. The patient evolved to mutism and worsening level of consciousness, followed by death after several clinical complications.
Conclusions: Anatomical variants of anterior circulatian are common although tipically assintomatic. When related to cerebrovascular disease, cardioembolic event is frequently accountable. This case exhibits an unusual stroke presentation during COVID-19 convalescence period among other thrombotic events despite anticoagulant therapy. Therefore, reinforces literature findings that SARS- CoV-2 infection and stroke simultaneously increase mortality and highlights that more physiolopathology knowlegde regarding this association is required, as well as efficiency trials of oral anticoagulants in these scenarios.

MeSH terms: COVID-19; Infarction, Anterior Cerebral Artery; Embolic Stroke; Thrombosis; Anticoagulants

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The management of migraine through Acupuncture: a literature review

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Background: Migraine is one of the most disabling conditions worldwide, and acupuncture can be used as prophylaxis. This practice is indicated to relieve tension, stress, induce analgesia, and has been gaining space due to its A level evidence.
Objectives: Investigate the impact of acupuncture on the management of migraine disorders.
Design and Settings: literature review.
Methods: After searching the MEDLINE database for "migraine disorders OR headache", "acupuncture" and "integrative medicine OR alternative medicine", 271 articles were found and 6 used. Only those with full text available and published between 2011-2021 were included. Those that addressed a specific type of migraine were excluded.
Results: Acupuncture was analyzed in 4 studies as prophylaxis for migraine, in which there was a general reduction in symptoms and 50% reduction in frequency of episodes ($p<0.05$), with its effects comparable to drugs such as Depakene, Topamax, Metoprolol and Flunarizine. A meta-analysis involving 39 clinical trials showed that the acupuncture group obtained better results than the control group ($p<0.001$),these results were sustained when analyzing pain after randomization, in agreement with another study that demonstrated pain reduction in the group that used simulatedacupuncture ($p=0.002$). It should be noted that, although some patients report adverse

effects, it's safe and as effective than drugs used in the treatment of migraine.
Conclusions: Acupuncture is a good prophylactic method for migraine. It reduces pain episodes and has less adverse effects when compared to conventional methods. However, further studies on this therapy are needed.

MeSH terms: Migraine Disorder, Headaches, Acupuncture, Integrative Medicine Alternative Medicine
Key-Words: Complementary Therapy, Medicine, Chinese Traditional, Preventive Therapy

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Mortality rate trend of meningitis by region of Brazil, between the year 2010 to 2019

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Background: Meningitis is an inflammatory process in the membranes that line the central nervous system (CNS).
Objectives: To analyze the behavior of meningitis mortality rate by region of Brazil, between 2010 and 2019.
Desing and setting: Analytical, observational and retrospective study. Deaths number from meningitis was recorded through the Mortality Information System (SIM) stratified by Brazilian region, and population data from IBGE.
Methods: Mortality rate (MR) per 1 million inhabitants was calculated. MR trend in each region was provided by segmented linear regression. MR annual percentage changes (APCs) were adjusted with a 95% confidence interval (CI).
Results: In this period, there were 10007 deaths from meningitis in Brazil. MR by region varied from 3.77 (North Region) to 6.03 (Southeast Region), while in Brazil it was 4.93. A decreasing trend is noticeable in Brazil MR (APC= -3.2; 95%CI= -3.9; -2.4). Central-West region had the largest drop (APC= - 4.1; 95%CI= - 7.9; -0.2), followed by Southeast. In contrast, South and North regions had stationary trend and Northeast had a double behavior: decreasing from 2010 to 2015 (APC= -7.7; 95%CI= -11.7; -3.5) and stationary from 2015 to 2019.
Conclusions: Despite the country decreasing trend, these results are heterogeneous. Variables such as vaccination coverage, population adherence and socioeconomic status can influence meningitis MR trends. Thus, it is understood the need for programs aimed at disease treatment and prevention to reduce regional inequalities and meningitis mortality.

MeSH terms: Brazil; epidemiology; meningitis.
Key words: Mortality; temporal analysis; vaccination.

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Modified Sphygmomanometer Test and MRC Muscle Scale to assess lower limb muscle strength in people with amyotrophic lateral sclerosis: a correlation study

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Background: The measurement of strength through MRC Muscle Scale (MRC) is the most widely used method to follow the evolution of disabilities in people diagnosed with Amyotrophic Lateral Sclerosis (ALS), since it is easy and fast to measure. However, it has been considered a subjective and evaluator dependent method. A possibility to measure strength is the Modified Sphygmomanometer Test (MST): an objective method, low-cost and with adequate construct validity with the hand dynamometer.

Objective: Verify the correlation between MST, MRC and the Amyotrophic Lateral Sclerosis Functional Rating (ALSFRS-R).
Methods: Exploratory study, in which participated individuals with up to 1 year of diagnosis of sporadic ALS, able to perform the tests in the sitting position. The MRC, MST and ALSFRS-R were applied and hip flexors and knee extensors was tested. Pearson's correlation was used to evaluate the association between the strength tests and ALSFRS- R with a significance level of 0.05.
Results: Statistical analysis showed significant correlation between the measurements performed by the MRC and MST (r= 0.757; p<0.000). The MRC showed high correlation with total ALSFRS (r=0.700; p<0.001) and moderate with ALSFRS gross motor domain (r=0.765; p<0.000). MST showed low correlation with total ALSFRS (r=0.419; p<0.047) and moderate with ALSFRS gross motor domain (r=0.534; p<0.009).
Conclusion: Both tests correlated with the functional scale, yet the MRC correlated in greater magnitude. Therefore, the measurement of muscle strength, when performed by the MRC, can be an alternative in the clinical setting for monitoring patients with ALS.

MeSH terms: Amyotrophic Lateral Sclerosis, Muscle Strength, Rehabilitation
Key words: Amyotrophic Lateral Sclerosis Functional Rating, Function, Modified Sphygmomanometer Test

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Neuralmed trIA: Automated Screening of Urgent Findings on Head CT Scans

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Background: NeuralMed is a startup specialized in the development of artificial intelligence applications in medicine.
Objectives: We developed a screening system for head computed tomography scans (HCT) that prioritizes patients with urgent pathologies. This study describes the development of the algorithm for detection and localization of intracranial hemorrhage.
Design and setting: This is an observational study on HCT performed at hospitals in State of São Paulo.
Methodology: The algorithm was built from 8432 HCT. We used unenhanced axial images after post-processing and normalization. The set is split into 80% for training, 10% for validation and 10% for testing. We used a MobileNet network pre-trained with ImageNet weights combined with a long short-term memory with categorical cross-entropy as loss function. The model's outputs are hemorrhage, no findings, and other pathologies. A gradient class activation map was applied to identify and localize the hemorrhages.
Results: Internal validation showed an area under the ROC curve (AUROC) of 96%, sensitivity of 87% and positive predictive value (PPV) of 96%. External validation was performed on 125 exams collected in a period after the training group obtaining an AUROC of 86%, sensitivity of 78% and PPV of 81%.
Conclusion: After detecting an identifying the bleedings it is possible to order the patient queue prioritizing those most likely to have abnormalities and life-threatening situations. The algorithm also indicates the lesionlocation by showing the regions of the images that most activated the neural network.

MeshTerms: X-Ray Computed Tomography, Brain, Artificial Intelligence
Key words: Intracranial Hemorrhages, Machine Learning, Deep Learning

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Sequelae and interventions in neuropsychological rehabilitation of stroke victims: a systematic review

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Background: Stroke is one of the main causes of death and disability. It leaves sequels in the capacity for attention, language, memory, spatial, behavioral vision, and in all other cognitive domains. Therefore, it is essential to optimize neuropsychological rehabilitation in patients with stroke. The earlier the interventions, the greater the chances of adapting and minimizing the acquired sequelae.
Objectives: We aim to map and review publications on neuropsychological rehabilitation in stroke patients. We also seek to identify the sequelae described in the literature in this regard, as well as the types of interventions made.
Methods: This is a systematic review of the literature, carried out using the PubMed and Capes platforms. We use the descriptors "stroke" and "neuropsychology". The filters were: descriptors in the title and / or summary in the last 5 years (PubMed) and 1 in the lastyear (Capes).
Results: We found 28 articles of which 10 were disregarded, as they did not fit the established criteria.
Conclusions: There was an absence of representativeness outside the English language, which undermines the global and local understanding of the topic. In addition, there is a need to adapt the instruments used in neuropsychological rehabilitation considering the needs of stroke victims, encompassing the various existing factors, in order to promote the patient's better quality of life. Finally, it must be taken into account that the sequelae must be workedon also thinking about their neural associations and other domains

MeSH terms: Cerebrovascular Accident; Cerebral Strokes; Acute Cerebrovascular Accident; Neuropsychologies;
Key words: Stroke ; Neuropsychology.

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Arterial hypertension and cerebrovascular accidents. epidemiological profile of patients attended between 2013 and 2019 in Joinville, Santa Catarina, Brazil.

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Introduction: Cerebrovascular accident (CVA) is the second cause of death in the world, and arterial hypertension (AH) is the main risk factor.

Objetives: To evaluate the prevalence of AH and the epidemiological profile of patients who suffered CVA, first and recurrent events, registered at JOINVASC, between 2013 and 2019.
Methodology: An observational, descriptive, retrospective study, analyzing demographic data and risk factors, in patients that suffered CVA, first or recurrent event, was done.
Results: In the study period, 6057 CVA events were registered, 4402(72.6%) patients were classified as hypertensive, (122 were excluded due to incomplete data), 4387 registers were analyzed. In this group, 2149 (51.2%) were male, mean age was 68.4±14.7(18 a 102 years), BMI was 27.5±5.1(14 a 59), 4330(39.9%) with Diabetes, 2559(58.8%) were smokers or ex-smokers, 3174(7.42%) were sedentary, and 504(11.5%) had controlled AH. In the group with recurrent event (1392-31.7%) (52.3%, p<0.001) were females, mean age was (69.4± 11.5) (p<0.002); BMI was lower (p=0.02). There was more cardiopathy (47.6%) (p<0,001) ,smokers or ex-smokers (66.2)(p<.005), diabetes (46.7%) (p<0.001) and deaths (32.3%)(p<0.001), less physical activity (22.0%)(p<0.001), use of antihypertensive drugs was greater (1.52±0,93)(p<0.001),. Logistic regression showed that female sex, BMI, DM, cardiopathy, physical activity, and more anti- hypertension drugs, were significant predictors for recurrence of neurologicevent.
Discussion: Despite advances in primary health care and prevention campaigns, the prevalence of AH in patients with CVA is high, and still has low levels of control, even in patients with recurrent CVA.

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Cerebral venous thrombosis simulating cerebral arterial thrombosis: Late complication of COVID-19?

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Context: Brain venous thrombosis (BVT) is uncommon and usually has a different clinic and treatment from cerebral arterial thrombosis. In this context, COVID-19 correlates with thrombogenesis with varied clinical repercussions. This report describes an unusual BVT case as a possible late complication of COVID-19.
Case report: Male, 68 years old, athlete and healthy. April/2020: COVID-19 mild symptoms. February/2021: in road-running, he fell due to sudden left hemiparesis. Upon hospital admission: contacting, persistent headache. A week after, low level of consciousness and coma, when underwent right hemicraniectomy. Remains hospitalized. On examination: weak gestural communication, tracheostomy, enteral tube feeding, voluntary blinking. Maintains neutral cervical posture, masticatory automatisms, photoreactive isocoria, generalized rigidity, decorticated right hemiparesis, left hemiplegia. On imaging: hemorrhagic infarction on the right and mass effect due to obstruction of the Basal Rosenthal and Labbé veins and transverse sinus on the right, with venous blood flow in the rest of the hemisphere diverted to the ipsilateral internal jugular vein, by anastomotic veins of the occipital foramen and suboccipital venous plexus. Obstructed left internal jugular vein, with venous collateral flow from the left hemisphere via posterior intercavernous sinus and basilar plexus to the right internal jugular vein.
Conclusions: To diagnose the venous etiology that resembled segmental occlusion of the right middle cerebral artery, CT angiography was required. Late evolution of COVID-19 has been identified by the persistence of symptoms for months. Although physical activity and possible dehydration may have contributed to BVT, a prothrombotic state correlated to COVID-19 cannot be discarded.

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Epidemiological analysis of deaths and hospitalizations due to Alzheimer's in Brazil from 2015 to 2019

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Background: In 2050, Alzheimer's disease (AD) may affect 14 million people worldwide, being considered the fourth leading cause of death in adults.
Objectives: Analyze the variation in deaths, mortality rate and hospitalizations for AD from 2015 to 2019, in Brazil.
Methods: We conducted a retrospective observational study of descriptive data from the Department of the Unified Health System (DATASUS).
Results: In Brazil, from 2015 to 2019, there were 9045 hospitalizations and 1786 deaths from AD. Registering an increase in the total of dead about 75% (2015: n = 221; 2019: n = 386). In the years 2015-2019, the following mortality rates were recorded: 13.69; 14.86; 19.26; 21.23; 24,13, showing a smaller difference between the years 2015 and 2016 with 8.6%, and a greater difference between the deaths of 2016 and 2017 with 29%. Despite the growing trend of deaths fromAD, there was a variation in the number of cases of hospitalizations in the analyzed period, with the following numbers per year, from 2015-2019, respectively: 1,614; 1,501; 1,568; 1,550; 1,600, thus explaining that the year withthe highest number of hospitalizations was 2015 (n = 1614), while the lowest was2016 (n = 1501), showing a decrease between 2015-2019 of 0.86%.
Conclusion: It was noted that 2019 had 165 more deaths than the year 2015 and a progressive increase in the mortality rate between 2015-2019. However, the number of hospitalizations during the study period was variable.

MeSH Terms: Alzheimer Disease, Epidemiological Monitoring, Hospital Mortality.
Key words: Hospitalization, Epidemiological Profile, Descriptive Analysis.

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Neurological and adrenal insufficiency symptons in adult x-linked adrenoleukodystrophy: case report

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Context: X-linked adrenoleukodystrophy (X-ALD) is a rare genetic demyelinating disease caused by mutations in ABC1 gen associated with an impair-

ment of beta- oxidation of very long chain fatty acids (VLCFA) in peroxisomes. It causes accumulation of VCLFA in tissues affecting majoritary the central nervous system, testicles and the adrenal córtex resulting in symptoms which provides restricted neurological prognosis and sequels.

Methods: Specific data related of a clinical case through prontuary and complementary exams in a patient attended at Santa Casa de Misericórdia de São Paulo hospital.

Case report: Male patient, 39 years old, complaning about vomiting, hyperpigmented skin associated with abolish, psicoses, urinary incontinence, temporal and spacial confusion as well as were found: hyperkalaemia, hyponatremia, hypoglycemia, elevated ACTH levels, basal cortisol decresead, antibody anti-21-hidroxilase non reagente, screening for infectious agents were carried out and infection subsequently ruled out. Were observed in MRI Brain: hypersignal in cerebral white matter on T2-FLAIR sequence bilaterally in which the occipitoparietal region, frontal lobe and basal ganglia were more affected. After metabolic and hydroelectric disorders estabilization using Prednisone, Fludrocortisone per day for 5 days, he evolved with worsening of cognitive and behavioral status until nowdays. Actually, he is totally dependent on his basic activities.

Conclusions: It is a rare disease, but it must be recognized by every neurologist,since it is can affect other systems and can leave serious sequelae.

Mesh Terms/Key words: X Linked Adrenoleukodystrophy, ALD Adrenoleukodystrophy), X-ALD (X-Linked Adrenoleukodystrophy), disease, genetic, rare, adult

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Evaluation of syndrome symptons of restless legs in patients with renal dialytic failure in a southern city of Santa Catarina

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Introduction: Renal failure is characterized by functional loss of the kidney and hemodialysis is the therapeutic option. The renal patient may have sleep disorders, including restless legs syndrome (RLS), which occurs in 30% of renal patients and in 10% of the general population. It is a motor neurological disorder, whose etiopathogenesis is not understood. Clinical diagnosis is the gold standard. RLS has been associated with cardiovascular morbities and increased mortality, however, it is underdiagnosed. The present study aimed to assess the prevalence and factors associated with RLS symptoms in patients with dialysis renal failure in a private clinic for chronic renal patients.

Methods: Cross-sectional study, including 140 patients seen at the Tubarão Renal Diseases Clinic, from August to November 2016.

Results: The average age of the interviewed population was 60.82 years, the majority being men (63.6%). Most respondents reported having restful sleep (78.6%). Despite this, snoring / sleep apnea prevalence was found in more than half of the patients (57.1%) and SPI in 19.3% (the most severe form being found in 8.6% of the patients). Other comorbidities found were: SAH, insomnia, diabetes mellitus and cardiac disorders. Statistically, dialysis time was longer among patients with RLS (P = 0.03). The female gender was shown to be a risk factor (P = 0.006) and cardiac alterations also had a significant association (P = 0.044-Fisher), as well as insomnia (p = 0.00011).

Conclusions: Sleep disorders are prevalent and should be part of the assessment of all dialysis patients.

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Non-aneurismatic subarachnoidal hemorrahge of hypertensive etiology: case report

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Context: Subarachnoid hemorrhage (SAH) is a neurological emergency defined by the leakage of blood into the spaces that cover the central nervous system. Non-aneurysmatic SAH is defined according to the blood distribution on computed tomography (CT). Perimensencephalic SAH (PM-SAH) has blood distribution in perimesencephalic cisterns in front of the brain stem. Non- perimesencephalic SAH has a more diffuse distribution.

Case report: A 54 years old man with systemic arterial hypertension. He reported that he had consumed alcoholic beverages the night before. On the morning of hospitalization he had a headache with loss of sensation on the left side of his body. In the EC, he presented sweating, left parestesia, mild dyslalia and deviation from the right rhyme. A cranial CT scan was performed revealing SAH involving the cisterns and furrows near the right cerebral hemisphere, next to the Sylvian fissure. The clinical and imaging results demonstrated SAH grade II Hunt & Hess and Fischer II, Glasgow 15, without motor loss. Cerebral angiography, the gold standard for the diagnosis and mapping of aneurysms, was performed, with a negative result. On the last day of hospitalization, CT and Doppler indicated resorption of edema and absence of vasospasm, respectively. There was also an adjustment of the hypertensive medications of the patient who did not have sequelae.

Conclusion: PMs-SAH have excelente prognosis in short and long term with no risk of future rebleeds. The event occurred after an episode of excessive alcohol consumption in addition to decompensated arterial hypertension.

MeSH terms: Hemorrhages, spontaneous subarachnoid, hypertension.

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Prediction of falls in Amiotrophic Lateral Sclerosis

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Background: In Amyotrophic Lateral Sclerosis (ALS), falls can have negative impacts on activity, participation and quality of life, which include injuries, dependence and mortality.

Objectives: To investigate falls in individuals with ALS and and identify potential predictors.

Methods: Observational study, in which were included individuals over 18 years old with ALS followed up at the Neuromuscular Diseases Clinic of UFMG. Individuals who were bedridden or had any other neurological disorders were excluded. Capacity/ independence, strength, mobility/performance and ability to walk were evaluated through ALSFRS-R, MRC, TUG and SBBP, respectively. If the participants were able to walk with or without assistance, they were classified as walkers. Falls were investigated considering the last 6 months and ≥ 2 episodes was classified

as recurrent. In the logistic regression model, variables with p <0.20 were included in the univariate analysis with a significance level of 0.05.
Results: The study included 68 individuals. Of these, 73.5% reported at least one fall in the last 6 months. Among the fallers, 66% were able to walk. Fall recurrence was frequent in walkers (69.7%). When investigating falls in the walking group, only sit and stand test was related to falls. Each worsening of the time in the test, increased the chance of falling by 1.3 times.
Conclusions: Sit and stand test was a predictor of falls in walkers with ALS. Knowledge of the characteristics and associated factors is important to identify individuals at risk of falls and to develop protocols.

MeSH terms: Amyotrophic Lateral Sclerosis, Accidental Falls, Neurology
Key words: Predictor, Functionality, Physical Therapy

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Guillain-Barre Syndrome in a patient with SARS-CoV-2 infection: Case Report

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Introduction: Guillain-Barré syndrome is an acute/subacute set of clinical features of immune mediated polyradiculoneuropathy, typically after respiratory or gastrointestinal viral infection. In this scenario, we described a case of the syndrome mentioned after infection by sars-cov-2 virus.
Objectives and Methods: Description of a clinical case after analysis of medical history and complementary exams, in addition to literature review.
Design and Setting: Case report, type of descriptive study, developed in the Institute of Medical Assistance to the State Public Servant of São Paulo.
Results: A 68-year-old female patient with clinical and laboratory diagnosis of coronavirus infection, hospitalized in need of oxygen supplementation, which evolved after twelve days of symptoms with hypoesthesia on legs and feet and progressively ascending and symmetrical flaccid paraparesis that led to tetraparesis. Neurological examination showed tetraparesis (muscle strength: grade III in MMSS and grade II in MMII), hyporeflexia in MMSS and reflexes abolished in the lower limbs, plantar skin reflex in flexion in both feet, preserved facial mimicry. About complementary tests, it presented cerebrospinal fluid with albuminocytologic dissociation (cell: 1, protein: 89, glucose: 86), RT-PCR for sars-cov-2 research in cerebrospinal fluid, inconclusive, in addition to four-limb electroneuromyography performed after 19 days of onset of neurological condition, indicated polyradiculoneuropathy with involvement of sensory and motor fibers, primarily demyering. Treatment with human immunoglobulin 400 mg/kg/day for 05 days was started. The reported patient was dismissed from the hospital with significant improvement, presenting muscle strength: grade V in MMSS and grade IV in MMII and already with the ability to walk.
Conclusions: the case describes a classic neurological complication associated with a virus that was once non-circulating, but currently with a big clinical relevance.

MeSH terms: Guillain-Barre Syndrome, Polyradiculoneuropathy, SARS-CoV-2.
Key words: Peripheral Nervous System Diseases, cerebrospinal fluid, tetraparesis, Neuromuscular Diseases, Autoimmune Diseases of the Nervous System.

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Insular Glioma Surgery: Seven Rules - A case study

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Background: The best treatment for insular gliomas is surgical resection. The surgical treatment complexity of these lesions is due to the anatomy of the insula, and its proximity to functional cortical and subcortical structures, and to vascular structures. Efforts to preserve the integrity of these structures based exclusively on microsurgical anatomy do not guarantee that the patient will not present motor or language deficit in the postoperative period.
Objectives: To present seven rules to achieve greater therapeutic success, aiming at increasing disease-free survival and the patient's quality of life.
Methods: Review article based on the senior author experience in insular microsurgical anatomy dissections, and 45 microsurgeries for insular gliomas, performed between 2006 and 2018.
Results: There are 4 anatomical rules (fronto-orbital branch of the facial nerve, insular cortex, sylvian fissure and lenticulostriate arteries) and 3 functional rules (cortical mapping, subcortical mapping and internal capsule).
Conclusions: Primarily, one must have a great anatomical domain and expertise in neurophysiological monitoring to obtain satisfactory results in the surgery of insular gliomas.

MeSH terms: Gliomas, Insular Cortex, Cerebral Microsurgical, Mapping, Brain
Key words: Neurosurgery, Anatomy, Language Deficit, Insula, Microsurgery

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Relation between spirituality/ religiosity and quality of life in the members of the university pastoral project in Tubarão- SC

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Introduction: It is a growing theme, full of meaning and subjectivism, which increasingly demonstrates an important relationship with the quality of life and with various adaptive functions of the human being, including spirituality as a source of strength and resistance and greater resilience in the face of problems. health or difficult situations. For a broader understanding, it is essential to differentiate between spirituality and religiosity. Spirituality is a personal search for answers to existential questions, whereas religiosity encompasses a relationship, also personal, with God based on the rituals of a religion.
Methods: The present work had a total of fifty members of the extension group Pastoral Universitaria linked to Unisul – Tubarão, which includes academics, university employees and members of the local community, religious or not.
Results: the results showed a statistically significant difference between the total value of the spirituality questionnaire and the quality of life questionnaire (p=

0,0076), but there was no relationship between these values and the sociodemographic data. It can be seen, therefore, that higher levels of spirituality are closely related to better quality of life rates, when assessed through subjective scales.

Conclusion: Therefore, it is possible to observe a strong correlation between spirituality and quality of life in the existing literature, which is no different in this research, therefore, the same alert about the importance of discussing the topic. Bringing itto the fore is a way of bringing faith and science together, fostering studies and increasing one's interest in life.

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Experience of hypothermia as a therapeutic alternative for severe hypoxic-ischemic encephalopathy in a neonatal intensive care unit in Belo Horizonte

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Introduction: Therapeutic hypothermia (TH) is an effective treatment alternative in newborns (NB) with moderate to severe hypoxic-ischemic encephalopathy (HIE). It is suggested that hypothermia, initiated in the first 6 hours after the hypoxic insult, by reducing brain metabolism, decreases cytotoxic edema, free radical production, neuronal excitability, the synthesis and release of neurotransmitters, nitric oxide and cytokines and apoptosis, mechanisms responsible for the late neurological lesions of EHI. Thus, TH improves survival and neurological prognosis in these newborns.

Materials: Review of medical records of newborns submitted to TH in the period from 01/01/15 to 12/31/2015.

Discussion: The TH protocol was implemented in the Unit from 01/01/2015, for all newborns older than 35 weeks, with evidence of moderate to severe HIE. TH starts in the first 6 hours of life and is performed for a period of 72 hours, after which rewarming begins, in the next 24 hours. In 2015, five newborns were submitted to the protocol. One of them died, on the fifth day of life, due to refractory shock and multiple organ failure. The other four newborns would be followed up on an outpatient basis. There was no need to stop hypothermia before 72 hours due to adverse events. The main events observed were bradycardia and shock, responsive to amines.

Conclusion: The experience with TH showed good results in the medium term in newborns with moderate to severe HIE. The adverse events observed during the procedure were manageable, which suggests that TH can be an effective and safe alternative.

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MentalPlus® as a Tool for Early Detection of Dementias

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Introduction: The research's objective is to identify early signs and symptoms of dementia through the MentalPlus® game. Dementias is a Neurocognitive Major Disorder, and as a diagnostic criterion, it is impaired in the areas of intricate attention, executive function, learning, memory, language, perceptomotor or social cognition.

Method: MentalPlus® was created for timely evaluation and cognitive rehabilitation, considering the various diseases that cause cognitive dysfunction, such as dementia, heart problems, organic disorders, among others, in addition to surgical interventions and external factors. This instrument used to evaluate postoperative cognitive dysfunctions, which often affect elderly patients, confirms the validity and accessibility of the MentalPlus application.

Results: Table 1 shows that the elderly in the group tested had statistically lower education than the control group ($p < 0.001$). Table 2 shows that for all domains of MentalPlus , on the hits part, the tested elderly group showed statistically lower values than the control group ($p < 0.05$), except only in the executive function ($p = 0.231$) and selective attention ($p = 0.057$), errors were also statistically higher in the elderly tested for almost all domains ($p < 0.05$), except in short-term memory ($p = 0.206$) and long-term memory ($p = 0.179$). At the same time, omissions were statistically higher in the elderly tested for all MP domains ($p < 0.05$).

Conclusion: MentalPlus® identifies early signs of dementia in older people and is useful for the evaluator and the target audience, as it provides reliable data in a considerably short time.

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Evolution of morbidity and mortality due to Multiple Sclerosis in Bahia from 2008 to 2019

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Introduction: Multiple sclerosis is a rare,incurable,demyelinating neuropathy of autoimmune inflammatory etiology with a diverse presentation and repercussions on the patient's life.The study seeks to evaluate the evolution of morbidity and mortality due to Multiple Sclerosis in Bahia,comparing sex and age group.

Methods: This was an Aggregate Observational study,by mixed,ecological and time series analysis,in Bahia between 2008-2019.Data from the Information Systems of Hospital and Mortality from DATASUS about Multiple Sclerosis was collected,analyzing the variables mortality,hospitalizations,sex and age group.

Results: The hospitalization rate for males and females increased by 320% and 216.66% respectively,and was,on average,172.66% higher for women.There was an overall increase of 239.13% in hospitalization.In the age groups 15 to 19,20 to 29,30 to 39,40 to 49,50 to 59,60 to 69,70 to 79 years the increase rate was,respectively,0 for 4 patients,183.33%,400%,75%,550%,200%,0 for 1 patient.In the age group of 80 years or more,there were no changes.About mortality,there was an overall increase of 8.33%.There was a 50% reduction in males and an increase in females by 37.5%.The average rate was 61% higher among women.There was an increase in the 30 to 39,50 to 59,70 to 79 age groups in 0 to 3 deaths,150%,200%,respectively,and a reduction in the 20 to 29,40 to 49,80 years or more,respectively,1 for 0 deaths,3 for 0 deaths,75%.No changes in other age groups.

Conclusion: Although the male presented an increase of the cases,there was a reduction in its mortality.The female had an important increase numbers of hospitalization and mortality,as did the age group of 50 to 59 years.

MeSH terms: Epidemiology;Multiple Sclerosis;Neurology.
Key words: Demyelinating;Hospitalization;Mortality.

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Epidemiological profile of registered meningitis cases by notification region in Brazil in the period of 2015-2020

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Background: Meningitis is a brazilian public health problem due to annual outbreaks[1]. Meningitis morbimortality rate is still relevant and the epidemiological description contributes to preventive actions[1,2].
Objectives: Describe the epidemiological profile of meningitis cases reported by region in Brazil between 2015-2020.
Design and setting: A retrospective descriptive study of meningitis cases. The data were obtained from Sistema de Informações de Agravos de Notificação (SINAN).
Methods: Information on age, sex, race, etiology, serogroup and case evolution were collected.
Results: Between 2015-2020, 87,189 cases of meningitis were reported, among which 58.9% were male. The majority of cases occurred in the Southeast (53.8%). The white race stood out in the South and Southeast, and the mixed race in the North, Northeast and Midwest. The 20-29 age group was the most prevalent, with the exception of the Southeast, where the predominance was 1-4-year-olds. Viral meningitis was the most frequent (47.2%), except in the Midwest, where non-primary meningitis (31.1%) was the main agent. Serotype C (57.8%) was the most prevalent across all regions. Hospital discharge was the main evolution (77.5%), especially in South (79.6%) and Southeast (77.5%). However, the highest death rate occurred in the North (14,6%) and Midwest (12.2%).
Conclusions: Male and young people are more affected by meningitis. Despite a higher incidence in the Southeast region, the North has a higher proportion of deaths, revealing a public health problem.

MeSH terms: Meningitis, Prevalence, Serogroup, Brazil.
Key words: Infecções, Perfil de Saúde, Epidemiologia.

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Effectiveness of Expressive Therapies in Sleep Disorders in Elderly Hyperfrequent of Primary Health Care

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Background: Sleep disorders have multifactorial causes affecting 25 to 30% of the adult population, which can consist of primary or secondary conditions, representing a serious risk to public health. They are risk factors for the elderly population, estimating that 50% of this age group have symptoms related to sleep.
Objectives: to verify the efficacy of expressive therapies (ET) in sleep disorders in hyperfrequent elderly (HE) of Primary Health Care (PHC).
Methods: Quasi-experimental study, with 69 elderly people assisted at PHC in a metropolitan region of the Midwest, divided into two groups: intervention (hyperfrequent elderly) and control (non-hyperfrequent). The sleep questionnaires were used: Pittsburgh sleep quality index (PSQI), Epworth sleepiness scale (ESE), Insomnia severity index (ISI) and STOP-Bang (SB), in addition to the investigation of sociodemographic and anthropometric variables. and related to health services. For data analysis, chi-square tests, multivariate analysis of variance and Wilks' Lambda test were used, considering $p \leq 0.05$.
Results: The intervention group (IG) showed a decrease in the scores of PSQI ($p = 0.003$), ESE ($p = 0.006$), ISI ($p < 0.001$), SB ($p = 0.002$) with significant differences between groups.
Conclusions: Expressive therapies were effective in hyperfrequent elderly, mitigating sleep disorders. Thus, by reducing sleep disorders in the group of hyperfrequent elderly people using non-pharmacological intervention in PHC, it is possible to improve sleep quality and, consequently, decrease the use of health services, reducing financial costs for the public health system.

MeSH terms: Complementary therapies, Elderly, Motor Activity, Primary Health Care, Sleep.

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Clinical and electrophysiological characteristics of the peripheral polyneuropathies from a single specialized center in the Southern Brazil

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Background: The peripheral polyneuropathies have etiological heterogeneity, with more than a hundred known causes. In addition, they have a lack of

information related to their epidemiology. **Objectives:** The aim of this study is to determine the prevalence of each etiology of polyneuropathy in a single specialized center from Southern Brazil and to correlate main clinical manifestations and electrophysiological aspects. Design and setting: Observational cross-sectional study. Neuromuscular disorder center from a tertiary service.
Methods: This study comprised individuals with electrodiagnostic tests compatible with polyneuropathy from a neuromuscular disorder center. Selected patients were those who underwent nerve conduction studies between 2008 and 2017.Through analysis of medical records, polyneuropathies were classified according to etiology and neurophysiological aspect.
Results: The sample population consisted of 380 patients who has a male predominance (59.5%), with a median age of 43 years (26-57).The main etiologies were inflammatory (23.7%), hereditary (18.9%), idiopathic(13.7%), multifactorial (11.1%) and diabetes (10.8%). The main electrophysiological patterns were Axonal Sensorimotor Polyneuropathy (36.1%) and Demyelinating- Axonal Sensorimotor Polyneuropathy (27.9%). Idiopathic, diabetic, and multifactorial polyneuropathies had predominantly axonal pattern, while inflammatory and hereditarypolyneuropathies had mainly demyelinating pattern.
Conclusions: The frequency of inflammatory etiology was higher than previously described and frequency of diabeticpolyneuropathy was lower. There may be a change in epidemiology of polyneuropathyin specialized centers, with a tendency to decrease idiopathic polyneuropathy. Electrodiagnostic testing is useful for etiological diagnosis since electrophysiological patterns correlate with specific etiologies.

MeSH terms: Polyneuropathies. Epidemiology. Electrodiagnosis.
Key words: Etiology. Inflammatory polyneuropathy. Diabetic polyneuropathy.

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Benefits of Botulinum Toxin type A in post-stroke neurorehabilitation

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Background: Stroke can injure the upper motor neuron, and may develop spasticity, a speed-dependent excessive contraction that makes muscle extension difficult. The botulinum toxin type A make contraction difficult, by inhibiting acetylcholine liberation by the lower motor neuron. Thus, it is hypothesized that the botulinum toxin has benefits in post-stroke spasticity.
Objective: To evaluate the benefits of botulinum toxin in post-stroke spasticity.
Methods: This is a literature review, which articles were searched via PubMed, with MeSH descriptors, using the formula: ("Botulinum toxin type A") AND ("stroke") AND ("spasticity"). Clinical trials, systematics reviews and metanalysis, that used botulinum toxin type A as intervention were included.
Results: The search resulted in 16 articles, and 5 were selected. A metanalysis, that included 10 clinical trials, evaluated 950 patients and the botulinum toxin type A in superior limbs spasticity has not shown benefits. Yet, another metanalysis which evaluated 27 clinical trials with 2793 patien ts, with both superior and inferior limbs spasticity, demonstrated improvement in levels of tonicity and deficiency evaluation scales. A prospective cohort whose outcome was based in doctor-patient goals has shown great improvement in mobility (87%), positioning (100%), pain relief and spasms (>80%). A clinical trial has also shown improvement on inferior limb function after 3 months of botulinum toxin use.
Conclusions: The botulinum toxin use for improvement in inferior limbs spasticity is well described on the literature. However, its use for superior limbs is still controversial, requiring more studies.

MeSH terms: Botulinum toxin, stroke, spasticity.
Key words: literature review, motor neuron, contraction .

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Hospitalizations for meningococcal infection in the southern region of Brazil: epidemiologic characterizations and prevalent serotypes

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Introduction: Meningococcal disease occurs due to infection by the bacterium Neisseria meningitidis, which is classified according to serogroups.
Objective: To survey the profile of hospitalizations and prevalent serogroups of meningococcal infection in the southern region of Brazil.
Design and Setting: Is an observational, cross-sectional study using public use data.
Methods: The data were taken from the DATASUS, in the year 2020, in states of Paraná (PR), Santa Catarina (SC), and Rio Grande do Sul (RS).
Results: In 2020 there were 139 hospitalizations, 76 in RS, 38 in PR and 25 in SC. In RS the most affected age group was 70- 79 years, in PR 60-69 and in SC 30-39. In all states, the male sex had the highest number of hospitalizations. The prevalence of serogroups in RS were B and Y, in PR B and C 1 and in SC, B. The category of "Ignored/Blank" stands out in all regions.
Conclusion: The highest number of hospitalizations was in RS and in male patients over 30 years old. The large number of serotypes filled in as ignored/blank denotes inadequate data updating, reinforcing the need for regular training for health professionals, so that the filled out data will allow a better configuration of the disease and implementation of public health measures.

MeSH terms: Bacterial Meningitidis. Meningococcal Meningitis. Public Health.

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A deletion in CFL-2 gene associated with Severe Nemaline Myopathy with peculiar features

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Context: Nemaline myopathy (NM) is the most common congenital myopathy characterized by muscle weakness and presence of nemaline bodies (rods) in muscle biopsy. Phenotype ranges from neonatal death to normal lifespan. 13 genes have been reported. We describe a new variant in cofilin 2 gene (*CFL2*;OMIM*601443*).
Case report: A 5-year-old boy born severely hypotonic and unable to breathe, in need of mechanic ventilation. Healthy non-consanguineous parents. Physical examination: severe hypotonia with only extraocular motricity preserved and mul-

tiple contractures. Dysmorphic features were observed as brachycephaly, hypertelorism, pseudohypertrophy, macroglossia, premature pubic hair. Deep reflexes were absent. CK: 1010U/l. DHEA-S elevated. Muscular biopsy: Rods, cores and dystrophic pattern. Exome: homozygous deletion in exons 1 to 4 of *CFL2* and partial deletion of the next gene Sorting nexin-6 (*SNX6)* in Chr14:34.563.122-34.714.639.
Conclusion: 9 cases were described previously: Age onset was before 31 months. 4 presented respiratory distress at birth, 1 presented macroglossia, 2 contractures, 2 spinal deformities and 3 delayed motor milestones. Our patient presents an extent deletion in homozygosis not described before. A second deletion was found in *SNX6,* which is involved in protein trafficking and is expressed in different cells, as endocrine and cardiac. The early puberty and dimorphisms could be due to SNX6, though there is no previous disease caused by this gene. Among differential diagnosis of macroglossia, congenital myopathy caused by *CFL2* should be considered.

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Analysis of the potential prognostic of ELAVL2, FOCAD and MLLT3 in glioblastoma

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Background: There is a crucial demand to identify molecular markers for cancer to improve the personalized treatment, diagnosis and prognosis. Our research group described a frequently deleted region (chr9p22.1-p21.3) in gliomas, with genes potentially important in the development of this tumor type, including *ELAVL2*, *FOCAD* and *MLLT3*.
Objectives: Therefore, the aim of this study was to analyze the expression of those genes as potential biomarkers for glioblastoma (GBM) prognosis.
Design and setting: The study was retrospective with samples collected at Barretos Cancer Hospital.
Methods: Immunohistochemistry reactions were performed for ELAVL2, FOCAD and MLLT3 proteins in 83 GBM samples. The reactions were evaluated using scores of intensity and extension, ranging from 0 to 6 in total. Patients with expression scores between 0 and 2 were considered negative for the expression of the specific gene, and those with scores between 3 and 6 were considered positive. Clinicopathological and molecular data from patients (age, gender, tumor location, KPS, and overall survival) were correlated with the expression of each gene.
Results: ELAVL2-expressing tumors showed a trend to develop in the temporal lobe (P=0.052), whereas they were not found in the frontal lobe. Patients with FOCAD expression were older (>45y.o., p<0.001). Overall survival was not influenced by *ELAVL2* or *FOCAD* expression. Patients with *MLLT3* expression presented a marginal improved overall survival (p=0.077) when compared with patients without expression.
Conclusion: Although there was a correlation of *ELAVL2* and *FOCAD* with tumor location and age, respectively, these genes did not show prognostic potential in glioblastomas. *MLLT3* showed potential prognostic, albeit more studies are warranted with larger cohorts.

MeSH terms: Gliomas, gene expression., proteins
Key words: Glioblastoma, immunohistochemistry, prognosis

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Hemorrhagic stroke (ICH): A consequence of thromboembolic events resulting from COVID-19

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Introduction: The COVID-19 pandemic has been alarming the world since its first outbreak in December 2019. In this scenario, the presence of aggravating factors such as the elevation of the D-dimer and the reduction of the angiotensin-converting enzyme 2 (ACE2) during the clinical course of the disease, collaborated in the appearance of thromboembolic events derived from inflammatory processes and extensive intravascular coagulation, contributing to the emergence of diseases such as Hemorrhagic Stroke (ICH), leading the patient to have a worse clinical prognosis and a consecutive worsening of their health.
Objective: To investigate occurrences of ICH derived from thromboembolic effects resulting from COVID-19.
Methods: We selected 43 articles published between 2020 and 2021 on the PubMed platforms, SciELO portal, CAPES Journal and Google Scholar in order to conduct an integrative review within this database.
Results: The elevated D-dimer was widely cited as a favorable factor for thromboembolic events due to the influence of excessive inflammatory processes, hypoxia and intravascular dissemination of coagulation, contributing to the development of ICH, given its greater association with disorders such as ischemic strokes, considering only these parameters. However, the reduction in ACE2 and the occurrence of cytokine storms end up causing increased inflammation and blood pressure, increasing the risk of stroke due to the rupture of capillaries sensitized by the action of thromboembolic effects and becoming a risk to the life and prognosis of patients infected with SARS-CoV2, especially in groups of individuals with a greater predisposition to the development of thromboembolic and hypertensive events related to COVID-19.

MeSH terms: ICH, COVID-19 and thromboembolic effects
Key words: D-dimer, inflammatory processes, cytokine storms and SARS-CoV2

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Is previous infection by Epstein-Barr Virus (EBV) or Cytomegalovirus (CMV) a considerable risk factor for the development of Multiple Sclerosis (MS) in adults?

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Background and objective: Multiple Sclerosis (MS) is a neurodegenerative, inflammatory and demyelinating disease of the central nervous system. The mechanisms that cause MS are still unknown. However, many variables ap-

pear as possible risk factors for the development of this disease. Therefore, this review aims to analyze the prevalence of MS cases in adult patients with a history of previous Epstein-Barr (EBV) or Cytomegalovirus (CMV) infection.
Design and settings: This study is a literature review, produced in Bahiana School of Medicine and Public Health, Salvador, Bahia, Brazil.
Methods: The studies evaluated were observational studies, published from 2016 to 2021, obtained in PubMed, with MeSH terms, published. The studies that did not correspond with the purpose of this review were excluded.
Results: The search resulted in 254 articles, of which 60 were selected. In cohort studies, EBV was indicated as a relevant risk factor and CMV was identified as a protective factor. Besides, cross-sectional studies differ in relation to CMV being considered a risk or protection factor, while EBV was pointed out as a risk factor again. However, case-control studies show that there is no association between Epstein-Barr or Cytomegalovirus with the risk of developing Multiple Sclerosis.
Conclusion: The evidence is still very uncertain, mainly due to the quality of the studies produced so far. Further studies of better methodological quality are needed to prove whether there is a causal association between these factors.

MeSH terms: Multiple Sclerosis, Epstein-Barr, Cytomegalovirus.
Key words: Risk Factors, Virus Diseases, Infections.

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Immunoglobulin versus Plasmapheresis in treatment of Myasthenia Gravis: a systematic review

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Introduction: Myasthenia Gravis (MG) is an autoimmune and neuromuscular disease. The treatment of immunomodulation consists of intravenous immunoglobulin (IVIg), immunoadsorption (IA), plasmapheresis (PLEX) or double filtration plasmapheresis (DFPP). This systematic review aims to compare therapy modalities in MG crisis.
Methods: The studies were identified through research in electronic databases and analyzed individually to clarify their methodological quality (through the *Jadad* and *Newcastle Ottawa* scale). Clinical trials randomized or not, and retrospective studies were included. The review included 1,983 patients in nine studies, the result analysis groups were divided into: IVIg x PLEX in the crises; IVIg x PLEX in the pre-thymectomy treatment phase and IVIg x DFPP in the myasthenic crisis. The evaluated outcomes were clinical improvement, adverse effects and length of hospital stay.
Results: Immunomodulatory therapy when applied prior to thymectomy was shown to be effective in reducing symptoms and post-thymectomy hospitalization, with IVIg slightly higher, while PLEX showed more side effects. Therapy during crises in both interventions proved to be effective after the 14th start of treatment, in addition to IVIg being slightly superior. Treatment with IVIg was also economically favorable, due to the lower need for hospitalizations. IVIg proved to be inferior to therapy with DFPP and IA, mainly in reducing the need for hospitalization.
Conclusion: It is concluded that IVIg therapy is a good therapeutic option in cases of crisis and when available, therapies with DFPP and IA should be the choices,aiming at less complications.

MeSH terms: myasthenia gravis, plasmapheresis, immunoglobulins.
Key words: DFPP, IA, PLEX, immunoadsorption, double filtration plasmapheresis, myasthenia gravis crisis.

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Acute glaucoma mimicking trigeminal autonomic cephalalgias: a case report

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Context: Trigeminal autonomic cephalalgias (TAC) are unilateral and recurrent headache with ipsilateral cranial autonomic symptoms such as lacrimation, conjunctival injection, ptosis and changes on pupillary diameter. Acute glaucoma is a rare etiology of headache in the emergency room and can be confused with TAC because it also presents with similar symptoms in the affected eyes.
Case report: We present a case report of a 50-year-old insulin-dependent diabetic woman with severe headache that started the day before admission. The headache was left hemicranial, pulsatile and associated with ipsilateral lacrimation. On physical examination we observed mild conjunctival hyperemia, ptosis, visual loss of 20/800 and fixed mydriasis in left eye. Because of the visual loss the patient was referred for urgent ophthalmological evaluation that revealed high intraocular pressure (41 mmHg) and neovascularization of the iris, suggesting the diagnosis of acute glaucoma associated with the neovascularization related to diabetes mellitus.
Conclusions: Acute glaucoma should be distinguished from TAC given the overlap of severe headache and ipsilateral eye symptom. However, the presence of fixed mydriasis and progressive visual loss suggested the diagnosis of acute glaucoma, since in TAC miosis is the usual pupillary alteration, as a consequence of parasympathetic overactivation, and visual loss is uncommon.

MeSH terms: trigeminal autonomic cephalalgias, glaucoma.

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Deaths due to meningococcal infection in Brazil: analysis from 2009 to 2019

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Background: Meningococcal disease is an acute and rapidly fatal infection caused by the bacterium *Neisseria meningitidis*. It can cause meningitis and severe meningococcemia, being more frequent in children and young adults. Transmission occurs through direct contact with oral nasal secretions.
Objectives: Describe the mortality rate and characteristics of patients who died of meningococcal infection in Brazil.

Design and setting: Descriptive ecological study conducted with data accessed from SIM - DATASUS.
Methods: National notifications from 2009 to 2019 were included and the variables to be analyzed. The frequencies and the mortality rate were calculated.
Results: 3,383 deaths were reported and there was a 37% decrease in the period, from 0.24 / 100,000 inhabitants in 2009 to 0.09 / 100,000 in 2019. Most cases occurred in males (55.5%), aged 1 to 9 years (29.1%), non-white skin color (49.3%), 1 to 7 years of schooling (54%) and single marital status (67.4%).
Conclusions: The number of deaths from meningococcal infection declined in the period. In an effort to promote a more significant reduction in mortality rates, there is a need for continuous diagnosis and early treatment, in addition to prevention through vaccination.

MeSH terms: Epidemiology; Neisseria meningitidis; Information Systems.
Key words: Mortality; Meningococcal Disease; Public Health.

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Progression of hospitalizations and hospital costs for Parkinson's disease in the Brazilian population

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Introduction: Parkinson's disease (PD) is the second most prevalent neurodegenerative disease in the world. Its incidence increases with advancing age. Therefore, in Brazil, a country in transition of age structure, it is relevant to assess the progression of hospitalizations and hospital costs for PD over the years.
Objective: Describe the progression of hospitalizations and hospital costs for PD in Brazilian's public health system, SUS, between 2008-2020.
Design and setting: Descriptive ecological observational study made in Brazil, Salvador – BA.
Methods: Data from hospitalization and hospital costs were collected from DATASUS in the 5 Brazilian regions. Statistical analysis was based on measures of dispersion and central tendency.
Results: Between 2008-2020, 11,565 admissions for PD were notified. The highest numbers of hospitalizations corresponded to the Southeast region (annual average = 370.1), while the smallest to the North region (annual average = 28.4). Regarding the high expenses resulting from hospitalizations, it was observed that the Southeast obtained higher costs with hospital services (annual average = 1,417,716.8), while the North had the lowest (annual average = 18,611.01).
Conclusion: Southeast region stood out for having the highest numbers in costs and hospitalizations, the opposite of what happened in North. Brazilian regional disparities, especially regarding to demographic density, HDI, socioeconomic development and access to health care, may explain these demographically uneven.

MeSH terms: Parkinson Disease, Epidemiology, Patient Admission
Key words: Parkinsonism, Neurodegenerative, Epidemiological

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Lowering of the level of consciousness by bilateral paramedian thalamic infarction due to Percheron's ischemia (Percheron's syndrome): a case report

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Context: Ischemia of Percheron's artery(PA) is a rare neurological occurrence that results in bilateral paramedian thalamic infarction that may affect the midbrain. Among the symptoms are altered mental status, vertical ocular palsy, and memory changes, as well as hemiplegia, cerebellar ataxia, and movement disorders.
Objective: To elucidate a case of stroke of the mesencephalic trunk in an uncommon anatomical variant of the thalamus-perfurans arteries
Method:Daily neurological and laboratory evaluation in addition to complementary examinations such as skull CT and skull MRI. We also performed a qualitative analysis of articles in Portuguese and English journals indexed in the following databases: PubMed (Public Medical Literature Analysis), Lilacs (Latin American and Caribbean Literature on Health Sciences) and Scielo (Scientific Eletronic Library Online).
Case report: A 67 year old male presented with mild to moderate headache for 2 days, reporting chronic cough and decreased level of consciousness for 1 day. He was intubated (Glasgow 6) and sedated for diagnostic elucidation. The CT shows mild cerebral edema and MRI shows bilateral thalamic infarction affecting the PA. The clinical picture evolves to ischemic stroke of the mesencephalic trunk.
Discussion: The bilateral infarction of the Percheron artery, as presented in this case, the neurological and neuropsychological manifestations are more severe such as akinetic mutism, thalamic dementia and loss of self psychic activation(Robot Syndrome). In these cases, the neuropsychological disturbance is best noticed when the patient regains consciousness.
Conclusion: In the presence of a clinical presentation suggestive of bilateral thalamic infarction, the Percheron Syndrome hypothesis should be suspected.

Key words: Paramedian thalamic infarction. Percheron's ischemia. Cerebral arterial diseases.

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Neurological manifestations associated with the diagnosis of shaken baby syndrome

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Introduction: Shaken baby syndrome is common in neurotrauma in children, with an estimated incidence of 14 to 40 cases per 100,000 children under 1 year. The sudden acceleration and deceleration movement of the head is the main cause. The diagnosis is made through the analysis of the patient's clinical history and imaging exams that search for retinal hemorrhage, subdural hemorrhage, skull and rib fractures.

Objectives: To identify the main diagnostic neurological manifestations associated with the Shaken Baby Syndrome.
Methods: A narrative review including meta-analysis articles, review and systematic review was carried out in the PubMed database with the following descriptors: shaken + baby + syndrome from 2011 to 2021.
Results: Most children with SBS arrive at the hospital with nonspecific symptoms. Initial neurological manifestations include decreased level of consciousness, lack of appetite, persistent crying for no apparent reason, lethargy, nausea, vomiting and drowsiness and, in severe cases, can present apnea, bulging of the fontanelle, convulsions and shock. Late consequences include difficulty reading, vision problems, including blindness, hearing and physical impairment, cerebral palsy and death.
Conclusions: SBS is a major cause of child mortality from physical abuse. It is associated with the sudden movement of the head and its main cause is the lack of knowledge of this syndrome.

MeSH terms: Shaken baby syndrome, brain injuries, child abuse, craniocerebral trauma.
Key words: nervous system diseases, retinal hemorrhage, subdural hemorrhage, neurotrauma.

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Quality indicators of a stroke unit in Curitiba (Paraná)

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Background: Stroke represents the second leading cause of death and disability in Latin America. Thus, there is a constant need to understand the profile of patients admitted for stroke, as well as to analyze the quality indicators of treatment centers.
Objectives: The aim of this study was to analyze the quality indicators of a stroke center in a tertiary service and to determine the epidemiological profile of inpatients. Design and setting: Observational cross- sectional study. Stroke unit from a tertiary center.
Methods: The individuals included in the study were those admitted with stroke or TIA in the stroke unit of the Hospital de Clínicas - UFPR from November 2020 to April 2021. The variables and quality indicators were collected through the application of questionnaires in two moments, on admission and hospital discharge.
Results: Of the 132 patientsincluded, 53.8% were men, with a mean age of 62.7 years (SD +/- 17.5). Ischemicstroke was the most common type of stroke, accounting for 77.3% of cases. Themajority of patients (68.9%) did not receive specific intervention, while 31% underwent intravenous thrombolysis, with a median door-to-needle time of 35 minutes. In 80.4% of the individuals, thrombolysis started in less than 60 minutes.All patients underwent neuroimaging, 87.4% underwent carotid imaging and 77.9% were monitored with Holter. Dysphagia screening was applied in 58.3% ofcases. Regarding secondary prevention, 48.1% received antiplatelet drugs and 25.2% received anticoagulants.
Conclusions: Intravenous thrombolysis is not performed in most hospitalized patients, however, when performed, it presents an adequate door-to-needle time. Hospitalization in a stroke unit allows a complete etiological investigation and optimization of secondary prevention and rehabilitation.

MeSH terms: Stroke. Quality indicators. Thrombolytic therapy.
Key words: Stroke unit. Door-to-needle time. Health care. Secondary prevention. Epidemiology.

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The impact of menopause on sleep disorders

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Introduction: Sleep disorders are one of the main complaints of women in transition from menopause, with a prevalence between 40% and 56%. However, regardless of the etiology, it is essential to assess the symptoms of insomnia in the context of menopause, as well as physical and mental health.
Objective: To investigate the relationship between the transition from menopause to the causes of insomnia.
Methodology: In April 2021, a literature review was carried out on MedLine using the descriptors "insomnia", "menopause" and their respective synonyms, published in the last 5 years and available in full.
Results: 157 articles were found, 4 of which were used in making this work. The precise mechanism of vasomotor symptoms is little known, but the hypothesis is that it results from a disturbance of the temperature regulating system in the hypothalamus, triggered by a decline in estrogen. Longitudinal data show that women with moderate to severe hot flashes are almost three times more likely to report frequent nighttime awakenings compared to women without hot flashes (HF).
Conclusion: Therefore, HF is an important aspect of insomnia in the transition from menopause and is strongly associated with reports of interrupted sleep.

MeSH terms: "Insomnia", "Menopause".
Key Words: "Premenopause","Postmenopause", "Hot Flashes", "Sleeplessness", "Insomnia Disorder", "Sleep Initiation Dysfunction".

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Downbeat Nystagmus Secondary to Chiari I Malformation

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Context: Downbeat nystagmus are characterized by the rapid phase in the down direction in primary position of the eyes, in the most cases represents a cerebellar dysfunction, typically with injuries involving vestibulocerebellum (flocculus, paraflocculus, nodule and uvula), although most cases are due to primary lesions in the brain stem, usually involving paramedian tracts. This type of nystagmus is characteristic of craniocervical abnormalities, such as Chiari 1 malformation, also being seen in a wide variety of cerebellar diseases, including degenerative etiologies, toxic-metabolic and ischemic injury.

Case report: A 45-year-old woman, who presented with dizziness started 6 years ago, related to rapid head movement, with progressive worsening, leading to difficulty in walking and a tendency to fall to the right, associated with mild to moderate intensity occipitonuchal headache, with improvement at rest and horizontal decubitus. Neurological examination showed downbeat nystagmus, intent tremor in the finger-to-nose-test, worse on the right arm, Romberg test presentes with anteroposterior and lateral instability, in addition to Tanden with bilateral lateropulsion, without other relevant changes. The magnetic resonance imaging showed platybasia and vertebrobasilar invagination, Chiari type 1 malformation with tonsillar herniation, without signs of cervical hydrosyringomyelia, signs of atrophy of both cerebellar hemispheres, a nonspecific nodule in the subcortical region of the left precuncle.
Conclusion: The case described above is relevant to demonstrate that even in cases of acute changes in adulthood, screening for anatomical malformations in the posterior fossa should be considered.

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App prototype for telehealth of patients with Traumatic Brain Injury – Startups in neurology

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Background: Traumatic Brain Injury (TBI) is a brain insult caused by an external mechanical force that can lead to physical, behavioral and cognitive chronic deficitsneedingmultiprofissionalteamrehabilitation. With the Covid-19 pandemic, many individuals with disabilities had reduced access and continuity of health care, making telehealth appear as an opportunity. Design and settings: This study is being developed and incubated at University Center São Camilo- SP.
Objectives: To develop a continuous health care app for this patients, connecting them with professionals.
Methods: Search Information on main health databases in telehealth and TBI for the development of an app prototype.
Results: An app prototype as a tool of continous treatment for patients with TBI; to offer a virtual and individual service, assisted by a multiprofessional team. Professionals and patients can register in the app, after an initial process. On the experimental period, patients can get simple evaluation of funcionality and general exercises (as an introduction to online home care). After this period, a month fee will be charge, and they will be directed to contact professionals, with the possibility of online continuity or face-to-face scheduling. **Conclusion:** telehealth, through a simple app, can guarantee continuity of care, reducing travel, and connecting professionals.

MeSH Terms: Brain Injuries, Traumatic; Telemedicine; Physical Therapy; Rehabilitation; SARS-CoV-2.
Key words: Saúde eletrônica; Lesão encefálica; Fisioterapia; Neurologia; Covid-19.

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Continuous Hemicrania After Clipping of Internal Carotid Aneurism: Case Report

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Context: The trigeminal autonomic cephalalgias (TACs) are primary headaches, however there are some reports of patients with TAC phenotypes related to vascular or neoplastic lesions. We discuss here the case of a patient presenting a headache with a pattern of continuous hemicrania developed after aneurysm clipping surgery.
Case report: Male, 37 years old, presented with periodic migraine since childhood, worsening after surgical approach of a ruptured right internal carotid artery aneurysm in 2014. Developed structural epilepsy after the surgical approach. Headache begins in the right occipital region radiating to right hemicranium, of severe intensity, pulsatile, intermittent, lasting 2 hours, partial improvement between crises, with persistence of mild to moderate pain between crises. Exacerbations were accompanied by ocular hyperemia and ipsilateral lacrimation, little improvement with analgesics. Normal neurological examination. Presented total control of the pain after the introduction of indomethacin.
Conclusion: Continuous hemicrania is a primary headache with a therapeutic response to indomethacin, classified in the TACs group. Secondary cases may be related to trauma, craniotomy, expansive intracranial injury, among others. The patient presented with these headaches after a surgical approach to clip a ruptured aneurysm. Previous headaches had another pattern. There is a previous report of continuous hemicrania related to an aneurysm of the anterior communicant. This extremely rare case illustrates the importance of testing with indomethacin when this phenotype is present, even in the presence of a triggering factor.

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Analysis of the admissions and deaths in the Brazilians Regions by Viral Meningitis in the last decade

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Background: Viral meningitis is a neuroinfection that presents neurological alterations that usually evolve benignly. In Brazil, during the last decade, the disease caused 30,731 admissions and 1,048 deaths.
Objectives: Analyze the number of hospital admissions for Viral Meningitis, between from 2011 to 2021 in all the regions of Brazil.
Design and setting: Study realized using data from the Department of Information of the Brazilian Health System (DATASUS). The variables researched were hospitalizations, deaths, age, gender, race e Brazilian regions.

Results: The regions with the highest number of admissions for viral meningitis are the Southeast (42.51%), followed by the Northeast (24.07%) and the South region (22.10%).It was observed that, in all age groups analyzed, males constitute the majority of admissions (58%). In terms of race, 37.51% were white and 28.41% were brown. In the case of deaths (1,048 in total), men were the majority. The mean length of hospital stay was 7.4 days and the average cost was R $1,119.07.
Conclusion: Male, white, and aged between 1 and 4 years old are the characteristics that form the profile of the patient frequently hospitalized for Viral Meningitis. The region of Brazil with the highest number of admissions was in the Southeast and the one with the lowest was the North region. Regarding the number of deaths, it is higher in males.

MeSH terms: Meningitis,Epidemiology, Neurology

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FDG-PET/CT patterns in patients with autoimmune encephalitis: a series of 9 cases

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Background: Autoimmune encephalitis (AIE) is the main differential diagnosis of infectious encephalitis. Brain MRI is normal in up to 50% of cases and studies indicate that changes in FDG-PET/CT are more frequent and early.
Objectives: To describe FDG-PET/CT findings in patients with AIE of Hospital Israelita Albert Einstein (HIAE) from 2015-2020.
Design and setting: Retrospective cross-sectional study at HIAE.
Methods: Medical records of patients with suspected AIE were reviewed. Laboratory results were compiled, and images were reassessed.
Results: Amongst 250 records, we found 7.6% (n=19) of AIE, being 8 seropositive (5 anti-NMDA, 1 anti-CASPR2, 1 anti-MOG, 1 anti-VGKC and 1 anti-LGI1), 5 seronegative and 4 limbic encephalitis. The mean age was 48-22 years, 52% male. In encephalitic patients, the most common manifestations were epilepsy (78%), cognitive changes (63%), and behavioral changes (63%). Only 57% had abnormal MRI. We evaluated 23 PET/CTs at different stages of treatment; of the 9 FDG-PET/CTs performed at initial presentation, 88% were abnormal and 30% had normal MRI. Most frequent patterns found were hypometabolism in frontal (59.1%), temporal (39.1%) and left parietal (39.1%) regions. In follow-up, only 2 patients normalized FDG-PET/CT, with clinical improvement.
Conclusions:FDG-PET/CT was altered in 88% of patients. In this series, no typical PET/CT pattern was demonstrated for AIE; the most frequent findings were hypometabolism in cortical areas, which also occur in degenerative diseases. We did not find hypermetabolism, or mixed areas of hypo- and hypermetabolism. The specificity of PET/CT for AIE diagnosis should be evaluated in future studies.

Mesh terms Encephalitis, Anti-N-Methyl-D-Aspartate Receptor Encephalitis, Positron Emission Tomography Computed Tomography, Magnetic Resonance Imaging
Keywords Autoimmune encephalitis, Hypometabolism, Limbic Autoimmune Encephalitis

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Myasthenia gravis, myositis, myocarditis and anti-titin antibodies after Nivolumab/Ipilimumab: response with plasmapheresis

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Context: Severe neurological manifestations following use of immune checkpoint inhibitors (ICIs) occur in 0.93% of patients, and together with cardiac toxicity have the higher lethality. Myasthenia gravis (MG) and polymyositis (PM) are rare, and treatment includes discontinuation of the immunotherapy, corticosteroids, and intravenous immunoglobulin (IVIG), with occasional use of plasmapheresis (PLEX). Biomarkers are not consistently reported. We report the case of a patient with MG, PM and myocarditis after ICI, with positive anti-titin antibodies and response to plasmapheresis.
Case report: 81-year-old male developed ascending, subacute, progressive tetraparesis, dysphagia, ophthalmoparesis, and respiratory failure 2 weeks after second cycle of nivolumab/ipilimumab for metastatic melanoma. Physical examination showed: globally reduced strength, hypoactive reflexes, bilateral sixth nerve palsy and bilateral semi-ptosis. Prostigmine test was positive and electroneuromyography was compatible with myopathy. Labs revealed CPK 4000 U/L, troponin 9000U/L, autoimmune myositis panel negative, anti-titin antibodies (described in paraneoplastic MG and associated with severity) positive and cardiac MRI without fibrosis. Clinical picture was compatible with MG and PM with cardiac involvement. He received methylprednisolone and six PLEX sessions, with complete recovery. Four months after treatment, he developed cognitive impairment and large B-cell lymphoma (ICI complication).
Conclusions: PM and MG may occur after ICI, especially in the first cycles, and anti-titin may be a biomarker of severity in these patients. Although guidelines recommend adding IVIG or PLEX in refractory or severe cases, PLEX may be first choice, especially if multiple ICI are present.

MeSH terms: Immune Checkpoint Inhibitors, Myasthenia Gravis, Myositis, Plasmapheresis
Key words: Immune Related Adverse Effects, Ipilimumab, Nivolumab, Immunoglobulins

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The effectiveness of using thiamine in the Wernicke-Korsakoff syndrome

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Introduction: The Wernicke-Korsakoff syndrome is a condition caused by thiamine (vitamin B1) deficiency in the brain, being a debilitating and potentially fatal

factor. It is characterized by a classic triad: delirium, ophthalmoparesis and ataxia.
Objectives: Analyze the possible effectiveness of using thiamine in the prognostic change of patients with the syndrome, as well as the ideal dose and identification of possible secondary outcomes of the use of thiamine.
Methods: A systematic review made in March 2021, included studies published between 2011-2021. The descriptors selected according to the MeSH platform, were inserted in the SCIELO, Lilacs and PubMed databases, resulting in a total of 323 studies, of which only 8 were selected.
Results: Among the 8 evaluated articles, 5 reinforce the effectiveness of thiamine therapy, with prognostic changes in those patients, and only 4 of these studies describe their clinical evolution, showing mostly a gradual regression of the ocular manifestations and ataxia, while neurological symptoms tend to develop later. Thus 62,5% of the articles show improvement of patients with these therapeutics. Other studies do not refer to the prognosis after the institution of the treatment. About the dose, it was observed that the therapeutic effectiveness was related to higher doses of thiamine.
Conclusion: Most of the analyzed studies were favorable to the hypothesis of the early use of thiamine in regression of the symptoms. Regarding the most effective dose, the topic still needs studies with high scientific evidence, as it hasn't yet been thoroughly discussed in the literature.

Key words: Thiamine; Wernicke-Korsakoff syndrome; Treatment; Vitamin B1.
MeSH terms: Thiamine deficiency; prognosis; patients.

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Brain skull traumatism: a neurological approach

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Introduction: Brain Cranium Trauma (TBI) is defined as any traumatic injury that causes an anatomical lesion or functional impairment of the scalp, skull, meninges, brain or its vessels. In the set of injuries from external causes, the TBI stands out in terms of magnitude and, above all, as a cause of death and disability.
Objectives: Demonstrate basic and current concepts in relation to the pathophysiology, diagnosis and treatment of TBI.
Methods: The present work is a narrative review of the literature in the PubMed, SciELO and CNBI databases. As search criteria, the following keywords were used: "traumatic brain injury"; "Semiology"; "Neurology" and articles, which were limited to a specific period of 5 years. Exclusion: case reports and inclusion: 12 articles.
Results: The main causes of TBI are car accidents, falls, being run over, aggression and sports activities. It was observed that most victims of TBI have subgaleal hematoma (HS), followed by fractures. In mild and moderate TBI, the appearance of HS is more prevalent, 48.5%. In TBI, severe, the incidence of subarachnoid hemorrhage predominates with 71.1% of cases in the first study and 62.5% in the second.
Conclusion: The main group affected by TCE are mostly male and young, this predominance is related to the increase in violence with firearms, alcoholism and high speeds in traffic. The elderly group is at risk due to their susceptibility to falls. Children are also prone due to lack of motor coordination, resulting in acidentes.

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Epidemiological overview of dementia in Brazil from 2010 to 2020

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Background: Brazil is the second country in dementia cases prevalence. The populational aging worsens this situation and overloads the healthcare system.
Objectives: To analyze the epidemiological data of dementia in the period from 2010 to 2020 in Brazil.
Design and setting: Descriptive cross-sectional epidemiological study with patients with Dementia in Brazil between 2010 and 2019.
Methods: Study realized using the SUS Hospital Information Systems (SIH/SUS), with the information provided by the SUS Informatics Department.
Results: From 2010 to 2020, Brazil had 170 million dementia cases notifications and 31 thousand hospitalizations. The southeast region had the highest case prevalence (88%), and the North region the lowest (0.36%). The hospitalized patients number per 100.000 inhabitants was highest in the South region (25.11) and lowest in the North region (4.55). The Center-west region had the highest mortality rate (16.43) and the North the lowest (1). 53% of the reported cases were males, being 51% of the hospitalization rate. The mortality rate was higher in female patients (8.58) and 7.18 for male patients. Patients over 70 years accounted for 75% of the deaths. The patients between 30 and 39 years presented the longest average hospital stay (140,6 days). Southeast and South had the longest (122.2) and shortest (15.1) hospital stay in days, respectively.
Conclusion: The data showed the disparity among the regions, from hospitalizations to mortality rates. Hence, politics that can embrace the totality of the territory, improving patient comfort, and disease prognostic are needed.

MeSH terms: dementia, cognitive dysfunctions, neurocognitive disorders

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Morphometric analysis of the orbit in dry human skulls in Northeast Brazil

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Introduction: The orbit is a bone cavity in the skull. Its morphological and anthropological knowledge is essential, as it is a region subjected to several surgical procedures.
Objective: To analyze the morphology of orbits in the skulls of two populations in Northeastern Brazil.

Methods: 115 skulls belonging to Federal University of Paraíba (UFPB) and Federal University of Ceará (UFC) were analyzed. The skulls were categorized into three types: Megaseme, Mesoseme and Microseme. Quantitative analysis included these measurements: orbital height (OH), Orbital Breadth (OB) and index orbital (OI). Data were prepared for statistical analysis using IBM SPSS 23 software, with a significance level of 5%.
Results: 58 skulls (50.4%) were female and 57 (49.6%) were male. The sample consisted of 91 (79.1%) skulls from UFPB and 24 (20.9%) from UFC. At UFPB, 85.16% of the orbits were Microseme, 12.64%, Mesoseme and 2.2%, Megaseme. In the UFC, 58.3% were Microseme, 25%, Mesoseme and 16.7%, Megaseme. Considering both populations, 79.6% of the orbits were microseme, 15.2%, mesoseme and 5.2%, megaseme. There were no differences in morphometric parameters between the orbits (p> 0.05). When comparing the two populations studied, there were significant differences in the variables OI and OB (p <0.05).
Conclusions: Orbits were of the Microseme type. No difference between the height of the UFC and UFPB orbits was found, however, there was a difference in OI and OB. These regional differences corroborate the clinical and surgical importance of the morphological study of the orbit, as it undergoes changes depending on the population.

MeSH terms: Orbit. Skull. Osteology.
Key words: Morphology; Anatomy; Morphometry

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Paradoxical neuroplasticity due to post-Covid-19 astrocytosis in children and adolescents

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Background: According to the American Academy of Pediatrics, there are approximately 3.28 millions of SARS-CoV-2 infections among children and adolescents as of March 2021. A modulation of the synaptic environment has been described due to astrocytosis caused by SARS-CoV-2 along with a decrease in cognitive stimuli aggravated by social isolation.
Objectives: To correlate the slowness of brain connectivity with astrocytosis caused by SARS-CoV-2 in the pediatric population in post-Covid-19.
Methods: Literary review carried out at PubMed from January to April 2021, using "Brain infection", "SARS-CoV-2", "Children", and "Astrocytosis" as descriptors. It was selected 183 articles in english published in the last 5 years, of which only 10 were closer to the research subject.
Results: SARS-CoV-2 led by the Spike protein of the virus causes remodeling in glucose metabolism, causing deviation in the consumption of lactate (metabolic substrate of astrocytes), compensatorily way to neuronal malnutrition. To supply their metabolism, astrocytes are taken to a glutamate consumption responsible for synaptic plasticity due to dopamine synthesis (DA). Furthermore, astrocytosis stimulates apoptosis of SH-SY5Y cells, which are linked to dopaminergic expression in synaptic clefts, further accentuating the decline in DA levels.
Conclusions: Cortical dysfunctions resulting from neural malnutrition and low cognitive stimulation during social isolation favor an intense neuroplastic paradox in the pediatric population during the critical period.

MeSH terms: Covid-19, Central Nervous System Infections, Neuronal Plasticity, Children.
Key words: Psychological Critical Period, Cognition, Inflammation.

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Psychomotor consequences in children with Tourette's Syndrome

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Background: Tourette's Syndrome (TS) has a neuropsychiatric aspect and a chronic repertoire of motor-phonic tics. The common onset is in infants and remission in adults. **Objective:** investigate psychomotor consequences in children with TS.
Design and settings: literature review.
Methods: eleven studies were selected from a group of 20 after searching the MEDLINE database for "psychomotor performance OR psychomotor development" and "Tourette's Syndrome". Only articles with full texts available and published from 2011-2021 were included.
Results: the response time (RT) of children with TS was longer. Throughout Do/Don't tasks, with/without false alarms, the RT was lower while the accuracy of movement (AM) was greater. A study on RT and AM with different levels of complexity showed greater difficulty in ST group (p<0.001) with RT increasing according to complexity. Many children with TS also had ADHD, and when comparing them to the ones only with TS, the ADHD+TS group made more mistakes while having the same RT. The ADHD+TS group also had a response blockage in non-sequential tests and lower TS in sequential tests (p=0.006). Studies showed an association between motor tics and forgetfulness rate (FR), with these being inversely proportional.
Conclusion: children with TS have greater RT and the response to uni and bimodal stimuli differ, with greater AM and lower RT to single stimulus. More severe tics were associated with better content retention. Other psychiatric disorders are common, especially ADHD, requiring further studies to link the consequences of each pathology accordingly.

MeSH terms: Psychomotor performance, Tourette's syndrome, Children
Key-Words: Neurology, Disturbed Development, Neuropsychiatric Syndrome, Neuropsychiatric Syndromes

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Cognitive function and risk factors in the older population: differences between the sexes

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Background: Studies have shown a sex difference in the cognitive dysfunction in the elderly where women are more susceptible to Alzheimer's disease than men. Physical activity (PA) is an important strategy for brain health, but the exact mechanism is unclear. Santos has the largest proportion of the elderly population in São Paulo State (22%), but no studies have whether there are differences between the sexes in cognitive function.

Objective: To evaluate the differences between the sexes in the cognitive function of the elderly and which factors are associated with this difference.

Methods: Ninety-seven women and sixty-nine men were eligible for the study. Inclusion criteria were >65 years old, no severe cognitive impairment, preserved activities of daily living. Cognitive function and PA were assessed by the mini-mental state examination (MMSE) and Baecke questionnaire.

Results: The mean age was 75±7 and 73±7, for women and men, respectively. Both sexes showed a similar MMSE score (26, varying between 14 and 30) that was inversely associated with age. The influence of the schooling status on MMSE was greater in women (r=0.49, p=0.0001) compared to men (r= 0.30, p<0.01) and was lower in women when PA was <9 (women: 26, and men: 27, varying 15-30 and 22-30 for women and men, respectively). No differences between the sexes in MMSE when PA was >9.

Conclusions: The MMSE score is affected by the aging process similarly between the sexes. The years of schooling have an influence on cognitive function in women that is attenuated by higher PA.

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MeSH terms: Alzheimer Disease; aged; sex.

Key words: Physical activity; cognitive function; sex differences.

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Use of cannabidiol as a therapeutic method in epilepsy

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Introduction: Cannabis sativa has several therapeutic properties and has been used for millennials for healing purposes. Among its benefits are analgesic, antiemetic and tranquilizing effects, acting strongly on the nervous system.

Objective: This study aims to emphasize the importance of Cannabidiol as a therapeutic purpose for epilepsy, especially in Brazil, where its use is still controlled.

Method: A systematic literature review, using bibliographic searches carried out in the electronic databases LILACS, PubMed and SciELO with the descriptors "cannabidiol" and "epilepsy". Of 1645 searches found, 06 were used in the study.

Results: Epileptic seizures can be generalized or partial and are determined by the affected area. The treatment for epilepsy are drugs that decrease the arousal capacity of neural tissue and a significant percentage of individuals cannot control them with traditional drugs alone. Endocannabinoids work in response to epileptiform activity, to activate CB1 receptors for excitatory neurons, to contain excess neuronal activity, which occurs during seizures. It is proven that patients who use it do not have toxic adverse effects.

Conclusions: In Brazil, Cannabis is a controlled drug and the fact that it is imported, interfere in the treatment, who is interrupted while patient waits the new dosage. The importance of cannabidiol as a target for research and studies is verified, as it has ample potential in the treatment of epilepsy and reduces brain damage caused by it. In order that patients with epilepsy, have improvements in their quality of life.

MeSH terms: Cannabidiol; Epilepsy; Neurology.

Key words: Cannabis; Neurological disorders; Treatment.

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Elsberg Syndrome

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Context: Elsberg Syndrome (ES) is a rare syndrome associated with acute or subacute infections, often accompanied by myelitis confined to the lower

spinal cord, in addition to paresthesia, weakness in the lower limbs, urinary retention, constipation, among others. It is a self-limiting disease, manifested through primary HSV type 2 infection, especially in immunocompetent patients.

Case report: Male patient J.F.C., 58 years old, reports a sudden paresthesia in the lower limbs without other associated clinical conditions for approximately 2 months that progressed to paresis, cramps and loss of sphincter control. Admitted to the General Hospital of Palmas, Tocantins on 02/18/2020 with suspicion of Peripheral Polyneuropathy that was discarded after electroneuromyography. Imaging exams without relevant findings. After a week of hospitalization, multiple lesions appeared in the region of the lower third of the dorsum and buttocks, compatible with lesions by HSV (herpes simplex virus) and the diagnosis of ES was concluded. At the moment, he was undergoing treatment with acyclovir and awaiting the evolution of the condition.

Conclusion: ES is an often unrecognized cause of lumbosacral radiculitis, which is why it is important to establish as a diagnosis differential. The analysis of CSF, PCR and MRI confirm the diagnosis in cases of HSV-2 lumbosacral radiculomyelitis. CSF usually reveals a lymphocytic pleocytosis and a slight elevation of proteins.

MeSH terms: Human Herpesvirus 2, Immunologic Competence,Paresthesia, Distal

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Tolosa-Hunt: Case Report

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Context: Tolosa-Hunt Syndrome (STH) is a rare condition with unknown etiology, it affects both genders equally. It is manifested by inflammation of the cavernous sinus and involvement of some cranial nerves pairs.

Case report: MSR, 39 years, male, diver in the mining zone, history of recurrent otitis with acute pain and gradual hearing loss that progressed. He was admitted to the General Hospital of Palmas with symptoms of retrorbital headache. After physical exams it was found an ophthalmoplegia with right amaurosis and ipsilateral pain. The neurological examination showed a right eye with loss of photomotor reflex and presence of consensual reflex and eyelid ptosis. After 38 days in hospital, a probable septic thrombosis of the cavernous sinus was found, antibiotic and corticosteroids therapy was initiated. The patient also reports significant improvement in headache and partially in vision, he is currently hospitalized with clinical care and antibiotic therapy, awaiting results of the image examination report.

Conclusions: Painful ophthalmoplegia in most cases is not diagnosed as STH. The differential diagnosis for this pathology is most often through brain magnetic ressonance and the ICHD-3 beta diagnostic criteria, STH should be suspected, but it is still necessary to close the diagnosis by exclusion, due to the lack of a specific diagnosis.

MeSH terms: Tolosa-Hunt Syndrome, Ocular Motility Disorder, Ophthalmoplegy

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Influence of atherosclerosis on intracranial aneurysm rupture: a literature review

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Background: Aneurysms have their wall more susceptible to rupture. It is postulated whether the presence of atherosclerotic plaque can influence this, protecting or not.

Objective: This review aims to investigate atherosclerosis (AT) as a potential risk factor for rupture of intracranial aneurysms.

Design and Setting: this is a literature review, produced in Bahiana School of Medicine and Public Health.

Methods: The evaluated studies were obtained in published between 2011 and 2021, using the MeSH terms with following search: (("atherosclerosis" OR "atherogenesis" OR "atheroscleroses" OR "Vascular Disease")) AND (("intracranial aneurysm" OR "brain aneurysm" OR "brain aneurysms" OR "cerebral aneurysm" OR "cerebral aneurysms")) AND (("ruptured" OR "rupture" OR "subarachnoid hemorrhage")). Those that did not correspond the purpose ofthis review were excluded.

Results: 13 of the 103 articles found, were selected. In 03 retrospective cohorts, AT was not a risk factor associated with aneurysm rupture, but a protective factor. In the control case, AT did not obtain statistical significance, but hypercholesterolemia was considered a protective factor. In the postmortem, atheromatous plaque was found only in a one patient who had subarachnoid hemorrhage. The other studies were inconclusive on the subject.

Conclusions: Atherosclerosis cannot yet be said as a risk factor for aneurysm rupture due to literary insufficiency. In this way, new research is needed to ensure the evidence.

MeSH terms: atherosclerosis, intracranial aneurysm, rupture.
Key words: risk factors, atherosclerosis, intracranial aneurysm, rupture.

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Small-fiber neuropathy and celiac disease: A narrative review

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Background: Neurological manifestations of celiac disease (CD) have a prevalence of 10% to 22% among patients. Of this group, neuropathy is present in up to 23%, with small fiber neuropathy (SFN) being the most described, with a predominance of painful symptoms and appendicular paresthesia.

Objectives: Review literature to describe the clinical management of SFN in CD.

Design and setting: Narrative review.
Methods: Non-systematic review on Pubmed and Scielo database.
Results: CD is a chronic inflammatory autoimmune disease that can generate extraintestinal manifestations as SFN. Small fiber neuropathy is a painful focal sensory neuropathy of slow progression, with distal predominance, symmetrical or not, beginning in adulthood and, sometimes, followed by autonomic dysfunction. Electroneuromyography studies (ENMG) suggest greater involvement of myelinated A-delta and C myelinated thin fibers, which is a precursor of sensory ganglionopathy in the dorsal root and can progress to large fiber neuropathy. The ENMG of SFN is usually normal because it is generally not demyelinating. To confirm the diagnosis, a skin biopsy that evaluates the fiber's intra-epidermal density is indicated. Another exam is the quantitative test of the sudomotor reflex, capable of evaluating autonomic function. Finally, treatment should be directed to the underlying cause, optimization of the treatment of CD, and the management of symptoms, such as pain.
Conclusions: The SFN, despite being an uncommon manifestation of CD, is possibly underdiagnosed due to the lack of studies evaluating this manifestation in celiac patients. Therefore, further studies are needed in order to instigate early diagnosis and adequate clinical management.

MeSH terms: "Celiac Disease"; "Small Fiber Neuropathy"; "Neuroimmunomodulation"
Key words: "Peripheral neuropathy", "Extraintestinal manifestations", "Gluten-sensitive enteropathy"

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Percheron Artery Ischemia: Case Report

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Context: The Artery of Percheron (AOP) is an uncommon anatomic vascular variation derivated from posterior cerebral artery segment P1, wich branchs to irrigate bilaterally the thalamus in it is paramedian portion. Amidst vascular cerebral events of the ischemic type, thalamic infarction occour in 11% of the cases. The typical clinical presentation is constituted by the triad: cogniyive-behavior comitente, oculomotors and consience disturbs.
Case report: J.F.M.L, 51 years old, male, was found unconscious in his residence by SAMU and then interned in Stroke Room of HGP in 02/06/2020 with a lowered level of consciousness (Glasgow 8). The tests demonstrated a bilateral thalamic infarct due to Artery of Percheron Ischemia. In 02/09/2020 it evolved into a Glasgow 9 being extubated. The CT after 3 days demonstrated absence of bleeding and prophylatically initiated simvastatin, clexane, physiotherapy and phonoaudiology. In 02/15/2020, during physical exam, the pacient was lucid, presented behavior alterations, had left cervical dystonia and ataxia. The patient progressed well andwas discharged the next day.
Conclusions: The AOP, when occluded, results inbilateral paramedian thalamic and the rostral midbrain infarctions wich may causediagnosis issues, mainly because of the vast specter of diferential diagnosis. In the presence of triad signals characteritic of bilateral thalamic infarction in CT, it must suspect the manifestation of such entity.

MeSH terms: Stroke, Posterior Cerebral Artery, Posterior Cerebral Artery Infarction, Cerebral Artery Disease

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Morphological study of foramen venosum in dry human skulls in Northeast Brazil

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Introduction: The foramen venosum (FV) is located in the larger wing of the sphenoid bone and allows the passage of emissary veins that help to balance the intra and extracranial pressure. Knowledge of its morphology and associated structures has an important surgical value.
Objective: Analyze the morphology of FV and its relation to adjacent foramina in Northeast Brazil.
Methods: 117 human adult skulls of Federal University of Paraíba were classified by gender, FV type and laterality, being evaluated the diameter of FV, foramen ovale (FO) and foramen spinosum (FS), as well as the distance of FO and FS to FV (DFVFO and DFVFS). Values of $p \leq 0.05$ were considered significant.
Results: 52 (44.4%) skulls (65 sides, 29 on the right and 36 on the left) presented FV, being 63.46% females and 36.53% males. 33.3% of FV were unilateral and 11.1% were bilateral. The FV were mostly oval (50.7%) and round (49.3%) types. Mean diameter of FV was 3.56±0.7mm, FO 7.88±1.16mm, FS 4.01±0.39mm, DFVFO 8.18±1.09mm and DFVFS was 14.54±1.68mm. Only FO (p=0.009) and FS (p=0.001)
had significant differences between genres, and DFVFO had among sides (p=0.021).
Conclusions: FV has a high incidence in Northeast Brazil, predominantly in females on the left side with oval and round types. Its relation with other foramina showed differences among genres and sides. This shows the relevance of the FV study to minimize the risk of iatrogenic injury during surgical interventions in this region.

MeSH terms: Osteology; Skull; Foramen.
Key words: Skull base; Brazil; Foramen Venosum; Foramen Vesalius

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Acute disseminated encephalomielite and Covid-19 - a literature review

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Background: The infection caused by SARS-CoV-2 is associated with several neurological manifestations. Among these, acute disseminated encephalomyelitis (ADEM), an immune-mediated disease, has a reasonable incidence. In this context, the absence of direct viral infection of the CNS and late presentation of the condition corroborate to the hypothesis of an immune relationship.
Objectives: Describe the relation between acute disseminated encephalomyelitis and COVID-19 infection.
Design and setting: Literature review, held at the University Center of João Pessoa, located in the city of João Pessoa, Paraíba, Brazil.

Methods: Through the PubMed database, using descriptors as follows: "acute disseminated encephalomyelitis" AND "COVID-19", associated with time filter of the years 2020-2021.
Results: The pathogenesis of ADEM in COVID-19 occurs through several mechanisms. One is a cross reaction between immune cells and nerve cells, which causes damage by activating the immune response and releasing protease enzymes. Another perspective is that the state of hyperinflammation activates like glial cells. In addition, an infection can trigger the production of autoantibodies against glial components, generating demyelinating lesions. In a series of cases that included 43 patients, nine had manifestations of ADEM, with a variety of clinical and radiological forms. Of these nine, on neuroimaging, all had multifocal, supratentorial white matter, four had hemorrhagic changes and two had myelitis.
Conclusions: The coexistence between ADEM and COVID-19, although well established in some cases, still shows the need for studies that better clarify the relation between viral infection and brain lesions present in these clinical conditions.

MeSH terms: Acute Disseminated Encephalomyelitis; COVID-19; Demyelinating diseases.
Key words: Neurology; Neuroradiology; SARS-CoV-2 infection; Neurological complications.

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An epidemiological overview of spina bifida in Brazil in the years 2010 to 2019

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Background: Spina bifida is a birth defect not fully understood, which suggests the association of genetic factors with environmental factors as possible causes.
Objectives: To analyze the epidemiological data of Spina Bifida in the period from 2010 to 2019 in Brazil.
Design and setting: Descriptive cross-sectional epidemiological study with patients with Spina Bifida in Brazil between 2010 and 2019.
Methods: Study realized using data from the Department of Information of the Brazilian Health System (DATASUS). The data used were classification, sex, ethnicity, Regions of Brazil, mother's age and adequacy to prenatal care.
Results: In this period, there were 10,309 cases of spina bifida and a record of 229 deaths. In classification criteria, a non-specific spina bifida predominated, corresponding to 74.3%. The greatest number of hospitalizations occurs in children under 1 year of age. At maternal age, cases of spina bifida prevailed in mothers aged 15 to 29 years. Regarding prenatal, 36.91% were considered more than adequate. The Northeast is the region with the most reports of spina bifida cases in the country. In relation to sex, girls are followed up similarly to boys. The black race and the white count the majority of cases.
Conclusion: The profile of anomalous patients is brown skin and less than 1 year old of both sexes and children of mothers aged between 15 and 29 years. Spina Bifida unspecified is the most frequent.

MeshTerms: Spina Bifida, Neurology, Epidemiology

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Dysphagia in patients with amyotrophic lateral sclerosis

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Background: Amyotrophic lateral sclerosis is a rare neurodegenerative disease that acts on the upper and lower motor neurons, causing muscle weakness.[123]Dysphagia occurs due to malfunction of the swallowing mechanisms and generates functional problems.[456]
Objectives: Describe the pathophysiology of dysphagia and discuss strategies for symptom relief.
Design and setting: Systematic review, Faculdade Integrada Tiradentes, Jaboatão dos Guararapes - PE.
Methods: Systematic review of 10 articles from the last years.
Results: Dysarthria and dysphagia are common signs of upper motor neuron involvement and 80% of ALS cases exhibit asymmetric limb weakness.[6]
Conclusions: To improve the nutrition of patients with dysphagia, is suggested the use of supplements, changes in diet and food consistency, along with education on safe swallowing modes. Also percutaneous endoscopic gastrostomy can be used as an alternative. [78910]

MeSH terms: Dysphagia; Amyotrophic Lateral Sclerosis; disease management.
Key words: Neurodegenerative diseases; swallowing disorders; Muscle weakness

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Morphometric Analysis of Axis Vertebra in Northeastern Brazil

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Introduction: The axis is the second cervical vertebra and differs from the others by presenting particular anatomical landmarks. Morphological variations of the axis in different populations have clinical importance, since the lack of anatomical reference may compromise surgical procedures in this region.
Objective: To analyze the morphometry of axis vertebra in northeastern Brazil.
Methodology: Data collection was performed at the Federal University of Paraiba. Fifty-eight axis were used. Damaged or infantile vertebrae were excluded. Morphometric analysis was performed using a digital caliper and the data were statistically analyzed. Results were considered significant when $p<0.05$.
Results: The width of the pars interarticulares was 9.25±1.68mm and the height was 7.37±1.87mm. The height of the dens of the axis in an anterior view was 16.29±1.82mm and the width was 9.41±0.86mm. The width of the articular face of the dens was 8.27±0.88mm. The anteroposterior length of the vertebral body was 15.29±2.02mm, the width was 16.79±1.68mm, and the height in anterior view was 19.96±2.48mm. The mean height of the vertebral lamina was 10.89±1.64mm and the anteroposterior length was 20.33±2.13mm. Significant difference was observed between right and left sides of anteroposterior length ($p=0.012$).
Conclusion: Axis morphometry was shown for the first time in a specific population from northeastern Brazil. Morphological differences were observed in the present study and differ from others in the literature. These data may serve as guidance for professionals who will perform any procedures in this region, highlighting the importance of anatomical knowledge and its variations.

Descriptors: Anatomy; Axis, Cervical Vertebra; Atlanto-Axial Joint

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Brain-gut-microbiota axis in motor disorders

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Introduction: There seems to be a strong relationship and influence on the brain-gut- microbiota axis in the control and prevention of several diseases, including degenerative diseases that are related to motor disorders.
Objectives: To analyze the relationship between movement disorders and the intestinal microbiota.
Methods: Integrative review performed at PUBMED, using the descriptors Movement disorder and intestinal microbiota, in the last five years and having as inclusion criteria complete texts in English.
Results: The literature suggests that the intestinal microbiota regulates the activation of microglia through the production of bacteria metabolites. Gut dysbiosis is believed to generate metabolic disorders with decreased production of neuroprotective factors, increased pro-inflammatory cytokines, production of neurotoxins, and a misdirected immune response. Metabolites produced by an altered microbiota seem to enter the circulation and affect neurological function. Braak's hypothesis postulates that aberrant accumulation of α-synuclein (αSyn), a central component of the pathophysiology of Parkinson's disease (PD), begins in the intestine and propagates through the vagus nerve to the brain, given that αSyn inclusions previously arise in the enteric nervous system and glossopharyngeal and vagus nerves, and vagotomized individuals have reduced risk of PD.
Conclusion: The identification of the microbiota or its altered metabolites may serve as biomarkers, or even drug targets for the treatment of diseases of the central nervous system. The microbiota can be modulated through antibiotic therapy, fecal microbiota transplantation, prebiotic supplementation, dietary interventions and many other potential methods.

MeSH terms: Movement Disorders, Microbiota, Neurodegenerative Diseases.
Key words: intestinal microbiota, dysbiosis, degenerative diseases.

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Neurological conditions caused by microgravity

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Background: Since Space Tourism is closer to reality, a review of the most prevalent neurological pathologies in microgravity is needed.
Objective: Review major neurological afflictions in astronauts.
Methods: Research into bibliographic reviews at PubMed, using the descriptors "*astronauts*" and "*neurological disorders*".

Results: Several neurological alterations, such as ataxy, intracranial hypertension (ICH), neuromuscular disorders, ocular disturbances and changes in cognitive functions were assigned to a microgravity environment. Astronauts returning from space presented ICH; being the main pathophysiology hypothesis referred to a change in the liquor dynamics as a result of venous drainage obstruction and hematoencephalic barrier. Also, gravity doesn't act on the neurovestibular system during space flights. This phenomenon can lead to Space Motion Sickness, situation in which astronauts report balance, coordination and sight disturbances, as well as movement illusions. A subset of this syndrome, called Space Movement Disorder, may occur; which includes symptoms, such as flushing, anorexia, nausea, vomiting, dizziness and malaise. Based on electromagnetic resonance, the occurrence of problems with movement time, balance, spatial working memory and motor coordination after the return of the space crew suggests alterations in cerebellum's function and structure, which is responsible for the coordination and the fine motor control.
Conclusion: Most studies presented disruptions of the neurofunctional homeostasis, for instance, changes in functional connectivity while in rest and alterations of the white and grey matter in sensor motor, somatosensory and cognitive regions of the brain.

MeSH terms: Nervous System Diseases, Weightlessness Simulation, Space Flight, Astronauts.

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Use of Mannitol and Saline Solution in the management of ICP in patients with Traumatic Brain Injury: Evidence of superiority?

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Background: Mannitol (MT) and Hypertonic Saline Solution (HSS) exert an osmotic effect by lowering Intracranial Pressure (ICP) in patients with Traumatic Brain Injury (TBI), but there are doubts as to which is more efficient.
Objective: Analyze the use of MT and HSS in the management of ICP in patients suffering from TBI.
Design and Settings: This is a literature review, produced by medical students from Bahia, Brazil.
Methods: The evaluated studies were obtained in PubMed, with MeSH terms, published since 1988. The studies that did not correspond with the purpose of this review were excluded.
Results: 34 of the 114 articles found, were selected. Observational and laboratory studies have shown an advantage in the use of SSH to reduce ICP and a longer duration of the effect in relation to MT. However, clinical trials and meta-analyzes do not show significant differences in relation to MT and SSH for reducing ICP, however they describe a slight preference for the use of SSH. As for side effects, MT mainly causes hemodynamic changes such as hypotension and SSH causes a significant increase in serum sodium concentration.
Conclusion: Although there are benefits to both the use of TM and SSH, there is a preference to use SSH for the management of ICP in patients with TBI. The studies were not enough to show superiority in relation to these solutions and new Clinical Trials must be carried out.

MeSH terms: Brain Injuries; Saline Solution; Mannitol.
Key words: Brain Injuries; Mannitol; Saline solution; PIC; Intracranial hypertension.

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Meningitis: etiological and outcome panorama in Brazil in the 2019-2020 biennium

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Background: Meningitis is the inflammation of the meninges. The outcome varies between etiologies. It is endemic in Brazil with mandatory notification.
Objectives: To analyze the number of diagnoses and outcomes of meningitis in Brazil in the 2019-2020 biennium. Design and setting: Cross-sectional epidemiological study using DATASUS database realized by Neurology department of the University of Passo Fundo.
Methods: Data from patients diagnosed with meningitis in the period from 2019 to 2020 were included, correlating them to the etiologies and their outcomes.
Results: There was a 70.8% reduction in the absolute number of diagnosed meningitis in 2020 (4,713) compared to 2019 (16,155). The most prevalent specified cause was "viral meningitis", corresponding to 49,1% in 2019 and 42% in 2020. There was no great variation in the percentage of etiologies. "Hospital discharge", corresponding to 76.8% in 2019 and 68% in 2020. "Death" was the outcome of 14.8% of patients in 2020 and 12.9% in 2019. The most related option to "Death from meningitis" was "Bacterial meningitis", responsible for 24% in 2020 and 21.3% in 2019. **Conclusions:** The number of diagnoses of meningitis fell in the 2019-2020 comparison. The context of under-diagnosis worries because it means late diagnoses and worse outcomes.

MeSH terms: Delayed Diagnosis, Outcome Assessment, Developing Countries
Key words: COVID-19, Unified Health System, Health Services Accessibility

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The role of Transcranial Doppler in the detection of vasospasm after subarachnoid hemorrhage: updates and new parameters

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Introduction: Transcranial Doppler (DTC) is useful in the evaluation of vasospasm after subarachnoid hemorrhage (SAH). Thus, it is important to know the accuracy and impact of this tool in the management of patients.
Objective: Analyze the use of DTC in the detection of vasospasm after subarachnoid hemorrhage and its clinical relevance.

Design and Setting: This is a literature review, produced in Bahiana School of Medicine and Public Health, Bahia, Brazil.
Methods: The evaluated studies were obtained in PubMed, published since 2010. The studies did not correspond with the purpose of this review were excluded.
Results: 26 of the 515 articles found, were select. Clinical studies that sought to demonstrate the accuracy of TCD in the detection of vasospasm and prediction of Delayed Cerebral Ischemia show high sensitivity and negative predictive value.There are studies that measure the accuracy of DTC in detecting angiographic vasospasm with high specificity. New parameters are emerging for the detection of vasospasm, even early. However, there are studies that demonstrate that the use of TCD does not favor the clinical outcomes of patients after SAH.
Conclusion: TCD has moderate-high accuracy and can help in the detection and management of patients with vasospasm. Nonetheless, there are studies that refute the relevance of TCD in HSA. Furthermore, there is a lack of concrete evidence, with larger studies, for the widespread use of this tool with greater reliability and precision.

MeSH terms: Transcranial Doppler; Cerebral Vasospasm; Subarachnoid Hemorrhage.
Key words: Delayed Cerebral Ischemia; Transcranial Doppler; Subarachnoid Hemorrhage

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SARS-CoV-2 infection in the development of peripheral neuropathies

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Introduction: Although respiratory symptoms are the characteristic findings of COVID- 19, this disease may also present with neurological manifestations, since SARS-CoV- 2 showed several degrees of neurotropism.
Objectives: To review the influence of SARS-CoV-2 infection on the development of peripheral neuropathies.
Methods: Integrative review carried out at PUBMED with the descriptors peripheral neuropathy, SARS-CoV-2 and COVID-19, and having as inclusion criteria full texts and in English in the period from 11/2019 to 05/2021. The selection has made among those compatible with the objectives of the work.
Results: Peripheral neuropathy was observed in less than 1% of patients with COVID-19. The virus can cause acute polyradiculoneuropathy regardless of pulmonary disease, and may occur due to dysregulation of the immune system caused by SARS-CoV-2. Systemic hyper-inflammation with macrophage activation syndrome has been proposed for patients with COVID-19. Such immunomediated manifestations typically occur after the decrease in the acute phase of disease. The most commonly reported symptoms in peripheral nervous system involvement are ageusia, anosmia, diplopia, facial nerve paralysis, polyneuritis, myasthenic crisis, musculoskeletal injuries, and neuralgia.
Conclusion: As soon as possible recognition of peripheral neuropathy may result in better clinical goals for patients and understanding these manifestations will contribute to the development of improved treatment. Although only a small percentage of patients with COVID-19 develop peripheral neuropathy, in a pandemic this can have a major impact.

MeSH terms: Peripheral Nervous System, COVID-19, SARS-CoV-2.
Key words: coronavirus, peripheral neuropathy, neuropathic.

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Economic impact of hospitalizations for migraine and other cephalic pain syndromes to the Brazilian Unified Health System

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Background: Headache disorders are the third most frequent complaint in ambulatory care facilities, leading to an important loss of healthy years of life. Thus, it is important to study the factors related to hospitalizations due to these syndromes in Brazil.
Objective: To describe the profile of hospitalizations due to migraine and other cephalic pain syndromes.
Design and methods: This is an ecological study, based on secondary data with a descriptive approach. Data were collected from DATASUS regarding the number of hospitalizations, days spent in hospital, average cost per hospital stay, total amount of expenses, besides sex and age of hospitalized pacients due to migraine and other cephalic pain syndromes from 2011-2020.
Results:78.058 hospitalizations were registered, with Southeast region's prevalence (35.7%). The female and the economically active population (15-64 years) stand out in these results (65.8% and 79.9% respectively). The average permanence was of 3.84 days in SUS and the average value per hospital stay was R$ 407.77. The total amount spent on hospital services was R$ 28,153,255.86.
Conclusion: The present study indicates a female and economically active population prevalence in hospitalizations. And also point out a Southeast

region's predominance in total amount of hospitalizations and second place regarding the costs on hospital services.

MeSH terms: Migraine Disorders; Health Care Costs; Hospitalization
Key words: Headache syndromes; SUS; Brazil

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Meningitis: etiological and outcome panorama in Brazil in the 2019-2020 biennium

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Background: Meningitis is the inflammation of the meninges. The outcome varies between etiologies. It is endemic in Brazil with mandatory notification.
Objectives: To analyze the number of diagnoses and outcomes of meningitis in Brazil in the 2019-2020 biennium.
Design and setting: Cross-sectional epidemiological study using DATASUS database.
Methods: Data from patients diagnosed with meningitis in the period from 2019 to 2020 were included, correlating them to the etiologies and their outcomes.
Results: There was a 70.8% reduction in the absolute number of diagnosed meningitis in 2020 (4,713) compared to 2019 (16,155). The most prevalent specified cause was "viral meningitis", corresponding to 49,1% in 2019 and 42% in 2020. There was no great variation in the percentage of etiologies. "Hospital discharge", corresponding to 76.8% in 2019 and 68% in 2020. "Death" was the outcome of 14.8% of patients in 2020 and 12.9% in 2019. The most related option to "Death from meningitis" was "Bacterial meningitis", responsible for 24% in 2020 and 21.3% in 2019.
Conclusions: The number of diagnoses of meningitis fell in the 2019-2020 comparison. The context of under-diagnosis worries because it means late diagnoses and worse outcomes.

MeSH terms: Delayed Diagnosis, Outcome Assessment, Developing Countries
Key words: COVID-19, Unified Health System, Health Services Accessibility

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Study of the prevalence of Frank's sign in a general population

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Background: Frank's sign is a diagonal crease in the earlobe that extends from the tragus to the inferior-posterior auricle's edge. Described as a predictor of cardiovascular diseases (CVDs), it was considered an independent cardiovascular risk factor (CRF) and associated with cerebrovascular events and cognitive impairment (CI).
Objectives: To assess the prevalence of Frank's sign in a general population aged 60 years or older regardless of the presence of CRFs and to relate the presence of this sign with epidemiological and clinical aspects. Design and setting: This is an analytical, observational and cross- sectional study accomplished in ABC Region and in Itapecerica da Serra (Greater São Paulo).
Methods: 500 individuals aged 60 years or older randomly recruited had their ears photographed, responded to either Mini Mental State Examination or Montreal Cognitive Assessment depending on education achievement.
Results: 57% were women; 57% were white, 39% black and 4% asian; 64% had the sign; Frank's sign was associated with dyslipidemia and almost with hypertension, but not with cardiovascular events or CI.
Conclusions: 1. Frank's sign was more prevalent in older people, in the white population and, for the first time, in women. 2. There is a pattern in the sign prevalence in Greater São Paulo, which differs from the international one. 3. Frank's sign seems to be a marker for CV risk, but not for previous CV events. 4. There was no association between Frank's sign and CI. 5. Prospective studies could assure whether this sign is a marker for CVDs in this population.

MeSH terms: Ear auricle, Prevalence, Aging, Cardiovascular diseases, Cardiovascular risk factors.
Key words: Frank's sign, Diagonal earlobe crease, Epidemiology.

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Peripheral nerve biopsy: Is it still important for the early diagnosis of neural leprosy?

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Background: The early recognition of neural impairment in leprosy represents a challenge in clinical practice and peripheral nerve biopsy may be required for diagnostic.
Objective: Characterize the epidemiological, clinical, electroneuromyographic, laboratory and histopathological aspects of patients undergoing peripheral nerve biopsy during investigation of primary neural leprosy.
Methods: 104 patients with peripheral neuropathy, referred to a national reference center leprosy, were biopsied. All patients had clinical evidence of peripheral neuropathy associated with the absence of skin lesions and were being investigated.
Results: Of 104 biopsied, leprosy was confirmed in 89.4%. 66 were classified as primary neural leprosy and 27 as neural relapse or reinfection. All cases confirmed presented asymmetric neural impairment with predominance of sensory symptoms (88.2%), followed by muscular weakness and/or amyotrophy in 44.1% and pain in 34.4%. Neural thickening of one or more nerves was observed in 78.5% of the patients. The biopsied nerves were: ulnar (67.8%), superficial fibular (21.5%), sural (8.6%), radial (1.1%) and deep fibular (1.1%). 29% presented histopathological abnormalities and 4.4% acid fast bacilli. Nerve and superjacent skin qPCR were positive in 49.5% and 24.8% of cases, respectively. The patients with multiple mononeuropathy presented higher

frequency of neural thickening (p<0.0001) and histopathological abnormalities (p=0.0077), but lower rates of positivity of ELISA anti-PGL-I (p=0.0100), qPCR in the peripheral blood (p=0.0157), and in the slit skin smear (p=0.0032).
Conclusions: Peripheral nerve biopsy is an important tool in the investigation of primary neural cases, contributing to the early diagnosis and reducing diagnostic errors and the need for empirical treatment.

MeSH terms: Mycobacterium leprae, Early diagnosis, Peripheral Nervous System Diseases.
Key words: Leprosy Relapse, Nerve Biopsy, Primary Neural Leprosy, Electroneuromyography.

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Headache Prevalence in a Specialized Center

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Background: Headache is the most frequent neurological complaint in the population and the group of tension-type headaches (TTH) is the most prevalent subtype. Nevertheless, more information about the clinical features of headaches in patients attended at specialized centers are demanded.
Methods: Cross-sectional, descriptive study. Data from patients referred to an outpatient specialized headache center from 2018 to 2019 were analyzed and clinical and epidemiological information was collected. This study was authorized by the research ethics committee of the HUUFJF (CAAE 03530818.9.0000.5133).
Results: Data from 153 patients were assessed. The mean age of patients was 45,6 years and most cases were women (80,4%). The most frequent diagnosis were migraine (49,7%), TTH (22,8%) and temporomandibular disorders (8,5%). The prevalence of chronic headaches was 46,6%. Analgesic abuse was identified in 32% of participants, with a higher prevalence in women (Fischer's exact test, P=0,05). Prophylactic treatment was used by 84,3% of the subjects. Pain was self-reported mild in 21,6% of cases, moderate in 30,1% and severe in 47,1%. The pain severity was inversely proportional to age (P=0,012). The most frequent associated symptoms were photophobia (57,5%), phonophobia (56,9%), nausea/vomiting (47,1%).
Conclusions: The findings show important differences in the prevalence of headache cases in specialized centers compared to the general population. Given the high prevalence of analgesic abuse reported, the development of effective educational programs for patients and healthcare providers at primary and secondary health services, might reduce the social burden of chronic headaches and decrease the demand for consultations on specialized headache clinics.

MeSH Terms: Headache; Prevalence; Migraine disorders.
Key words: Chronic Headache; Public health; Analgesic abuse.

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Man-in-the-barrel syndrome as a neurovascular manifestation after cardiac surgery: report of two cases

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Context: The Man-in-the-barrel syndrome is characterized by brachial diparesis with preserved lower limb strength. This syndrome is an uncommon presentation of ischemic stroke. Cardiac surgery with or without cardiopulmonary bypass (CPB) favors hemodynamic and embolic mechanisms of stroke.
Case reports: Case 1 - A 51-year-old hypertensive male presented acute bilateral upper limb weakness in the immediate postoperative period of surgical correction of atrial septal defect. CPB was not performed. Neurological examination showed grade III brachial diparesis with right-sided central facial palsy. Brain magnetic resonance imaging revealed diffusion restriction in the right pre-central gyrus, right occipitotemporal junction, and in the left perirolandic area. Case 2 – A previously healthy 53-year-old man presented grade III brachial diparesis with left-side central facial palsy in the immediate postoperative period for correction of Stanford type A aortic dissection. Surgical procedure included a synthetic tube, aortic valve repair, and 116 minutes of CPB. Brain magnetic resonance imaging showed diffusion restriction in the centrum semiovale bilaterally. None of the patients had significant stenosis of intracranial or extracranial vessels in the angiographic studies. Both patients had good recovery of upper limb function with rehabilitation. We believe that hypoperfusion associated with cardiac surgery led to watershed cerebral infarction.
Conclusions: The Man-in-the-barrel syndrome is a rare complication of cardiac surgery. This clinical presentation is associated with watershed stroke.

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Chronic inflammatory demyelinating polyradiculoneuropathy induced by paclitaxel

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Background: Peripheral neuropathies in cancer are most often due to neurotoxic chemotherapeutic agents. Approximately 30% of patients receiving neurotoxic chemotherapy (CTX) will suffer from chemotherapy-induced peripheral neuropathy (CIPN). Paclitaxel is an extremely effective chemotherapeutic agent for the treatment of breast, ovarian, and lung cancer. However, paclitaxel-induced peripheral neuropathy occurs in 59-87% of patients who receive this drug. Paclitaxel is an anti-tubulin drug that causes microtubule stabilization, resulting in distal axonal degeneration, secondary demyelination and nerve fiber loss.
Case: We present a case of a 68-year-old female patient with history of breast

cancer who presented sensorial ataxia and progressive muscle weakness two months after starting CTX with paclitaxel. The physical examination showed tetraparesis with proximal predominance, areflexia, severe hypopalesthesia and postural instability. Electroneuromyography showed the existence of asymmetric demyelinating polyradiculoneuropathy, with conduction block and temporal dispersion in practically all evaluated nerves. The cerebrospinal fluid confirmed the albumin-cytological dissociation. Chronic inflammatory demyelinating polyradiculoneuropathy (CIDP) was confirmed and patient underwent monthly treatment with methylprednisolone with good response.
Discussion: Evidences has implicated neuroinflammation in the development of PIPN. While most CTX drugs do not cross the blood-brain-barrier, they readily penetrate the blood-nerve-barrier and bind to and accumulate in dorsal root ganglia and peripheral axons. CTX can induce neuroinflammation through activation of immune and immune- like glial cells. In fact, immune cells (e.g., macrophages, lymphocytes) and glial cells (e.g., Schwann cells) in the peripheral nervous system play important role in the induction and maintenance of neuropathy.
Conclusion: CIDP should be included in the spectrum of CIPN.

MeSH terms: Polyradiculoneuropathy, Chronic Inflammatory Demyelinating, Paclitaxel, Antineoplastic Agents, Peripheral Nervous System.
Key words: Electroneuromyography, Neuroinflammation, Demyelinating.

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New approaches for Alzheimer early detection

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Background: Alzheimer's disease (AD) is neurodegenerative and complex, characterized by the progressive loss of neurons, causing cognitive deficits. It's the leading cause of dementia in the elderly, affecting about 35.6 million people worldwide. The high costs of invasive diagnostic techniques have limited early detection and intervention.
Objectives: This review approached some new non-invasive diagnostic techniques involved in AD.
Methods: The descriptors used were "Alzheimer's Disease", "Biomarkers" and "Early diagnosis". PubMed database was used during the period of 2016-2021. Articles not related to the proposed theme were excluded, leaving 4 articles.
Results: In the last few years, great advances have been made in diagnosing AD, such as brain NMR, CSF biomarkers, Pittsburgh compound B and brain PET scan. Beta-amyloid proteins (βA) and TAU in CSF are the only available markers for AD diagnosis in the clinic. The main limitations are early detection, differential diagnosis and progress disease report. Salivary biomarkers are being studied as a simple non-invasive diagnostic tool, with βA1-42/1-40 and pTAU being the most investigated in AD. Acting as a window on the brain, the retina can reflect the pathogenesis of the brain, with a focus on neurodegeneration and microvascular changes measured using optical coherence tomography technologies.
Conclusions: Several criteria have been proposed for the diagnosis of AD, including biomarkers, biological fluids and brain changes detectable by imaging.Early detection of AD is vitally important, as it'll allow patients to receive adequateand individualized information, care and support.

MeSH terms: Alzheimer's Disease, Biomarkers, Early diagnosis.
Key words: Alzheimer, Therapies, Interventions.

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Cerebrovascular diseases mortality in young adults in the state of São Paulo

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Background: The incidence of Cerebrovascular Diseases (CVD) increases significantly
with age, being more frequent in the elderly. For this reason, there are still few studies that describe the epidemiological profile of these pathologies in youn g adults.
Methods and Objective: From the data collected prospectively and allocated on the TabNet platform (DataSUS, MS), an observational, descriptive and cross-sectional study was carried out. As a primary objective, we seek to describe the demographic information most associated with CVD mortality in individuals between 20 and 49 years old, in São Paulo.
Results: The year 2011 emerged in relation to mortality, with 1,432 deaths; in the 2010- 2019 period, the average number of deaths (± standard deviation [SD]) was 1,318 (± 61), per year. In this period, the number of deaths was higher in the capital (4,605; 34.9% of the total in the state). The mean deaths (± SD), per year, in the capital and in the interior cities were, respectively: 442 (± 58) and 2.4 (± 6.2). People with schooling from 4 to 7 years old and from 8 to 11 years old were the most affected. The ratio of male deaths to female deaths was 1.05.
Conclusion: There is relative stability in relation to mortality per year among young adults
in the state of SP, the capital being the city with the highest number of deaths. Male individuals, with a medium level of education were responsible for most of the deaths.

MeSH terms: Mortality; Cerebrovascular Disorders; Aged.
Key words: Cerebrovascular Diseases; Mortality; Young Adults

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The use of new anticoagulants in cerebral venous thrombosis

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Background: Cerebral venous thrombosis (CVT) is still documented as a rare disease that affects less than 1% of the population, mainly young women. Symptoms are nonspecific, easily confused with less severe pathologies, with a primary focus on headache, which requires attention and knowledge from professionals. The diagnosis is made possible by the use of complementary exams, when the diagnosis is made early, it is of high recovery. In case of late diagnosis or incorrect treatment, the sequelae may be irreversible.
Objectives and methodology: to analyze the use of new anticoagulants (NOACs) in relation to treatment with warfarin in cases of CVT, through narrative review. Studies from the years 2015-2020 were used in the following databases: Pubmed, Scielo and Medline.

Results: Studies from the last 5 years, composed mainly of case reports and multicentric analyzes, report non-inferiority of the outcome when treatments are compared or better outcome with NOACs due to the lower risk of bleeding. However, the European Stroke Organization in its last guideline (2017) does not recommend the use, especially during the acute phase.
Conclusions: CVT can affect patients of various ages, so knowledge of the best therapy is essential. Currently, the use of warfarin and heparin is still recommended for acute cases, assessing the risk of complications such as bleeding. In view of the possible safety of new anticoagulants in view of the risk of hemorrhagic complications, further studies of non-inferiority in relation to warfarin are necessary so that the best approach is employed for these patients.

MeSH terms: Sinus Thrombosis. Thrombosis Lateral. Sinus Thrombosis. Intracranial Thrombosis. Anticoagulants.
Key words: Novos anticoagulantes orais. NOACs. Trombose venosa cerebral. Cefaleia. Anticoncepcionais. trombose intracraniana.

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Cerebrovascular diseases mortality in the elderly in the state of São Paulo

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Background: Cerebrovascular disease (CVD) is the world 2nd death cause and the main cause of disability. Nevertheless, there is a lack of information regarding the mortality profile for this etiology in the last decade.
Objective and Methods: Using prospectively collected data available in TabNet (DataSUS) platform, a descriptive and cross-sectional study was conducted. The primary objective is to access the demographic information most associated with DCV mortality in individuals older than 50 years-old, in São Paulo (SP), from 2010 to 2019.
Results: The highest mortality in the state of SP was in 2019 (16,945 deaths), according to the growing trend; in the 2010-2019 period, the annual mean by city of deaths (± standard deviation [SD]) was 14,885 (± 1,341). During these years, the number of deaths was higher in the municipality of São Paulo (57,013; 31%). The annual mean deaths (± SD) in the capital and in the interior cities were, respectively: 4,684 (± 269) and 31 (± 58). The age groups from 70 to 79 years and over 80 years were the most affected. Caucasian race represents 71% of deaths. Individuals with 1 to 3 years of school were more affected (38%). The ratio of male deaths to female deaths was 1.02.
Conclusion: In the last decade, there was an increasing mortality by CVD among the elderly population, and the city of São Paulo leads the number of cases.

MeSH terms: Mortality; Cerebrovascular Disorders; Aged.
Key words: Cerebrovascular Diseases; Mortality; Elderly.

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Proposal for use of OnyxR device in patients with spinal cord injury

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Background: Spinal cord injury (SCI) is currently a global epidemic, with motor and respiratory sequelae; the latter represents the major cause of death and readmissions in individuals with SCI. There are no established protocols regarding the safety and effectiveness of respiratory techniques for the management of these complications after SCI.
Objectives: To propose a physical therapy intervention protocol using the Onyx^{R} device for the management and prevention of respiratory complications in the chronic phase in individuals with SCI.
Design and setting: The study will be held at Acreditando (Neuromotor Center).
Methods: clinical trial (single-arm) for functional training of cough using the Onyx^{R} device to perform insufflation and exsufflation assisted on pressure manner, for 12 weeks, 1x / week, associated with the usual rehabilitation; following variables such as peak cough flow (PCF), spirometry, manovacuometry and functional SCI scales.
Results: The decrease in muscle strength in SCI along with postural changes contributes to ventilatory restriction; similar to the alterations seen in neuromuscular diseases, in which the auxiliary cough equipment is already well studied.
Conclusions: This protocol intends to verify the safety and effectiveness of the use of the Onyx^{R} equipment in individuals with SCI; training may lead to increased tidal volume, forced vital capacity and PCF, preventing future respiratory complications.

MeSH terms: Nervous System Diseases, Rehabilitation, Respiratory Function Tests.
Key words: doenças da medula espinal; terapia respiratória; traumas.

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COVID-19 and the central nervous system: what is more frequent?

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Background: In 2020, SARS-Cov-2 was identified as responsible for pneumonia in Wuhan and declared by WHO to be a pandemic. The action of SARS-CoV-2 with the angiotensin-converting enzyme 2 and the cytokine storm, can trigger acute cerebrovascular diseases, meningoencephalitis, arterial dysregulation and possible neurological consequences. With the involvement of the central nervous system (CNS), it is necessary to alert professionals to a possible increase in acute neurological cases and long-term follow-up.
Objectives and methodology: To analyze the occurrence of signs and symptoms related to the COVID-19 infection, seeking to establish the most common and the most serious ones, through narrative review.
Results: The symptoms related to the CNS were described in all the studies analyzed, with a higher occurrence of headache, altered level of consciousness, dizziness, myalgia, hypogeusia and hyposmia. Other quotes, to a lesser extent, were neuralgia and seizure episodes. Among the most worrying findings are cerebrovascular events, acute hemorrhagic necrotizing encephalopathy and Guillain-Barré syndrome. As for cerebrovascular diseases, ischemic injuries and venous thrombosis can occur, from asymptomatic cases to severe cases. The importance of pre-existing risk factors in the cerebrovascular outcome is highlighted.
Conclusions: Although the symptoms of primary infection are nonspecific and easily confused, CNS involvement can be fatal, citing cerebrovascular involvement as the most worrying finding. The occurrence of pre-existing risk factors should take the attention of the health professional, however, those who do not have them must also be carefully investigated from the signs and symptoms presented.

MeSH terms: SARS-CoV-2 infection. Central Nervous System. Cerebrovascular Disorders. Brain Ischemia.
Key words: COVID-19. SARS-CoV-2. Doença cerebrovascular. Sistema nervoso central. Meningoencefalite. Doença isquêmica.

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Relationship of selenium consumption and the improvement of cognitive performance in humans and animals: a systematic review

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Introduction: The aging process is characterized by morphological, physiological, biochemical and psychological changes that depend on the lifestyle. This process is the result of the accumulation of molecular and cellular damage throughout life, leading to a gradual decrease in physical and mental capacity, and greater chances of the development of pathologies such as the decline in cognitive function. Studies show that adequate consumption of foods containing selenium (Se) acts to inhibit the production of free radicals, reducing the damage caused by oxidative stress. Therefore, the aim of this study was to investigate the relationship between selenium consumption and the maintenance of cognitive function.
Methods:A systematic review of scientific articles was carried out to analyze the relationship between Se consumption and cognitive function in the elderly. The identification of the articles was carried out in the electronic databases Pubmed, MEDLINE and LILACS, by two independent researchers. In all databases, the search was performed using the
Results: The search resulted in 270 studies, however, applying the inclusion and exclusion criteria, eight articles were selected.
Conclusion: We conclude that an adequate intake of Se must be indicated in order to maintain the brain function. In summary, the articles discussed in the presente study show a high relation of Se consumption and the improvement of cognitive performance, both in humans and in animals.

Key words: "Selenium" and "Aged", together with the keywords that took turns with each other: "Cognition", "Memory" and "Learning".

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Analysis of hospitalizations and deaths by epilepsy in the years of 2010 to 2019 in Brazil

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Backgroud: Epilepsy is a chronic, recurrent disease, characterized by paroxysmal changes in intellectual, sensory, motor, autonomic or affective activity, with limited time.
Objectives: To analyze cases of hospitalizations and deaths between 2010 and 2019 in Brazil.
Methods: Descriptive epidemiologic study using data from the Department of Information of the Brazilian Health System (DATASUS). The variables researched were: hospital admissions, death, brazilian regions, age group, gender and race. **Results:** It was accounted 196,351 hospitalizations, 52% in the Southeast, 25% in the South, 14.7% in the Northeast, 5% in the Midwest and 3.1% in the North. In relation to profile, the male gender (59.9%) constituted the majority. In the case of deaths, 12.723 males and 6.557 females were reported, of which 46,4% were white and 41,8% were brown race. Major part of the deaths, 41,9% happened in the Southeast. The most affected age group was between 40 and 49, with 20.5% of cases.
Conclusions: Therefore, most hospitalizations and deaths occurred in men, aged between 40 and 59 years, of white race, residents of the Southeast region.

MeSH terms: Epilepsy, Nervous System Diseases, Epidemiology
Key words: Epileptiform, Brain Diseases, Seizure Disorder

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Neurobrucellosis mimicking primary vasculitis of the central nervous system: we should perform a metagenomic analysis of the cerebrospinal fluid prior to brain biopsy

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Context Primary angiitis of the central nervous system (PACNS) is characterized by the inflammation of small and medium CNS arteries; the clinical manifestations include headache, cognitive impairment and focal neurological deficits. The gold standard test for diagnosis is brain biopsy. Neurobrucellosis is an infection associated with cattle farming, which leads to neurological and psychiatric symptoms. We report a case of neurobrucellosis mimicking PACNS.
Case report Male, 32 years old, with fever, headache, dizziness and cognitive impairments for 30 days. History of stroke 2 years before, with mild sequelae right hemiparesis; investigation showed suspected intracranial dissection.
On physical examination, he had apathy, preserved strength, reduced reflexes with plantar flexor responses. General laboratory tests, autoantibodies and serology were normal. Brain MRI showed deep left nucleocapsular gliosis and cerebral angiography revealed stenosis of the ICA and MCA. CSF showed 42 cells/mm^3, glucose 46 mg/dL, protein 82 mg/dL. Blood PCR was negative for *Brucella*. Immunophenotyping of the CSF and PET-CT excluded neoplasia. Brain biopsy was inconclusive for vasculitis. Metagenomic analysis of the CSF detected 78% of *Brucella* genetic material. Serum agglutination test was 1:40 for brucella.
Conclusions PACNS is diagnosed by exclusion. The patient filled criteria for possible PACNS, image compatible with vascular stenosis, but inconclusive brain biopsy. Brucellosis is an endemic disease in underdeveloped countries that can present as CNS vasculitis. Metagenomic analysis allows the detection of different pathogens using a single method. The case illustrates the use of metagenomics in rare diseases characterized by vasculitis, with change in clinical outcomes and conduct.

MeSH terms: metagenomics, brucella, brucellosis, primary angiitis of the central nervous system
Key-word: neurobrucellosis, SNC vasculitis, brain biopsy

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Acute cerebellar ataxia associated with varicella zoster virus encephalitis

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Context: Varicella-zoster virus (VZV) primary infection causes a diffuse vesicular rash and affects mainly young people. VZV-associated encephalitis is a rare complication since the advent of vaccination, and can present as different neurological syndromes. This report aims to describe a case of acute cerebellar ataxia after VZV-associated encephalitis in a child, admitted to the Onofre Lopes University Hospital (HUOL) in Natal, Brazil.
Case report: We present the case of a 9-year-old girl referred to HUOL with polymorphic skin lesions for 8 days. She evolved with headache, vomiting, drowsiness and confusion. Upon admission, she was pale (+/4+), anicteric, confused (GCS=14), hemodynamically stable, SaO2=99%, with pupillary response and no meningism. Laboratory tests showed Hb 11.7g/dl, leukocytes 7,200/mm^3 (93% segmented, 1% eosinophils, 5% lymphocytes and 2% monocytes), AST 38U/ml and ALT 46U/ml. Once clinical diagnosis of VZV-encephalitis was made, the patient was admitted to the ICU for monitoring and treatment. Cranial CT showed hypodensities on the frontal and occipital lobes; CSF analysis: glucose=76mg/dl, proteins=24mg/dl, leukocytes=9/mm3 (monocytes 78%). She improved progressively and was transferred to the ward, evolving with ataxia, suggesting cerebellitis.
Conclusions: This case describes a chickenpox rare complication nowadays: encephalitis. Along evolution, the patient presented acute cerebellar ataxia, a more prevalent condition in children, usually having a limited course.

MeSH terms: encephalitis, chickenpox, ataxia.

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Effectiveness of riluzole in the treatment of amyotrophic lateral sclerosis

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Background: amyotrophic lateral sclerosis (ALS) is a motor neuron degenerative disease with high mortality and few therapies. One of these is riluzole, inspite of uncertainty effectiveness.
Objective: the aim of this study was to evaluate the survival rate associated with the use of this medication in the treatment of ALS.
Methods: The study was based on a narrative review of the scientific articles that used randomized controled trials with riluzole for ALS. We selected articles published in english during the period of January 1th, 2000 to December 31th, 2020. The MeSH terms "amyotrophic lateral sclerosis" or "motor neuron disease" and "riluzole" or "rilutek" were used in Pubmed and Lilacs databases. Studies that used only patients with advanced stage ALS were excluded. The t-Student test between sample means was applied to determine the significance of the difference between the survival time (years) of the riluzole and placebo treatment, for a 95% confidence level.
Results: through the search, four articles were obtained **(Table 1)**

	Patients	Survival rate after 1 year		Survival rate after 2 years	
		Riluzol	Placebo	Riluzol	Placebo
SÍVORI et al (2007)	97	59%	51%	10%	10%
FÁVERO et al (2017)	231	60%	47%	21%	13%
LACOMBLEZ et al (2002)	227	40%	30%	12%	8%
CETIN et al (2015)	911	75%	65%	48%	58%

Conclusion: Data analysis showed that riluzole is only effective in the first year. From the second onward, it does not exceed the results of the placebo.

Key words: neurodegenerative disease, Charcot disease, treatment

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Case report: Takotsubo cardiomyopathy in a patient with Alzheimer's disease

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Context: The Takotsubo cardiomyopathy (TTC) is an acute cardiac dysfunction, clinically similar to myocardial ischemia, more common in postmenopausal women and related to emotional stress.
Case report: A 71-year-old female patient, with Alzheimer's disease (AD), sought emergency care after severe chest pain. Electrocardiogram showed ST segment elevation in the anteroseptal wall. Physical exam: HR=108bpm, PA=126x78mmHg, SaO2=6%. Complementary exams showed a mild lesion in the middle third of the anterior descending artery, moderate impairment of left ventricular (LV) function by apical aneurysm without thrombi, mitral prolapse with mild reflux and an ejection fraction of 37%, suspecting of TTC.
Conclusions: TTC is defined as a transient, usually reversible and segmental LV dysfunction, configuring a differential diagnosis of acute coronary syndrome. An overactivation of the sympathetic autonomic nervous system can cause catecholamine toxicity to the heart. Although several studies show a lower emotional response capacity in patients with cognitive impairment, more recent studies suggest that this emotional responsiveness is not so affected by dementia. Therefore, patients with AD may be susceptible to developing TTC, both because of the multiple drugs that they are exposed, increasing catecholamine levels, and because of the disease itself, that represents a stressful context. Thus, TTC is often associated with emotional stress and should not be overlooked in patients with AD.

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Correlation between neuropsychomotor development and nutritional status of children from 13 to 30 months of age: a preliminar study

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Introduction: The knowledge about the impact of biological and socio- environmental factors on motor development is essential to generate subsidies to planning strategies to promote and prevent neuropsychomotor delays. The aim of this study was to assess the influence of nutritional factors on the neuropsychomotor development of children aged 13 to 30 months, through the correlation between neuropsychomotor development assessed by the Denver II test and the nutritional status calculated by the z score of BMI-for-age (z-BMI/A) and weight-for-height (z-W/H).

Methods: This study was carried out with nine children regularly enrolled in the Braziliand public education system.

Results: Based on the final interpretation of the Denver II test, a prevalence of 33% of children with atypical performance (2 male and 1 female) was found. Regarding to z-BMI/A, one child was characterized as overweight (1 male) and three children were at risk of being overweight (1 male and 2 female), based on z-W/H three children were at risk of being overweight (2 male and 1 female). The Pearson correlation test showed that there was a strong association between changes in the Denver II and the nutritional status.

Conclusion: The findings of the present study show that children classified as overweight and at risk of being overweight are more likely to be at risk for development, based on Denver test. Therefore, taking together the above findings, the present study reinforces the importance of evaluating and monitoring longitudinally both nutritional and motor development, highlighting the importance of multiprofessional performance and early approach.

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Hospitalizations for intracranial trauma in the metropolitan region of São Paulo, a clinical-epidemiological analysis

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Background: Intracranial trauma (IT) is an injury inside of the cranial box resulting from external forces, usually caused by automotive accidents, falls and violence, sometimes leading to permanent damage or death.

Objectives: Describe hospital admissions for IT in the metropolitan region of São Paulo (SP), based on ICD-10 morbidity list.

Design and settings: Epidemiological, descriptive and retrospective study.

Methods: Data provided from the Hospital Morbidity System (SIH-SUS) of the Ministry of Health, from January 2015 to December 2020.

Results: There were 65.455 cases of hospitalizations by IT registered in the metropolitan region of SP, which surpassed the cases of the North and Midwest regions. In 2020, there was a 5% reduction in cases compared to 2019. The amount spent represented 10.5% of the total spent in Brazil. Most of the hospitalization patients were male, and the most affected age group was 40-49 years. The lethality was 11.05% and higher in patients over 80 years-old.

Conclusions: It is essential to control IT's causing factors, since it engenders high costs, and it is a serious problem for the public health and economy, and for the victim's psychosocial context. The metropolitan region of SP requires special attention, once it shows higher rates of hospitalizations, morbidity, and mortality than any other brazilian state. Despite the social isolation in 2020, there were no significant differences between this year's records comparing to the other ones.

MeSH terms: trauma, nervous system, hospitalizations, mortality, public health.

Key words: intracranial, urban space, pandemics, injury, morbidity.

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Comparison of Early Interventions in the Prevention of Alzheimer's Disease in Patients with Down Syndrome: A Systematic Review

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Background: Down Syndrome (DS) is the most common chromosomal abnormality with an incidence of 1:700 live births. Alzheimer's disease (AD) affects almost all of these individuals from the age of 30, whose susceptibility is on the rise with increasing life expectancy. However, interventions can limit or improve cognitive decline.

Objectives: To compare early interventions in the prevention of AD in patients with DS.

Methods: Randomized Controlled Trial published in English, in the last 5 years, in humans, at PUBMED. Were included studies involving participants over 18 years old, diagnosed with DS and those with unclear interventions were excluded. Six articles were found and after applying the criteria, two studies were part of this review. The PRISMA scale was used.

Results: Ptomey et al. (2018) intervened with online exercise, selecting 27 participants divided into two groups: A) one session/week; B) two sessions/week. After 12 weeks it was observed that group B showed improvement in learning compared to group A. Sano et al. (2016) performed an intervention with Vitamin E (VE) for three years in 337 individuals, segregated in: A) 1,000 IU, orally, twice/day; B) placebo. There was no significant difference in the progression of cognitive, functional, behavioral and clinical deterioration between the groups.

Conclusions: The practice of physical exercise proved to be promising in the prevention of AD, however the use of VE did not show significant results. Further studies on the subject are needed.

MeSH terms: Down Syndrome; Alzheimer Disease; Early medical intervention.

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Therapeutic management of movement disorders present in Huntington's Disease: a literature review

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Background: Huntington's Disease (HD) is a hereditary neurodegenerative genetic disease with motor, cognitive and behavioral repercussions that interferes in several areas of the patients' lives. Therefore, to increase the quality of life for patients the therapeutic management of symptoms is necessary.
Objective: to elucidate the main forms of treatment that reduces motor disorders present in HD.
Methods: an integrative literature review was conducted using scientific articles published between 2016-2020 about this topic found in Pubmed and Google Scholar databases.
Results: the chorea treatment in HD can be done using Tetrabenazine, deutetrabenazine or antipsychotics. During a study by the Huntington Study Group (HSG), tetrabenazine proved its efficacy, however, due to several adverse effects, its use was reduced. Thus, deutetrabenazine was created, which consists in a tetrabenazine deuterated version, with a longer half- life and less adverse effects. Studies by the HSG found that besides reducing chorea, it also improves motor function in general in patients. Antipsychotics are used when the patient has behavioral and psychiatric symptoms that prevent him from using the other drugs. The dystonia treatment involves physiotherapy and botulinum toxin injections, which are also used in the bruxism therapy, along with mouth protectors. Abnormal gait and balance problems can be reduced with psychomotor rehabilitation, physiotherapy, and using a walker.
Conclusion: the control of HD motor symptoms is an important way to increase patients' quality of life. Therefore, more studies are necessary to expand the effective therapeutic options.

MeSH terms: Huntington disease; therapeutics; quality of life.
Key words: motor disorders; management; impacts.

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Carotid occlusion with stroke and asymptomatic contralateral intracranial internal carotid dissection in a young patient

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Context: Stroke is a considerable cause of morbidity and mortality nowadays. It is known the incidence, risk factors and etiology in mid-adults differ notably from older patients. When are young stroke patients, should investigate, besides traditional risk factors, a congenital heart disease, inflammatory and infectious causes, and the use of drugs to prevent new events.
Case report: A 29-year-old woman, white, with hypothyroidism and history of surgical resection of retinoblastoma at 3 years of age, with sequelae of bilateral amaurosis, admitted with a history of neurological deficit in the left hemibody, with progression in 14 days until complete left hemiparesis provided. The cranial tomography showed infarction in the territory of the right middle cerebral artery and arteriography showed occlusion of the right internal carotid and dissection of the supraclinoid portion of this artery.
Conclusions: While much is known about risk factors, pathophysiology and prognosis of extracranial arterial dissection, data are rare when it comes to the dissection of the intracranial portion of the internal carotid, no case was found that evidenced internal carotid artery occlusion of one side and contralateral dissection. The importance of knowing about the internal carotid dissection is the fact that this etiology is suspected when diagnosis young stroke patients.

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Clinical-enabled aspects after Neurotoxoplasmosis in a patient with immunosuppression: a case report

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Background: Neurotoxoplasmosis is an opportunistic infection caused by the protozoan Toxoplasma Gondii, frequent in patients with Acquired Immunodeficiency Syndrome who become immunosuppressed by the presence of the disease. It can be presented by one or more brain abscesses, encephalitis or ventriculitis.
Objectives: case report of a volunteer after neurological sequelae of neurotoxoplasmosis in order to highlight the relevant findings for a neurofunctional rehabilitation. Design and setting: This is an observational, cross-sectional case report type study conducted at the Clínica Escola de Fisioterapia of the University of Franca (UNIFRAN), with CEP approval (CAAE 83164918.2.0000.5495).
Methods: Female patient, 53 years old. In the physiotherapy sector, neurological evaluation of the components was performed: sensitivity, movement, tone, reflexes, motor coordination, balance and gait. Balance and gait were assessed using the Berg Balance Scale, the Standing and Walking Test and the Dynamic Walking Index.
Results: After clinical investigation, neurological toxoplasmosis infection was found in the right cerebral hemisphere. The physiotherapeutic evaluation showed the presence of left hemiparesis, the presence of spastic hypertonia, patellar and achilles hyperreflexia, the absence of fine motor skills and the presence of a reaping gait. The BSE result was 32 points, the TUG was 10.3 seconds and IMD was 20 points.
Conclusion: The compromises found have an impact on the functionality of the volunteer. This study emphasizes the valorization of neurofunctional physiotherapeutic semiology for a treatment proposal that promotes greater functional independence.

MeSH terms: neurotoxoplasmosis; immunosuppressed; physiotherapy.
Palavras-Chave: neuroreabilitação; infecciosa; imunossupressão; parasitária.

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Hearing Screening and Balance Assessment in Adults with a History of Cranioencephalic Trauma

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Background: Head trauma (TBI) is a public health problem. In the present study, we highlight the post-traumatic hearing disorders consequences of TBI because of the auditory and balance complaints are reported by patients with a history of TBI.
Design and setting: Cross-sectional observational study realized at Neurosurgery/Trauma at Hospital São Paulo and the UNIFESP Speech Therapy Department.
Objective: Perform hearing screening and balance assessment in adult patients after TBI.
Methods: individuals aged 18 to 60 years with a history of TBI of any degree for more than 06 months. Patients underwent to a medical history, they assigned two marks from 0 to 10 with the aid of a visual analog scale, the first referring to the pre-injury auditory aspects and the second from the post. Hearing screening was performed at frequencies of 1k, 2k and 4kHz with audiometer and earphones in a quiet room and the Romberg Classic and Sensitized and Time Up and Go (TUG) tests.
Results: The total sample was 34, of this 35,3% failed in the right ear and 38,2% in the left. For the results of static balance, in Classic we had 5.8% with positive result and in sensitized 5.9% positive with deviation to the right, 8.8% to the left, 8.8% to the front and 2, 9% with backward deviation. In the TUG, 23,5% presented alterations.
Conclusion: The performance of hearing screening and balance showed changes in patients after TBI, emphasizing the importance of these assessments in the context of the therapeutic planning of these patients.

Mesh words: Hearing, Brain, Traumatic

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Co-Vivências, a residence model for the elderly that integrates specialized care and family living for active longevity. "Neurology Startups"

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The institutionalization of the elderly is very strongly related to the diseases and complications associated with cognitive and functional impairment present in Alzheimer's disease, Parkinson's disease, other dementias, and stroke sequelae. The institutionalization of elderly people represents an aid to families. On the other hand, it has been a factor related to the worsening in cognition and functionality when compared to those who remain in their social environment and family life. The different modalities of long-term care facilities (LTCFs) for the elderly in Brazil contribute a lot to the split between care and family life. The present work aims to propose a new model of real estate development, linked to the provision of specialized care without the deprivation of family life and relationship and produce greater benefits in terms of maintaining cognition, autonomy, and independence among the elderly. The future developments proposed here will consist of buildings with apartments of varying sizes according to the needs of families, adequate accessibility, differentiated circulation to facilitate access and proximity of caregivers to the elderly and to reduce the physical distance of the elderly to the assistance and coexistence spaces. They will be equipped with assistance rooms for multiprofessional service and rehabilitation, areas for food, leisure and socializing among the elderly. The Startup will bring together real estate and construction companies, developers, investors and elderly care providers, and will be responsible for the projects, their execution and monitoring. The resources for the construction come from investors, the housing will be allocated to families with elderly people and other sources will come from the provision of care and services offered to the elderly by specialized companies. In addition to the benefits for the elderly and their families, the interaction between different economic sectors and dividend production is promoted.

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Epidemiological profile of hospitalizations for epilepsy in Northeastern Brazil

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Background: Epilepsy is a temporary and reversible change in brain function, which is not caused by fever, drugs or metabolic disorders, and its different symptoms may require hospitalization for seizure control.
Objective: To describe the epidemiological profile of patients with epilepsy hospitalized in Northeastern Brazil, from 2011 to 2020.
Design and setting: This is an ecological study placed in Northeastern Brazil.
Methods: Data were obtained from Brazilian Health Informatics Department - DATASUS (Hospital Information System). Epilepsy was the morbidity selected. Data were collected by year, age, sex and state and processed through Microsoft Excel.
Results: There were 108,804 hospitalizations for epilepsy in Northeast Brazil from 2011 to 2020 (mean annual: 10,880.4 ± 1,653.7). There were most hospitalizations for epilepsy in 2019 (12.7%, n=13,806) and the lowest in 2012 (8.1%, n=8,842). An increase was noticed from 2012 to 2019, followed by a 13.8% decrease in 2020 (n=11,803). Males were most hospitalized (58.7%, n=63,900). Children between 0 to 9 years (38.6%, n=41,998) were the most hospitalized, followed by 10 to 19 years (13.8%, n=15,025), whereas eldery aged 80 years or older were the least frequently hospitalized (3.6%, n=3,917). Bahia (27.7%, n=30,120) and Pernambuco (27.6%, n=30,037) showed the highest ratios of hospitalizations, while Sergipe recorded the lowest ratio (2.3%, n=2,499).
Conclusion: Hospitalizations for epilepsy in Northeastern Brazil from 2011 to 2020 were most frequently in males, aged 0 to 9 years, living in Bahia.

MeSH terms: Epilepsy. Hospitalization. Epidemiology.
Key words: Seizure control. Prevalence. Frequency.

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Effect of the bilateral Dynamic Ankle-Foot Orthosis on the spatio-temporal gait patterns of a child with chemotherapy-induced peripheral neuropathy

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Introduction: Peripheral neuropathy induced by chemotherapy (CIPN) is a highly prevalent and clinically relevant sequel in the treatment of childhood cancer, impacting the patient's functionality and also decreasing the quality of life, therefore, improvement in mobility and quality of walking are important goals during the rehabilitation process. The aim of this study was to compare the spatio-temporal gait patterns of a child with CIPN with or without the use of bilateral dynamic Ankle-Foot Orthosis.
Methods: This is a descriptive case study consisting of an gait evaluation of a female patient with CIPN, 09 years old, 1.39m and 35kg. The spatio-temporal gait patterns, 6- minute walk test and Timed Up and Go test were obtained using a wireless inertial sensor system.
Results: The obtained data in the 6MWT showed 160m of travelled distance, a speed of 0.55 m/s, a cadence of 94.9 steps/min and a stride length of 0.70m, compared to a travelled distance of 233.3m, a speed of 0.86 m/s, a cadence of 99.2 steps/min and a stride length of 104 m. The obtained data in the TUG test, showed that the participant used 24.37 seconds to complete the test without the orthosis and 18.54 seconds with the orthosis, changing to Semi-Independent to Independent classification, however, despite the improvement, the risk of falling was still considered high according to the values predicted by the software.
Conclusion: Thus, the use of dynamic orthosis for patients with CIPN can be beneficial to improve speed, endurance and decrease the physiological cost of walking. Future studies comparing the effectiveness of dynamic orthosis in a larger number of patients are needed to elucidate the findings exposed in the present study.

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Characterisation of nociception and inflammation observed in a traumatic muscle injury model in rats

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Introduction: Muscle pain is the most prevalent type of pain in the world, but treatment remains ineffective.
Objective: Therefore, this study characterised the nociception and inflammation in a traumatic muscle injury model in rats
Methods: A single blunt trauma impact on the right gastrocnemius muscle of male Wistar rats. Procedures were approved by the Institutional Committee for Animal Use of the Federal University of Santa Maria (#6579280218/2018). Animals were divided into four groups (sham/no treatment; sham/diclofenac 1%; injury/no treatment; injury/diclofenac 1%) and the topical treatment with cream of 1% monosodium diclofenac (applied at 2, 6, 12, 24, and 46 h after muscle injury; 200 mg/muscle) was used as an anti-inflammatory control. Nociception (mechanical and cold allodynia, or nociceptive score) and locomotor activity were evaluated at 26 and 48 h after injury. Also, inflammatory and oxidative parameters were evaluated in gastrocnemius muscle and the creatine kinase (CK) activity and lactate levels in plasma and serum, respectively.
Results: Muscle injury caused mechanical and cold allodynia, and increased nociceptive scores, without inducing locomotor impairment. This model also increased the inflammatory cells infiltration (seen by myeloperoxidase and N-acetyl-β-D-glucosaminidase activities and histological procedure), nitric oxide, IL- 1β, IL-6, and dichlorofluorescein levels in muscle samples; and CK activity and lactate levels in serum. The treatment with 1% monosodium diclofenac reduced inflammatory cells infiltration, dichlorofluorescein, and lactate levels.
Conclusion: In this view, we characterised the traumatic muscle injury as a reproducible model of muscle pain, which make it possible to evaluate promising antinociceptive and anti-inflammatory therapies.

MeSH terms: Rats; Hyperalgesia; Muscle Skeletal; Creatine Kinase; Analgesics.
Key words: Gastrocnemius muscle; pain; inflammatory cells; Allodynia; IL-6; diclofenac.

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Literature review of behavioral disorders after encephalic skull traumatisms

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Background: The traumatic brain injury (TBI) consists of a lesion in the skull region caused by an external force, which can cause sequelae in several clinical scenarios, with dysfunctions in the cognitive and behavioral spheres being one of the most disabling. These include: impaired memory, attention and concentration; slowing psychomotor speed and mental processing; in addition to personality changes.
Objectives: To understand the relationship between short and long-term cognitive impairments caused by traumatic brain injuries. In addition to analyzing the repercussion that these sequels bring to the patient.
Methods: This is a review of the literature in the PubMed, Scielo and UpToDate databases. Review articles, full texts, in the last 5 years, in humans were selected.
Results: Patients affected by trauma have more prevalent cognitive impairments in the spheres of attention and concentration, processing speed, memory and executive function. The severity of neurocognitive impairments depends on a variety of factors, including: aspects in relation to brain injury such as its extent, location, severity of the trauma, as well as variables such as age and pre-morbid personality characteristics. Associated with the above-mentioned alterations, biochemical alterations and accumulation of chronic neurotoxic proteins after TBI occur, which triggers biochemical processes of neurodegeneration in the long term.
Conclusion: It's clear that comprehensive neuropsychological assessments in each case of TBI are important to identify impaired and preserved functions, whether short or long term; thus allowing a better prognosis through rehabilitation programs and clinical and surgical therapeutic measures in emergency situations, usually involving fast decisions.

MeSH terms: Injury; Neurodegeneration; Skull traumatism.
Key words: Incapacidade; Neurocognição; Sequelas; Traumatismo.

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Monoclonal antibodies: a new trend for the treatment of Alzheimer's disease?

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Introduction: Alzheimer's disease (AD) is the main form of senile dementia. Most of the supposedly disease-modifying treatments in development are directed against the β-amyloid peptide, the administration of exogenous anti-Aβ monoclonal antibodies is a passive immunization strategy aimed at resolving the aggregation of this substance.
Objective: Analyze the effectiveness of monoclonal antibodies in the treatment of Alzheimer's disease.
Methods: This is a literature review, based on randomized clinical trials published between 2014 and 2021. The search was conducted in the PubMed database.
Results: According to the eligibility criteria, 10 articles were selected. Two of the randomized, double-blind, placebo-controlled phase III studies, one published in 2018 and the other published in 2016, evaluated the intervention with Solanezumab and Bapineuzumab, respectively. Both were not shown to be statistically significant (P = 0.10) for the outcome improvement of the score in the cognitive subscale of 14 and 11 items "Alzheimer's Disease Assessment Scale" (ADAS-cog14 / 11). However, in a phase II randomized placebo-controlled clinical trial, published in 2021, the use of Donanemab in patients with early Alzheimer's disease resulted in statistically significant cognitive and functional improvement (P = 0.04) for the outcome change in the scale "Integrated Alzheimer's Disease Rating" (iADR).
Conclusion: Although the use of Donanemab has resulted in cognitive and functional improvement, randomized, double-blind, placebo-controlled, phase III clinical trials need to be conducted to prove the efficacy and safety of its use in clinical practice. Other monoclonal antibodies evaluated did not demonstrate evidence of benefit.

MeSH terms: Alzheimer's disease, monoclonal antibodies, treatment.
Key words: Alzheimer Dementia, Senile Dementia, Immunotherapy, Monoclonal Antibody, Donanemab, Solanezumab, Bapineuzumab.

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Analysis of Postural Control of Patients with Functional Impairment After Hospitalization for COVID-19

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Background: Covid-19 associated with hospitalization results in damage to structures and body functions.
Objective: Analyze the postural control of patients with functional loss after hospitalization by COVID-19. Design and setting: Prospective cohort study that evaluated patients after 1 month of discharge from Clinical Hospital - FMUSP, São Paulo, Brazil.
Methodology: Functionality before and after hospitalization (Barthel Index), balance (Brief Balance*Evaluation Systems Test- BriefBESTest)* and postural control (Static Posturography - Horus®Platform) were evaluated and divided into two groups: functional impairment (FI) and without functional impairment (WFI). Independent T test and Mann- Whitney were applicated for groups comparison (p=0.05).
Result: 67 patients were evaluated. FI had 30 patients (44.7%) with a mean age of 62.8 (±10.7), 19 (63.3%) female and 11 (36.6%) male. WFI had 37 patients (55.2%) around average age of 57.7 (±11.6), 13 (35.1 %) female and 24 (64,8 %) male. There was a difference between groups in *BriefBESTest* (p=0.005) and the measurements of: trust ellipse (EC)-mm^2 and EC/Stability limit (LM) -% in Open eyes stable surface (OASE) (p=0.042 ; p=0.017), Open eyes unstable surface (OASI) (p=0.018; p=0.004) and Eyes closed unstable surface (OFSI) (p=0.004; p=0.002); Midlateral velocity (ML) in OASI (p=0.008); Functional residual balance in OASI (p=0.018) and OFSI (p=0.002); ML displacement and the anteroposterior of the maximum LM to the left (p=0.048; p=0.028).
Conclusion: There is a difference between the FI and WFI groups regarding balance and postural control. It is suggested to include evaluations and targeted interventions for balance improvement and postural control after hospitalization by COVID-19.

MeSH terms: Hospitalization, Patient Discharge, COVID-19, Rehabilitation
Key words: Balance, Postural Control, Physiotherapy.

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Progressive Multifocal Leukoencephalopathy following Daratumumab therapy for refractory Multiple Myeloma – a case report

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Context: PML is a dymyeliniating disease of the brain, caused by JC virus infection reactivation in immunocompromised patients, especially by AIDS, hematological disease and immunosuppressive therapies.
Case report: A 67-year-old woman was diagnosed with multiple myeloma (MM) in 2018 and use of bortezomib/cyclophosphamide/dexamethasone and thalidomide was ineffective. She underwent treatment with monthly daratumumab starting in January 2020. After one year, she experienced progressive amnesia, apathy and confusion. At admission, examination revealed apathy, monosyllabic communication and frontal release, progressing to mutism and abulia. T2 FLAIR-weighted MRI of the brain performed in March 2021 showed a hyperintense non-enhancing lesion affecting thalamus, internal capsule, lentiform and deep white matter of left lobes. MRI performed one month before symptoms onset showed a small lesion in subinsular region – indicating incipient involvement. Cerebrospinal fluid PCR was positive for JC viruses, and PML was diagnosed.

Conclusions: This report proves that concomitant hematologic and drug- immunocompromised patients presenting with neurological symptoms should be investigated for PML. There are few reports in the literature of PML occurring in MM, especially after use of daratumumab, an anti-CD38 monoclonal antibody. Recently, one small case series demonstrated some improvement in pembrolizumab (a checkpoint inhibitor)-treated PML, but no routinely therapy is recommended. Understanding severity of both disease, patient was discharged receiving conservative treatment.

Key words: JC Polyomavirus Encephalopathy; humax-CD38; Myeloma-Multiple

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Neurological manifestations associated with SARS-CoV-2 infection: a narrative review

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Background: Coronavirus disease (COVID-19), once identified, soon spread globally, becoming a pandemic. Although patients present mainly with respiratory complaints, several neurological symptoms have been reported. Symptoms range from headache and nonspecific dizziness to seizures and cerebrovascular disease (CVD). It has also been shown that the severity of the infection is directly proportional to the development of neurological symptoms, especially CVD and changes in mental status.
Objective: The present study aims to briefly review the neurological manifestations of COVID-19 and discuss the pathogenic mechanisms of Central Nervous System (CNS) involvement.
Methods: This is an exploratory narrative review with a descriptive approach, consisting of an active search for scientific articles in the PubMed database. The descriptors "coronavirus infections", "COVID-19" and "Nervous system" were used, with the Boolean operators "OR" and "AND". Eighteen articles of systematic review and meta-analysis were included.
Results: CNS manifestations included, among others: encephalitis, encephalopathy, consciousness decrease, headache, dizziness, acute myelitis, and stroke. As for the peripheral nervous system, skeletal muscle damage, chemosensory dysfunction, and Guillain-Barré syndrome were observed, with hyposmia being the most common symptom. CNS involvement may be related to a worse prognosis.
Conclusion: The clinical involvement of the nervous system in COVID-19 is not uncommon, and can result in several neurological complications, especially in the most critical patients. The pathophysiological mechanisms of these events still need further investigation. In the meantime, physicians should value extra-respiratory symptoms ranging from hyposmia, to potentially fatal manifestations, such as stroke and encephalopathy.

MeSH terms: COVID-19; SARS-CoV-2; Coronavirus / pathogenicity; Nervous System Diseases / virology; Humans.
Key words: Neurological manifestations; Headache; Stroke; Guillain-Barré syndrome; Seizures; CVD.

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Can depression be associated with the immune response

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Introduction: Depression is a disease of uncertain installation and etiology, the imbalance of neurotransmitters is involved in this process, and stress can be an activator of pro-inflammatory cytokines and trigger depressive symptoms. The organism undergoes modulations due to biochemical changes and these are linked to molecular and biochemical components and by the survival instinct, the human body is stimulated to release substances as a form of protection. The objective of this study is to describe the possible association between a loss of homeostasis of the central nervous system (CNS), changes in the modulation of the immune system, and the development of depressive symptoms.
Methods: This is an integrative literature review, available in the virtual health databases: PubMed, MEDLINE, SciELO, and Google Scholar published between the years 2010 to 2020.
Results: Studies indicate that cytokines can interfere with the homeostasis of the CNS and that the imbalance of catecholamines and indoleamine is involved in the process of depression. In this sense, studies have focused on neuromodulation by blocking neurotransmitters and neuroreceptors to regulate the immune system.
Conclusion: It's already established that the imbalance in the release and reuptake of neurotransmitters is associated with the onset of the depression, however, current studies show that there may also be an association with the homeostasis of the immune system. Therapeutic protocols aren't based on the correlation between the immune system and the onset of the disease, so furtherstudies are needed to strengthen this relationship.

Key words: Cytokine, Depressive disorder, Inatted inflamatory response

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Deep brain stimulation in the treatment of Parkinson's disease

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Introduction: Parkinson's disease (PD) is neurodegenerative and has bradykinesia, rest tremor, stiffnes and postural instability. These changes come from the degeneration of dopaminergic neurons. The treatment, carried out based on levodopa, provides improvements in the condition of the patients, however, they provide side effects. Based on this, the Deep Brain Stimulation (DBS) technique - stimulation of subcortical structures with electrodes - is a good treatment option.
Methods: A narrative review of the literature was carried out, using the PubMed database with the keywords "Deep brain stimulation", "Therapeutic use" and "Parkinson's disease". Included articles of meta-analysis, systematic review and review published in the last year.
Results: The DBS offers a significant improvement in motor symptoms, gait, postural instability, reduction in tremors and in their progression. However, DBS can offer risks to the patient. Comparing the effectiveness of DBS with other therapies for Parkinson's, such as levodopa/ carbidopa intestinal infusion gel (LCIG) and best medical therapy (BMT), it was found that BMT is botton. The cost-effectiveness comparison of these

techniques, showed that DBS is the most costly procedure. It stands out comparisons can have intrinsic biases, such as the conflict of interest with pharmaceutical companies.
Conclusion: DBS is a beneficial intervention for patients with PD who have important motor symptoms. Performed only in cases with indication, due to the possibility of complications.

MeSH terms: Parkinson disease; Neurosurgical procedure; Deep brain stimulation.

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Bilateral papillitis secondary to Neurosyphilis in an immunocompetent patient - Case report

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Context: Syphilis is a pleomorphic, insidious disease and an important differential diagnosis of ocular and CNS involvement. Its recognition and treatment are extremely important, given the high morbidity of its natural history.
Case report: A 79-years-old woman started bilateral, intermittent and progressive visual turbidity, evolving in 5 months with pain on eye movement and intense throbbing bilateral headache, worse on the right, plus photophobia, and poor painkillers response. After 3 months, she presented fleeting amaurosis and was admitted to our service. On examination: severe low visual acuity, relative afferent pupillary defect, red desaturation and papilla edema. In CSF: hyperproteinorrachia and negative VDRL. Prednisone 60mg/day was started due to papillitis. Blood analysis showed 1/8 reagent VDRL, with other serologies, tumor and rheumatology markers negatives. She received crystalline Penicillin for 14 days, obtaining remission of headache, papilla edema and improved visual acuity. After 12 days, the visual acuity worsened, so Penicillin was extended to 21 days with 7g of methylprednisolone. After 3 days, the patient recovers the visual acuity she had before.
Conclusions: The present study describes neuro-ophthalmological manifestation of syphilis in an immunocompetent individual. Although there is still controversy in the literature, in this case, high dose short-term corticoids was chosen, due to the severity of the loss of visual acuity, obtaining a favorable therapeutic response.

Key words: Symptomatic Neurosyphilis; Corticosteroids; Papillitis

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HINTS protocole and it's accuracy to identify posterior circulation stroke: a review

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Introduction: The HINTS protocol is important to differentiate peripheral from central vertigo in Acute Vestibular Syndrome (AVS). There are studies that show almost 1/3 of patients have posterior circulation stroke. It is important to investigate why this happens.
Objectives: Review the accuracy of HINTS test in the diagnosis of posterior circulation stroke.
Methods: Review conducted in PubMed using key words "HINTS AND ACCURACY AND STROKE". The search found 9 articles, 7 of which were included.
Results: Tehrani et al. (2014) studied HINTS's accuracy when associated with hearing loss, resulting on a bigger accuracy than MRI. Newman- Toker et al. (2013) found that HINTS score was superior than ABCD2 in identifying AVS caused by stroke. From Carmona et al. (2016), HINTS had 100 % sensibility and 94,4% specificity and emphasized ataxia evaluation's importance, once all patients with central etiology had a grade of ataxia. Krishnan et al. (2019) HINTS had 59,9% Negative Predictive Value (NPV) and 97,2 % Positive Predictive Value (PPV) related to stroke, same PPV was found by Sankalia et al. (2021). Ohle et al. (2020) observed that HINTS done by a neurologist was more accurate than studies that mixed neurologists and emergency physicians. Dmitriew et al. (2021) saw that HINTS was used wrongly in non-specific emergency departments, once only 3,1% patients tested had AVS and 96,9% wrongly tested had false positives.
Conclusion: The HINTS is a valuable instrument in the clinical use and the training for better practical application needs incentive in emergency departments.

MeSH terms: vertigo, stroke, Head Impulse Test, Pathologic Nystagmus, Skew deviation.
Key Words: HINTS, central vestibular disorders, ocular motor dysfunction, dizziness, stroke.

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Analysis of stroke treatment outcomes in hospital setting in Brazil, between the years 2010 and 2019.

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Background: Stroke is an important cause of death and is a major cause of serious disability in Brazil and in the world. Therefore, it is fundamental to analyze its treatment in the hospital setting in Brazil.
Objectives: To describe the progression of the stroke treatment in the hospital setting in Brazil between the years 2010 and 2019 and the outcomes associated to the disease.
Design and Setting: Transversal, retrospective and quantitative study, with secondary data collected in the Hospital Information System of SUS (SIH / SUS) between 2010 and 2019, in Brazil.
Methods: Data from number of hospitalizations for stroke treatment, mortality rate and average length of hospital stay were collected and analyzed. A comparison has been made between these data over the selected years.
Results: The number of hospitalizations for stroke treatment had a 16,83% growth between 2010 and 2019. In comparison, the average length of hospital stay was 7,7 days in 2010 and 7,6 days in 2019. The mortality rate had a reduction of 10,52% between these years.

Conclusions: Despite the growth of hospitalization to stroke treatment, there was a reduction in the average length of hospital stay and in the mortality rate associated to the procedure. It is possible to infer an optimization in the stroke lead in intensive care units in Brazil.

MeSH terms: CVA; Vascular Accident; Cerebrovascular Accident; Apoplexy
Keywords of the author: Stroke; Hospitalizations; Brazil; Outcomes; Mortality

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Neurological repercussions after COVID-19 in a young pregnant patient: a case report

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Context: Most patients with COVID-19 have mild respiratory disease, however, neurological manifestations have also been associated.
Case report: Female, 21 years old, 24 weeks pregnant, admitted with severe acute respiratory distress syndrome, by COVID-19. Evolved with respiratory failure. On the 14th day of hospitalization, fetal death occurred. After clinical stabilization, she started neurological symptoms, with altered state of consciousness, delusions, tremor in extremities, paresis in right dimidium and paresthesia in extremities. Nuclear magnetic resonance imaging showed numerous old micro- hemorrhagic foci, complemented with angio resonance and inflammatory activity evaluation, with embolic event and vasculitis ruled out. Electroneuromyography showed multiple mononeuritis. She recovered gradually, maintaining the tremor in extremities.
Conclusions: Neurological manifestations can occur both by viral cytopathic action and by systemic complications resulting from immunomediated phenomena. In a study carried out in the United Kingdom, by Varatharaj et al, with 125 patients with COVID-19 and neuropsychiatric disorders, the most observed conditions were cerebrovascular event (62%), altered mental status (31%), both present in the case and, in addition, encephalopathy (23%) and encephalitis (18%). The neurological manifestations observed in COVID-19 can affect both the central and the peripheral nervous system. This patient has multiple mononeuropathy, characterized by the involvement of two or more peripheral nerve trunks, with motor and sensory manifestations.

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Brain functional network alterations in patients with asymptomatic carotid disease

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Background: The best therapeutic approach to asymptomatic carotid stenosis (ACS) is still subject to discussion. Previous studies have agreed on the findings that ACS patients present with cerebral atrophy and cognitive decline compared to healthy controls. The present study aims to identify possible alterations in the brain functional network of such patients.
Objectives: Study alternations in the connectivity of the Default Mode Network (DNM) in patients with ACS of at least 70%, compared to controls.
Design and Setting: A cross-sectional case-control study was carried out at the Neuroimaging Laboratory at Hospital das Clínicas, Universidade Estadual de Campinas (UNICAMP) - Campinas, São Paulo (Brazil).
Methods: Two groups of 15 individuals matched by sex and age, the first composed ACS patients with stenosis and the second of healthy volunteers, were submitted to 3 Tesla magnetic resonance imaging. The images were analyzed using Statistical Parametric Mapping 12 and UF2C User Friendly Functional Connectivity Toolbox software. All patients signed the Informed Consent Form.
Results: ACS patients were 13 men and 2 women with an average age of 72 years. Regarding DMN connectivity, the control presented higher activity, particularly in the medial segment of the superior frontal gyrus.
Conclusion: ACS patients with stenosis higher than 70% displayed prejudiced cerebral connectivity compared to healthy controls.

Mesh terms : Carotid Stenoses; Default-Mode Network; diagnostic imaging
Key words: asymptomatic carotid stenosis; default-mode network; connectivity

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Beneficial effects of combined rTMS and physical rehabilitation for spasticity in multiple sclerosis

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Background: spasticity affects up to 90% of multiple sclerosis (MS) patients, being a major cause of disability. Repetitive transcranial magnetic stimulation (rTMS) appears to be a potential treatment, but literature is scarce.
Objectives: to evaluate the effects of combined rTMS and physical therapy for spasticity in MS patients.
Methods: relapsing-remitting MS patients suffering from lower limb spasticity were included. The rTMS protocol consisted of 20 sessions of 18 trains of 50 stimuli at 5Hz and at 100% of rest potential threshold, with 10 seconds per train and 40 second pauses, amounting for 900 pulses (15 minutes) with a Neurosoft- MS/D double coil. Optimal coil positioning was determined by motor responses in the contralateral soleus muscle. The physical therapy protocol included active exercising – stationary bicycle, step climbing with partial weight suspension – followed by mild gradual resistance exercising for knee extension and hip and foot flexion, proprioceptive exercises and active stretching. The primary outcome was improvement on the Modified Ashworth Scale (MAS) score at baseline and 4 weeks after treatment.
Results: five female patients were recruited. At the 4-week follow-up, 4 out the 5 patients had a significant improvement regarding spasticity. There was a reduction in mean MAS score from 2.30 to 1.42. Patient 1 had a MAS score reduction from 2 to 1 (50%). Patient 2 from 3 to 1 (66%), patient 3 from 4 to 3 (25%) and patient 4 from 0.5 to 0.125 (75%).

Conclusion: combined rTMS and physical therapy protocols presents as a beneficial treatment modality for MS spasticity.

MeSH terms: rehabilitation, multiple sclerosis, transcranial magnetic stimulation.
Key words: neurorehabilitation, spasticity, neuromodulation, non-invasive neuromodulation

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Clinical-epidemiological profile of the patient hospitalized with Dementia in the state of São Paulo

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Background: Dementia syndromes have a progressive and varied nature, causing cognitive and functional decay. Therefore, understanding the epidemiology of this disease is important for its screening.
Objectives: To present the patients hospitalized in the state of São Paulo clinical-epidemiological profile, between March 2011 and February 2021. Design and settings: Descriptive, retrospective, and quantitative epidemiological study.
Methodology: The data were collected in Sistema de Informação Hospitalares do Sistema Único de Saúde. The number of hospitalizations and mortality rate were analyzed, correlating them with sex, color, age group, care type, and year.
Results: In 6572 hospitalizations, there was no sex majority. 20.3% of the patients did not present information about color. Among the identified, the majority was white (66.2%) or brown (24.7%). Individuals older than 60 years represented 62.6%, with peak between 70 and 79 years old. White population had the highest mortality rates (7.85 ‰), followed by the black population (7.55 ‰). The mortality rate was higher among women older than 80 years. Mortality in elective care (11.6 ‰) was approximately 4 times higher than in emergency care (2.77 ‰).
Conclusions: The profile includes white and brown population, older than 60 years. Higher mortality rates in women older than 80 years may be related to their longer life expectancy. Higher mortality in elective care may indicate greater neurodegenerative diseases presence.

MeSH terms: epidemiology, dementia, mortality.
Key Words: profile, distribution, hospitalization.

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Atypical presentation of tacrolimus encephalopathy in a kidney transplant patient

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Context: Neurological complications triggered by tacrolimus in transplant patients can occur in a common way. Tacrolimus encephalopathy is a rare presentation. The present case follows atypical patterns of this disease, since it presented as aphasia, seizure and unusual radiological findings.
Case report: A 52--year--old female patient complaining of severe headache for 3 days, associated with difficulty in formulating phrases and confusion. She had a history of nephrolithiasis, kidney transplantation (2020), hypertension and diabetes, using tacrolimus, mycophenolate and prednisone. In the hospital, she had a global aphasia and episodes of generalized tonic--clonic seizures, being medicated with levetiracetam, phenytoin and acyclovir, maintaining good seizure control, but persisting aphasic. Brain MRI showed an extensive hypersignal in T2/FLAIR involving the left parieto-- occipito--temporal cortical subcortical region. CSF showed: protein 91 mg/dL, glucose 143 mg/dL and leukocytes 2 cells/mm^3. Negative infectious screening was performed in the CSF using FilmArray encephalitis/meningitis panel. Hypothesized an encephalopathy caused by tacrolimus we discontinued the medication and after 3 days, the patient had a significant clinical improvement, no aphasia and drastic reduction in the hypersignal extension. The patient was discharged from service using cyclosporine and prednisone.
Conclusions: Tacrolimus crosses the blood--brain barrier, having a direct action on the CNS. Encephalopathy triggered by its toxicity is capable of producing several radiological patterns. After discard infectious encephalitis, it is of utmost importance to consider tacrolimus--induced encephalopathy -- due to rapid clinical and radiological remission after discontinuing the drug.

MeSH terms: Aphasia; Tacrolimus; Radiology

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The Most Influential Papers in Infectious Meningitis Research: A Bibliometric Study

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Background: Bibliometric analyses allow detecting citation trends within a field, including assessments of the most cited journals, countries, institutions, topics, types of study, and authors.
Objectives: To perform a bibliometric analysis of the 100 most cited papers within infectious meningitis research.
Methods: The 100 most cited publications and their data were retrieved from Scopus and Web of Science during 2019.
Results: *The New England Journal of Medicine* had the greatest number of articles (27) and citations (12,266) in the top 100. Articles were mainly published after the late 1980s. Bacteria were the most discussed agents (72 articles and 26,362 citations), but Cryptococcus sp represented the most-discussed single agent (16 articles and 6,617 citations). Primary research represented 70 articles and 25,754 citations. Among them, the most discussed topic was Clinical Features and Diagnosis/Outcomes (22 articles and 8,325 citations). Among the 27 secondary research articles, the most common type of study was Narrative Review (18 articles and 5,685 citations). The United States was the country with the greatest number of articles (56) and citations (21,388). Centers for Disease Control and Prevention (CDC) and Yale University had the greatest number of articles (six each), being CDC the most cited (3,559).
Conclusions: The most cited articles within meningitis research are primary research studies, more frequently published in high IF journals and by North American institutions. Bacterial meningitis comprises the majority of publications. The articles were mainly published after the AIDS pan-

demic and after the implementation of the main vaccines for meningitis.

MeSH terms: meningitis, bibliometrics, research
Key words: bacterial meningitis, bibliometric analysis, neurology, infectious diseases

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Preliminary correlation between blood viscosity and pulsatility index in healthy population resident at high altitude (Cusco 3300 masl)

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Background: Viscosity affects flows by increasing resistance to movement, therefore, blood viscosity (BV) could modify the pulsatility index (PI).
Objectives: To determine the correlation between BV and PI.
Design and setting: A cross-sectional study was conducted in clinically healthy young adults residing in Cusco (a city located at 3399 masl).
Methods: A venous blood sample was taken to determine their BV levels, and a transcranial Doppler of right middle cerebral artery (R-MCA) was performed, with which the min, maximum and mean flow velocity (MFV), resistance and pulsatility indices (PI) were obtained. The BV levels were measured in centipoises (cP) using acone-plate viscometer at 40RPM. We present medians with interquartile ranges (IQR), the correlation was evaluated using the Spearman test.
Results: 42 participants were included, 25 women (60%), the mean age was 26.2±5.5 years. The median of BV was 5.08cP [IQR: 4.55-5.77cP], the MFV was 56 m/s [IQR: 49- 61 m/s], and the PI was 0.94 [0.85-1.02]. BV was positively correlated with PI (r:0.38, p=0.045) and negatively with MFV (r: -0.37, p=0.011)
Conclusions: The increase in blood viscosity has a small but significant impact on cerebral vascular resistance (PI) and its fluxes (MFV) in clinically healthy and young people. This could have a role in the pathogenesis of cerebral infarction in the elderly.The results presented here are preliminary and we intend to gather more data and increasing our number of participants

Mesh Terms: Altitude, Blood Viscosity, Cerebrovascular Circulation
Palavras-chave: Índice de pulsatilidade, Etiologia, Fluido não newtoniano

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Expansion of the phenotype in ALS19

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Context: Amyotrophic lateral sclerosis (ALS) is a progressive neurodegenerative disease that affects the upper and lower motor neurons. Most cases are sporadic, being 5-10% familial. Currently, more than 20 genes are described as causing familial ALS, with C9ORF72 and SOD1 the most common.
Case report: Woman, 42 years old, with progressive weakness in her left foot for 3 years evolving with difficulty walking. No family history. Neurological exam(NE): asymmetric stepagge gait. Asymmetric proximal, distal and axial muscle weakness and distal atrophy. Hyperactive reflexes. EMG: pre-ganglionic lesion in lower limbs with active denervation. Brain MRI: high signal intensity on left corticospinal tract. ALS genetic panel: c.3878G> A, heterozygois in *ErbB4*(OMIM*600543). CASE 2: Female, 55 years old, with parkinsonism for 2 years, evolving with muscle weakness, myalgia, dysphonia and dysphagia. After 7 months, respiratory failure and death. Family history: ALS and atypical parkinsonism. NE: Global amyotrophy, facial hypomimia, dropped head, fasciculations on the tongue. Bradykinesia. Plastic hypertonia in the 4 limbs. Proximal and distal weakness. Babinski sign on the right. Oculomotor apraxia. Dysarthrophonia. EMG: pre-ganglionic lesion in the 4 limbs. Brain MRI: global cortical atrophy with temporal predominance. Exome: pathogenic variant, in heterozygosis c. 2428G>A in *ErbB4*.
Conclusion: There are only 3 cases reported in the literature associated to pathogenic variants in this gene. We suggest an expansion of the clinical phenotype for ALS19.

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Internal Carotid Artery Dissection during Puerperium: A Case Report

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Background: Carotid or vertebral artery dissection is a rare puerperium event, occurring in less than 6% of cases. Although physiopathology is not completely understood, it is probably multifactorial involving increased cardiac output, hypervolemia and hormonal changes remodeling endothelium and favoring dissection. Most patients present headache and neck pain, but it is also reported Horner syndrome, tinnitus, retroorbital pain and cranial nerve palsies.
Case Report: Female, 39-year-old patient in the 20th day of puerperium presents a sudden headache with transitory left hemiparesis and dysarthria for 30 minutes. Magnetic Resonance Imaging (MRI) with angioresonance revealed an area of right middle cerebral artery (MCA) infarction and right internal carotid artery dissection in the cervical segment with a large intraluminal thrombus. The diagnosis was stablished as ischemic stroke caused by carotid dissection. Transcranial doppler presented post stenotic flow in the right MCA, flow inversion in the right anterior cerebral artery (ACA) and ipsilateral collateral circulation of the external carotid artery. After two months on double antiplatelet treatment (apirin 100mg and clopidogrel 75mg), it was partially recanalized and there was improvement in the collateral and hemodynamic pattern.
Conclusion: Puerperium pacients describing intense headache or neck pain should be investigated with MRI and angioresonance of intracranial and cervical vessels. In the cervical arterial dissection it is recommended double antiplatelet therapy, for three to six months.

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The heart of myofibrillary myopathy

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Context: Myofibrillar myopathies (MFM) represent a heterogeneous group of disorders of skeletal and cardiac muscle caused by mutations in genes that encode proteins of sarcomere. Diagnosis is a challenge due to clinical and genetic variability.
Case report: Woman, 36 years old, presenting stumbles and falls for 3 years evolving with proximal limb weakness. At age 30, she fainted and a cardiac pacemaker was implanted. Non-consanguineous parents. Neurological exam: proximal and distal weakness in lower limbs and distal atrophy; osteotendinous reflexes normal. Bilateral scapula *alata*. Exams: CPK = 457 U / l; EMG: myopathic pattern. Muscle MRI: diffuse and heterogeneous fatty degeneration, marked in sartorius, gracilis and semitedinous. Panel NGS myopathies: pathogenic variant, c.1175T> C, missense in heterozygosis in desmin gene.
CONCLUSION: The diagnosis of MFM is based on the morphological findings of muscle biopsy with the presence of protein aggregates as a determining factor. Currently, genetic testing by NGS has facilitated early diagnosis allowing for a more appropriate clinical approach. The desmin gene was the first one described to be associated with this group of myopathies. It encodes the desmin protein, a member of the intermediate filament family present in cardiac and skeletal muscle. Several phenotypes are related to desmin gene: isolated dilated cardiomyopathy; scapuloperoneal weakness and distoproximal weakness with cardiac alterations. Desminopathy is a rare cause of cardiomyopathy and / or myopathy. The diagnosis should be thought in patient with muscle weakness and cardiac changes.

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Prevalence of pain and fatigue in post-stroke patients: a study transverse.

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Background: Motor and functional recovery in post-stroke individuals is a process of interference from non-motor aspects such as pain and fatigue.The prevalence of these symptoms and their impact on the rehabilitation process need to bebetter understood and studied, mainly in the strategies for the construction of therapeutic approaches. *Objectives*: To analyze the prevalence of pain and fatigue in individual's post-stroke. *Design and setting:* Cross-sectional study that followed the STROBE recommendations. An outpatient clinic at UFRN / FACISA in Santa Cruz-RN institution. Approved by the Research Ethics Committee (Opinion No. 2,622,853).
Methods: One sample perconvenience, had 29 post-stroke individuals. The individuals were evaluated using the following clinical instruments: the Mini Mental State Examination (MMSE),Functional Independence (FI), Fulg-Meyer Scale (FMS), Sensory Assessment of Nottingham (SAN), McGill Pain Question (MOQ) and the Severity of Fatigue (SSF). The data were analyzed descriptively.
Results: Participants presented the following characteristics clinical: MMSE, 19 (median), (0(1ºQ)/24 (3ºQ)); FI, 80 (0/121); FMS, 36 (36/88); SAN, 108 (0/108); SSF, 9 (0/27). Thus, the prevalence of pain was 28% (8) and the fatigue was present in 76% (22) of the individuals.
Conclusions: We found a high prevalence of fatigue in patients with chronic stroke, however we did not find relationship with pain. Further studies are needed to understand these conditions and identify which factors contribute to the prevalence of such symptoms.

MeSH terms: stroke, pain, fatigue
Key words: cerebro vascular disease, body ache, weariness

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Proportion of male and female professionals in neurosurgery

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Introduction: The specialty of neurosurgery over time has become increasingly sought after. Even with the gradual increase in women specialists in neurosurgery, they are still represented by a very small number in comparison to the number of male neurosurgeons.
Objectives: Present the gender gap within neurosurgery.
Methods: This is a systematic literature review, with the search terms: "gender" AND "women" AND "Neurology" AND "Neurosurgery", resulting in 645 articles on the Pubmed, Lilacs, Scielo, Cochrane and TripDataBase search platforms. The inclusion criteria were: original studies published in any language. Published articles that prevented full access, as well as systematic reviews or not, were excluded. After applying the inclusion and exclusion criteria, 6 articles were included.
Results: The databases of the American Association of Neurological Surgeons (AANS) and American Board of Neurological Surgery (ABNS) revealed that women represent only 12.0% of residents in neurosurgery. Most of them left training in the first 3 years and remained in Medicine, looking for other specialties. In addition, the female conflict rate with the team was 17.0% compared to a 5.3% male rate. The low number of women in neurosurgical residency programs can result in a consequent decrease in female tutors, lack of rise in female professionals and non-adherence of medical students in residency programs.
Conclusions: The percentage of women in medicine has increased in recent years, however the number of women who pursue a neurosurgical career is still very small, when compared to the total number of neurosurgeon men.

MeSH terms: Gender Identity, Women, Neurosurgery.
Key words: Gênero, Mulheres, Neurologia, Neurocirurgia.

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The digital solution development process in health about the stroke

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Background: Stroke is one of main causes of morbimortality in Brazil, even though it has prevention and care strategies, showing need to improve strate-

gies[1]. Digital Health Solutions (DHS) can implement stroke prevention strategies, strengthening patient care and management[2].

Objective: To describe initial process of developing DHS with stroke theme (ST) based on public research.

Methodology: Cross-sectional study based on form with 12 questions, which outline a profile of users about DHS with ST. Form was aimed at people over 18 year-old who did not have an academic background in human health. Study carried out by the Google Forms® between January and April 2021.

Results: With 80 participants, 51.2% women and 48.8% men. 20% under 20 years, 73.8% between 20 and 40, 2.5% between 40 and 60, and 3.7% over 60 years. 62.4% seek knowledge about health from unofficial sources. 62.5% report they rarely seek health information. 67.5% do not have knowledge to detect stroke. Although 32.5% have a DHS on their phones, 97.5% consider it important to learn about stroke in DHS, and 83.8% are interested in it. 55% would use it to recognize a stroke, 25% to have prevention information, 8.8% to use it in urgency, and 11.2% marked three items. 85% never used DHS with ST.

Conclusion: Findings shows DHS with ST would educate in health and help people with suspected stroke. DHS would assist in creation of health promotion and stroke prevention.

Key words: Stroke; Neurology; eHealth Strategies; Health Information Interoperability; DigitalHealth.

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Neuroradiological markers of Vascular Cognitive Impairment after Stroke

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Background: Cognitive vascular impairment (CCV) is a frequent, but overlooked, possible consequence of stroke. Neuroimaging is essential for the evaluation of these patients with cognitive deficits supposedly secondary to vascular lesions, with Nuclear Magnetic Resonance (NMR) of the skull being the most sensitive method for identifying markers associated with CCV. The most relevant markers seem to be, among others, strategic location, severity of white matter changes, as well as the degree of atrophy of the medial temporal lobe.

Objective: To assess the relationship between stroke and CCV using markers from skull MRI.

Methodology: This is a systematic review of observational studies published between 2005 and 2020. The search was carried out in the PubMed and SciELO databases with the keywords consulted by the following MeSH and DeCS sites: "stroke", "MRI", "Vascular cognitive impairment", using the boolean operator "and". The PRISMA check-list was used to guide this review.

Results: According to the eligibility criteria, eight studies were selected. "Event location" was the marker in MRI of the skull most frequently considered, being the object of evaluation in seven of the eight studies analyzed and proving to be a statistically significant marker ($p < 0.05$) for the prediction of CCV in six of them. 75% of the studies included in this review evaluated the relationship between the presence of "hyperintensity in the white matter" at MRI and CCV. However, this marker was shown to be statistically significant in 50% of these studies.

Conclusion: A review that brought together the assessment of a wide range of possible neuroradiological predictors of CVD after stroke had not been carried out so far. It would be particularly useful to evaluate the markers in a more homogeneous way in a study with a larger sample size, which would allow quantitative analysis to measure the influence of each predictor.

MeSH terms: Stroke, vascular cognitive impairment, magnetic ressonance of the skull.

Key words: Acute Stroke; Cerebrovascular Accident; Cognitive Dysfunctions; Cognitive Decline; Neuroimaging; Brain Imaging.

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Clinical manifestations of chronic subdural hematoma in the elderly: Literature Review

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Introduction: The clinical manifestations of chronic subdural hematoma (CSDH) are often confused with other medical entities in the elderly, making their early diagnosis difficult or difficult. Early diagnosis is important, since its prognosis is directly associated with the preoperative neurological state, thus resulting in a worse vital and functional prognosis.

Objectives: Report through a literature review the clinical manifestations of CSDH in the elderly population.

Methods: Literature review, with the search terms: "Signs and Symptoms", "Chronic Subdural Hematoma", Aged, Diagnosis and Prognosis. In which PubMed, Lilacs, Scielo, Cochrane and TripDataBase data platforms were used. The inclusion criteria were: original studies published in any language. Articles in which full reading was prevented were excluded. With the application of the inclusion and exclusion criteria, 110 articles were included in the study.

Results: Clinical presentation depends on the location, volume of the hematoma, rapid growth, the location of the CSDH, whether unilateral or bilateral, and the clinical conditions of the patient. Because the forms of clinical presentation of CSDH are variable, it is necessary that health professionals linked to the elderly (geriatrician, psychiatrist, general practitioner) have knowledge of this clinical entity. **Conclusions:** The recognition of classic forms as well as the identification of risk factors in the elderly favors the timely diagnosis and treatment of CSDH in the elderly population.

MeSH terms: Aged; diagnosis; Hematoma, Subdural, Chronic; prognosis.

Key words: Diagnóstico, Hematoma Subdural Crônico, Idoso, Prognóstico, Sintomas.

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Multidisciplinary Care in Huntington's Disease: Case Report

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Context: Huntington's disease (HD) is a degenerative neurological disorder with autosomal dominant inheritance resulting from the loss of GABAergic neurons in the striatum. The prevalence of HD is 10.6 to 13.7 individuals per 100,000 in the Western population.
Case report: DRO is a 57- year-old female admitted to a Long-Term Care Facility in 2018 due to the diagnosis of Huntington's Disease (HD) four years ago. The patient presented right-side hemiplegia, choreic movements in the upper extremities, postural instability, dysarthria, visual hallucinations, behavioral changes, alert and communicative. During institutionalization, the occupational therapist, physical therapist and the speech therapist performed cognitive stimulation activities, motor physiotherapy with balance training, gait and muscle strengthening, interventions for dysarthria and dysphagia prevention. After a year, there was a disease progression with episodes of fall and deterioration of choreic movements, cognitive function and coordination; then, the physical therapist intensified motor rehabilitation and bracing in the left hand in the occupational therapy sessions due to the onset of deformities. In 2020, the patient reported stabilizing her clinical condition and continued the rehabilitation sessions.
Conclusions: Physiotherapeutic interventions demonstrated improvement in muscle strength and gait in HD patients. However, the results are heterogeneous due to the morbidity and phenotypic variety of the disease. The response to occupational therapy and speech therapy lacks previous studies on this disease. Thus, the multidisciplinary therapeutic approach is indicated due to its importance in the patient's overall assessment and prevention of comorbidities.

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The Covid-19 pandemic as a trigger for depression

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Background: In the last years, a high number of people with depression have been found and it's estimated that 5% of the world population lives with this disease. However, since the Covid-19 pandemic, there was a significant increase, which is justify by the fear of the virus, boredom of isolation and the uncertainty of the future due to the difficulties caused by the situation. In this scenario, understand this disease considered a public health problem is important, because health professionals may need to deal with a possible imminent new pandemic: the depression one.
Objective: To understand the impact of depression during the Covid-19 pandemic.
Methods: An integrative review was performed, through a virtual scenario, selecting articles from the last five years in the Pubmed, Scielo and Google Scholar platforms.
Results: Depression brings desmotivation, lack of energy and loss of pleasure in routine activities, besides feeling deep sadness, low self-esteem and a recurrent feeling of guilt. It's natural the population suffers from mood swings and that's why it's important to take care of mental health during the pandemic, like how to create a new routine and make it work, because the atypical situation has been the trigger for the first contact with psychiatric symptoms of many.
Conclusion: Fear, financial crisis and the lack of routine are risk factors, which may reflect on the behavior of the population. Understanding the trigger and being able to live with it's essential for the mental health.

MeSH terms: Covid-19, pandemics, depression
Key words: sadness, hopelessness, loneliness, discouragement, psychic suffering

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Fahr's syndrome as a differential diagnosis amid parkinsonian syndromes: a case report

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Context: Parkinsonian syndromes are routinely identified by neurologists. However, the differential diagnosis among probable etiologies can be challenging and complex. In Fahr's syndrome, calcifications of the basal ganglia secondary to disorders of calcium metabolism are observed. A possible clinical presentation associated with this entity is the presence of a parkinsonian syndrome.
Case report: A 54-years-old female patient presented with a progressive tremor in the right upper and lower limbs associated with bradykinesia. Seizures were observed during the course of the disease. After extensive clinical workup, primary hypoparathyroidism was diagnosticated along with the recognition of a mutation in the calcium activator gene. Computed tomography and magnetic resonance imaging of the head showed bilateral coarse calcifications in thalami and basal ganglia compatible with Fahr's syndrome. We began treatment for control of the underlying disease, as well as for symptomatic control of parkinsonism.
Conclusions: Different pathologies could justify the parkinsonian syndrome observed initially in the case described. Among them: Iidiopathic Parkinson's Disease, Multiple System Atrophy, Progressive Supranuclear Palsy. In our patient, the atypical evolution in a young woman led to the research of possible secondary treatable causes. A diagnosis of Fahr's syndrome related to hypoparathyroidism was unveiled. The differential diagnosis of Parkinson's Syndrome is broad and difficult. We must be aware of the possible atypical presentations due to the possibility of a secondary condition whose etiology could be effectively treated.

MeSH terms: Fahr's syndrome, Basal ganglia calcification, Parkinsoanian disorders.

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The effects of virtual reality on functional capacity at different stages of Parkison's disease

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Introduction: the use of virtual reality in Parkinson's disease is a very effective therapy, as it promotes important actions for the knowledge of the motor, stimulating neuroplasticity, through visual feedback.

Study design: This is a systematic review of the literature.
Objective: The objective of this study was to analyze the use of reality in the rehabilitation of functional capacity in the different stages of Parkinson's disease.
Methods: this is a systematic review, carried out from January to August 2017, by means of electronic search in the databases: Pubmed, Scielo, Lilacs, Science Direct and Medline. The descriptors used were: virtual, video game, Parkinson's, physiotherapy and rehabilitation and all the words in English. They were defined as inclusion criteria for studies that used virtual reality as treatment for patients with Parkinson's, classifying patients in stages (I, II, III, IV and V) according to the Hoehn & Yahr scale. Literature review articles, description of virtual reality without showing the sample of statistical results and case study were excluded.
Results: 7 articles were selected. After analyzing them, it was possible to observe that patients in the early stages showed improvement in perception, gait and balance. However, patients who were in other more advanced stages of the disease only improved their perception.
Conclusion: patients in the early stages of clinical Parkinson's disease have satisfactory results when compared to the advanced stages.

MeSH terms: Experimental Parkinson's diseases, physiotherapy modality, video game
Key words: Parkinson's disease, virtual reality, functional capacity

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Syndrome of one and middle of the vertical look: possible clinical entity associated with percheron artery ischemia: semiological and neuroanatomic aspects

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Context: The acute paralysis of the vertical gaze is usually caused by a mesencephalic lesion because the control of the vertical conjugated gaze is found there; there are three main structures: the rostral interstitial nucleus of the medial longitudinal fascicle (riFLM), the Cajal interstitial nucleus and the posterior commissure (CP). The riFLM, contains burst neurons responsible for the saccades, projecting to the subnuclei of the upper rectum and inferior oblique to look upwards and subnuclei of the lower rectum and superior oblique to look downwards. The projections for the elevators appear to be bilateral, with axons probably crossing within the oculomotor nuclear complex and apparently not via CP; depressors, on the other hand, are ipsilateral.
Case report: Female, 78 years old, hypertensive and diabetic, suddenly started with vertical diplopia and vertigo. Examination: Bilateral hypoactive photomotor reflex, bilateral paralysis of the vertical gaze upward, monocular paralysis downward and torsional nystagmus in the left eye. Resonance with restriction the diffusion of water molecules in both thalamus and in the right rostral midbrain.
Conclusions: riFLM is vascularized by the posterior thalamus-subthalamic paramedian artery. A single artery, Percheron's, provides both riFLM in 20% of the population and allows bilateral lesions from a single infarction. Unilateral infarction can also cause saccadic paralysis of the bilateral vertical gaze. The disjunctive disorders of the vertical gaze have two variants of the one and a half syndrome. One consists of bilateral paralysis of the gaze upwards and monocular paresis of the gaze downwards with an ipsilateral or contralateral lesion, described in thalamomesencephalic lesions, explanation for the exposed case. The other is due to bilateral mesodiencephalic infarctions. It is difficult to understand the relationship between topography and the vertical gaze circuit, showing that it is more complex than we imagine. It is probably an association of topographies, little described, but of paramount importance to be discussed and researched.

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Epidemiological analysis of traumatic brain injury in the Northeast region of Brazil

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Introduction: Traumatic brain injury (TBI) is characterized as an injury or functional damage to the brain caused by traumatic aggression, and is still considered a public health problem.
Objectives: To analyze the epidemiological profile of patients hospitalized due to TBI in the Northeast region of the country.
Methodology: This is a descriptive, epidemiological study, from January 2009 to December 2019, with data from DATASUS - Ministry of Health.
Results: Between 2009 and 2019 there were 299,001 hospitalizations and 30,257 deaths. With 73,133, a presentation from Bahia the highest number of hospitalizations and Pernambuco the highest number of deaths with 6,903 cases. The male gender had the highest number of hospitalizations (78.9%) and deaths (82.6%). Young adults, between 20 and 39 years old, accounted for 40% of hospitalizations and 37.5% of deaths, possibly due to sociocultural and behavioral characteristics. The highest mortality rate was registered in the elderly (21.5%). There was a predominance of brown race in hospitalizations (84.6%) and in deaths (85.5%). In the eleven-year period, there was an increase of 28% in the number of admissions by the TBI, and an increase of 94.7% in hospital costs. Only the state of Paraíba registered a reduction in hospitalizations and deaths due to TBI in the referred period.
Conclusion: There is a general worsening in the region, and it is important to formulate education and health policies to reduce TBI morbidity and mortality in the Northeast region of Brazil.

MeSH terms: Craniocerebral Trauma; Epidemiology; Hospitalizations; Mortality.
Key words: Traumatic Brain Injury; External Causes; Collective health; Preventionand control

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Leprosy: a view of the molecular interaction of Mycobacterium leprae with Schwann Cells

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Introduction: Leprosy is an infectious disease whose etiologic agent is *Mycobacterium leprae*. Despite its notoriety, there are mechanisms of molecular interaction that have not been elucidated. Therefore, it was carried out a literary review about the molecular interaction between *M. leprae* and the Schwann cell (SC), characterizing the mechanisms of endocytosis and cellular damage.
Methods: It was delimited a 10-year timeframe (2010 to 2020). The research bases used were Portal de Periódicos CAPES/MEC, National Library of Medicine - PubMed, World Health Organization (WHO) Statistical Data, Pan American Health Organization (PAHO), Ministry of Health of Brazil Data, Scielo, Fundação Oswaldo Cruz (ARCA-FIOCRUZ) and UpToDate Inc.
Results: *M. Leprae* is endocitized through interactions with basal lamina of the SC, whose α-laminin 2 enables the formation of the dystrophin-dystroglycan complex. Moreover, the activity of the pathogen in the SC is associated with direct, indirect and additional damage. It was verified the need for continuous studies due to the complexity of this molecular biointeraction, given the cellular reprogramming of SC and its neuronal impact.
Conclusion: There are still many scientific gaps, requiring further clarification in the area, which results in uncertainties in the tropism of the pathogen with the peripheral nerves.

Key words: Mycobacterium leprae; Schwann Cell; Leprosy; Peripheral Nervous System.

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Ischemic stroke with agraphestesia signal focus

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Introduction: The ischemic stroke is one of the main causes of death and disability in Brazil. Among the main risk factors are age, atrial fibrillation (AF), diabetes, dyslipidemia and physical inactivity. The main etiology of stroke is cardioembolic, resulting in obstruction of the cerebral arteries by a thrombus of cardiac origin. The artery most affected in ischemic strokes is the middle cerebral artery. The stroke has main characteristics, with emphasis on the sudden onset of symptoms, involvement of a focal area, ischemia caused by obstruction of a vessel and neurological deficits depending on the affected area. Graphesthesia is defined as a cutaneous sensory ability to recognize letters or numbers traced on the skin. The loss of this sensory ability is known as agraphesthesia.
Case Report: M.A.F.O. female, 78a, arrived at the UPA complaining of mental confusion. Patient denies previous stroke. Personal history of systemic arterial hypertension. Upon physical examination, the patient was conscious, self and disoriented and inattentive. He was able to repeat and evoke words, without measurable motor déficits. Left upper limb with agraphestesia. Computed tomography was requested, which showed an extensive hypodense area in the right parietoccipital region, which leads to the erasure of the furrows between the adjacent gyres, which may correspond to a recent ischemic event. Magnetic resonance imaging, diffusion-restricted area with correspondence on the ADC map, located in the right temporoparietal region inferring an acute ischemic event. An electrocardiogram was also requested, which showed an irregular rhythm, characteristic of atrial fibrillation, resulting in a diagnostic hypothesis of cardioembolic ischemic stroke.
Discussion: The involvement of post-central ischemic gyrus lesions may correspond to paresthesia, anesthesia, hypoesthesia; the involvement of secondary and terciary areas of sensitivity in the upper parietal lobe, especially in the active movements of the hand and in the modalities of integrated sensitivity, their lesions may be clinically affected by: apraxias, dysgraphias, hemineglect, agraphestesia, stereoagnosia and spacial disorientation.

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Reversible brain vasoconstriction syndrome associated with intoxication by marijuana, ether and chloroform

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Context: Reversible cerebral vasoconstriction syndrome (RCVS) is characterized by reversible narrowing of brain vessels. It affects young adults, predominantly female, with acute and self-limited course, initiated with "Thunderclap" headaches associated or not with neurological symptoms, such as seizures and focal deficits. Pathophysiology is the dysfunction in the control of the sympathetic autonomic nervous system through a multifactorial mechanism with a strong association with hormones, immunological, biochemical and other predisposing factors, including drug addiction, with emphasis on marijuana, ether and chloroform.
Case report: A 19-year-old female started with an insidious acute clinical condition of severe holocranial headache after using marijuana and "loló" (chloroform and ether narcotic), evolved with behavioral and level of consciousness alterations, admitted in status epilepticus, being orotracheal intubation (OTI) is required. No comorbidities. Neurological examination: OTI and sedated, at RASS-2, slowed trunk reflexes and global weakness (Grade 3). Skull tomography: Hyperdense foci in splenium of the corpus callosum and cingulate gyrus. Cerebral angiography: mild to moderate cerebral vasospasm evident in the P1 and P2 segments of the posterior cerebral arteries, suggestive of RCVS.
Conclusion: The diagnosis is clinical and radiological, with cerebral angiography being the gold standard. Vascular involvement such as intraparenchymal hemorrhage, non-aneurysmatic subarachnoid hemorrhage and cerebral infarction are common. Toxicological tests help in the investigation, and the exclusion of the precipitating cause is important, in addition to drug therapy that prevents recurrence of vasospasm. The improvement can occur in up to three months, in our case the evolution with neurological improvement was evident after one month.

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Evaluation of suicidal ideation in adult people with epilepsy and caregivers in a tertiary center

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Background: Epilepsy is a risk factor for suicidal ideation (SI).
SI still poorly investigated in caregivers of people with epilepsy (PWE).
Aim: We aimed to analyze the prevalence and predictors of SI in adults PWE andcaregivers.
Methods: We analyzed 548 consecutive PWE (60% women; median age 41 [18-83]) and 191 caregivers (72% women; median age 47 [18-82]) followed at Outpatients' epilepsy clinics from a tertiary center. We used "item nine" (item scores ≥1) of the BDI-II to determine the SI presence. The presence of symptoms of anxiety (with BAI) and depression (with BDI-II) was defined with scores ≥14 (for both PWE and caregivers). The presence of anti-seizure drugs (ASDs) adverse effects was defined with the "Liverpool Adverse Events Profile" score
≥46. Epidemiological factors and anxiety were investigated as predictors of SI in caregivers and PWE (along with seizure frequency, epilepsy-type, and ASDs' adverse events).
Results: Depression was present in 41% of the PWE and 32% of the caregivers (p=0.04). Anxiety was observed in 37% of PWE and 33% of caregivers (p=0.32). The SI frequency was higher in PWE (19%) compared to the caregivers (11%; p=0.02). Logistic regression analyses were performed for both groups separately. For the PWE (model accounted for 17%-27%), the most significant predictors were anxiety (OR 4.4, p<0.001), presence of ASDs' adverse effects (OR 2, p=0.021), recurrent seizures (OR 3, p<0.004), and younger age (OR 0.98, p<0.037). For the caregivers (model accounted for 18-37%), only anxiety (OR 43, p<0.001) predicted SI.
Conclusion: Identifying SI predictors is equally necessary for PWE and caregivers.

Key words: Epilepsy; Caregivers; Anxiety; Depression; Suicidal ideation

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Postoperative migration of motor activity in low-grade glioma resection: a systematic review

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Introduction: Compensatory mechanisms resulting from the phenomenon of neuroplasticity are present in patients with neuroepithelial tumors, such as low-grade gliomas (LGG). In the case of tumors located in the primary motor cortex, neural reorganization of motor activity to other areas of the brain may favor the maintenance of motor activity and avoid neurological deficits. Thus, this study sought to assess the movement of motor activity in patients with LGG.
Materials and Methods: The search strategy used medical subject headings and text words related to neuroplasticity, LGG, and primary motor cortex. The PubMed and Biblioteca Virtual em Saúde databases were used. The search of articles was conducted from November 2020 to January 2021, and there was no time limit regarding article eligibility.
Results: Four studies were included following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. The contralateral motor and supplementary areas were the most active areas reported in the postoperative period. Given that this was a retrospective study, it did not demonstrate migration of motor activity, making surgical resection unfeasible.
Conclusion: Knowing where motor function migration frequently occurs in patients with LGG is useful to optimize the resection of these tumors without inducing neurological deficits, thereby increasing the quality of resection in critical areas, such as the primary motor cortex.

Systematic Review Registration: https://www.crd.york.ac.uk/PROSPERO/display_record.php?RecordID=232155
MeSH terms: Motor Cortex, Neuronal Plasticity, glioma.
Key words:low-grade glioma, neuroplasticity, primary motor cortex, dendritic remodeling, neural reorganization.

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The effects of aquatic physiotherapy on the gait of patients with Parkinson's disease: a systematic review of the literature

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Introduction: Parkinson's disease is a progressive and degenerative pathology that causes several motor impairments in gait. Aquatic physiotherapy has become an alternative, as it allows the training of gait, balance and muscle relaxation in a safe environment due to the physical properties of water.
Objective: to verify the main effects of aquatic physiotherapy on gait rehabilitation in patients with Parkinson's disease. Study design: This is a systematic review. Methodology: The research was carried out in four distinct stages. Being carried out in the following databases EBSCO, Pubmed, PEDro, Science Direct and MEDLINE; obeying the following inclusion criteria: individuals diagnosed with idiopathic Parkinson's disease; who underwent aquatic physiotherapy with or without a control group and the main outcome was the improvement in gait performance. Case studies, case series, monograph, dissertation and articles without full access were excluded. The following keywords were used in the research field ("hydrotherapy" OR "aquatic exercise OR aquatic therapy") AND Parkinson's disease AND Gait.
Results: Ten articles with good to regular methodological quality were included. Most of the results of the study were functional mobility, balance, pathology progression and gait parameters.
Conclusion: it was observed that aquatic physiotherapy promoted good results in gait performance, mainly in balance, functional mobility and decreased motor signals, however there is still evidence about gait parameters.

MeSH terms: physiotherapy modalities, Parkinson's disease, gait.
Key words: Aquatic physiotherapy, Parkinson's disease, gait

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Arterial hypertension and cerebrovascular accidents. epidemiological profile of patients attended between 2013 and 2019 in Joinville, Santa Catarina, Brazil

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Introduction: Cerebrovascular accident (CVA) is the second cause of death in the world, and arterial hypertension (AH) is the main risk factor.

Objectives: To evaluate the prevalence of AH and the epidemiological profile of patients who suffered CVA, first and recurrent events, registered at JOINVASC, between 2013 and 2019.

Methodology: An observational, descriptive, retrospective study, analyzing demographic data and risk factors, in patients that suffered CVA, first or recurrent event, was done.

Results: In the study period, 6057 CVA events were registered, 4402(72.6%) patients were classified as hypertensive, (122 were excluded due to incomplete data), 4387 registers were analyzed. In this group, 2149 (51.2%) were male, mean age was 68.4±14.7(18 a 102 years), BMI was 27.5±5.1(14 a 59), 4330(39.9%) with Diabetes, 2559(58.8%) were smokers or ex-smokers, 3174(7.42%) were sedentary, and 504(11.5%) had controlled AH. In the group with recurrent event (1392-31.7%) (52.3%, p<0.001) were females, mean age was (69.4± 11.5) (p<0.002); BMI was lower (p=0.02). There was more cardiopathy (47.6%) (p<0,001) ,smokers or ex-smokers (66.2)(p<.005), diabetes (46.7%) (p<0.001) and deaths (32.3%)(p<0.001), less physical activity (22.0%)(p<0.001), use of antihypertensive drugs was greater (1.52±0,93)(p<0.001),. Logistic regression showed that female sex, BMI, DM, cardiopathy, physical activity, and more anti- hypertension drugs, were significant predictors for recurrence of neurologic event.

Discussion: Despite advances in primary health care and prevention campaigns, the prevalence of AH in patients with CVA is high, and still has low levels of control, even in patients with recurrent CVA.

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Physical therapy assistance in neurological disorders in people living with hiv / aids associated with neurotoxoplasmosis: literature review.

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Introduction: Acquired Immunodeficiency Syndrome (AIDS) remains a major public health problem, where HIV-infected patients have severe and progressive immune compromise and are responsible for AIDS.

Objective: to elucidate possible neurological changes caused by AIDS, as well as to review in the literature the physiotherapeutic role in neurological disorders in people living with HIV / AIDS associated with Neurotoxoplasmosis.

Method: Literature revision, using the following databases: VHL (Virtual Health Library), Scielo (A Scientific Electronic Library Online), PubMed (National Library of Medicine), PEDro (Physiotherapy Evidence Database), MEDLINE (Medical Literature Analysis and Retrieval System Online). Articles were selected that met the inclusion criteria.

Results: A scarce number of scientific articles was observed in the databases onthe subject, corresponding to 04 publications, of the selected studies the physiotherapy techniques used were stretching, isometric strengthening exercises, range of motion exercises, joint mobilization, neuromuscularfacilitation proprioceptive and hydrotherapy.

Conclusion: It was seen that physicaltherapy promotes good results in improving the functionality of patients with HIVassociated with neurotoxoplasmosis, mainly in balance, functional mobility, motorcoordination and motor symptoms, however there was a shortage of articles in relation to physical therapy treatment for people with HIV. associated withneurotoxoplasmosis, it is suggested that new studies of high methodological quality be developed in order to investigate further on this topic for betterevidence-based practice.

Key words: Rehabilitation, Physical Therapy, neurotoxoplasmosis, kinesiotherapy, HIV, Neurological changes.

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Benefits of post-stroke telerehabilitation

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Introduction: Stroke was responsible for 139.4 million cases of global disability in 2019, many of which require rehabilitation. Telerehabilitation has emerged as a promising remote therapy aimed at improving the deficits resulting from stroke.

Objective: To compare the benefits of telerehabilitation with the usual methods of rehabilitation in post-stroke patients.

Methodology: In April 2021, a literature review including systematic reviews of studies in humans, available in full and published in the last 5 years was executed on MedLine using the descriptors "stroke", "telerehabilitation" and their MeSH variations.

Results: The first selected article revealed that post-stroke telerehabilitation resulted in less expenses and was associated with comparable improvements to the standard treatment group in the recovery of motor deficits, cortical dysfunction and depression. The second review concluded that telerehabilitation was equal to or greater than usual rehabilitation for improvements in daily living and psychological status and restoration of quality of life and motor performance. The third study found that telerehabilitation achieved similar results to face-to-face therapy and usual care on improving daily life. The fourth article reinforced the benefits of telerehabilitation on several outcomes, although current evidence is limited.

Conclusion: Telerehabilitation can be an adequate alternative to the care of post-stroke patients, however, further studies are needed toestablish the benefits it provides.

MeSH terms: "Stroke", "Telerehabilitation", "Rehabilitation"

Key words: "Cerebrovascular Accident", "Cerebral Stroke", "Tele rehabilitation", "Telerehabilitations", "Virtual Rehabilitation"

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Prediction model to delirium in hospitalized elderly people

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Introduction: Delirium has a high prevalence in hospitalized elderly patients. This is due to low hospital detection and the absence of a screening instrument.
Objective: evaluate predictive variables in the development of delirium in an in-hospital environment.
Methods: Cross-sectional study. Data collection was carried out between 2015-2016, with a sample of 493 elderly people. The variables used were age, sex, the reason for hospitalization, Identification of Elderly at Risk (ISAR), delirium during hospitalization using the Confusion Assessment Method, frailty using the Edmonton Scale, the impact of comorbidities by the Charlson Index and hospital immobility. Predictive variables were identified through logistic regression.
Results: 469 elderly people were taken. The presence of delirium during hospitalization was mostly observed between 80 and 89 years old (n = 12), female (n = 16), with the most common reasons for hospitalization due to fractures (n = 6) and accident brain vascular (n = 11), 79% chance of surviving in one year using the Charlson Index (n = 11) and with ISAR> 2 (n = 26). There are important associations for the development of delirium for patients who have a 98% chance of surviving in one year (p = 0.05) and with ISAR <2 (p = 0.027), with a 34% increased chance and 38%, respectively.
Conclusion: It is observed that, by the results, the predictive variables of in-hospital delirium are patients with a 98% chance of survival and with ISAR <2.

MeSH: elderly; Cross-sectional study; hospitalization.

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Septic Cavernous Sinus Thrombosis due to Pneumococcal Meningitis in A 6 Months Infant

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Context: Septic Cavernous Sinus Thrombosis (CST) is a rare and potentially lethal illness that clinicians still occasionally see. We describe the evolution of a 6 months old infant patient who had a history of delayed vaccination and acquired a Pneumococcal Meningitis, leading to septic CTS.
Case report: The patient was admitted with the complaint of constant crying and vomiting. The physical exam noticed: bulging of the bregmatic fontanelle, Glasgow Coma Score = 11, and bad general state. The clinical picture had begun one week before the hospitalization, but the fever had started just three days before. The vaccine neglection plus some pathological signs of meningeal infection guided the clinical thinking to meningitis, later confirmed by the lumbar puncture. Some days later, the patient presented paralysis of the third pair of cranial nerves, conducing to the inability to open the eyes, mydriatic non-photo reagent pupils, and bilateral swelling. A magnetic resonance confirmed thrombosis of traverse sinus along with the transition to the sigmoid one. Bilateral ptosis and exotropia were noticed. Antibiotic therapy resulted in progressive eye-opening and recurrence of photo reagent reflexes. The prognosis was great, pointed by the normotension and normal amplitude of the bregmatic fontanelle.
Conclusion: The elimination of the meningeal infection focus was extremely important, since the pathophysiology of CST came from phlebitis of the cavernous sinuses, with consequent thrombus formation from the endothelial lesion. In addition, it is worth mentioning the omission of vaccination, which was concessive to the case.

MeSH terms: Cavernous Sinus Thrombosis; 10-valent pneumococcal vaccine; 13-valent pneumococcal vaccine; Meningitis, Pneumococcal; Infant.
Key words: Septic Cavernous Sinus Thrombosis; Pneumococcal meningitis; Infant meningitis; Oculomotor Nerve Palsy; Vaccine neglection; Brazil.

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Morbidity and Mortality of Traumatic Brain Injury in Hospitalized Patients in Brazil Between 2010 and 2020: An Ecological Study

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Background: Traumatic Brain Injury (TBI) is defined as any traumatic injury causing an anatomical lesion or functional impairment of the scalp, skull, meninges, brain or its vessels. Hospitalization of this patient, depending on the severity, can result in irreversible sequelae or death.
Objective: To report the morbidity and mortality rates of patients suffering from TBI hospitalized in Brazilian hospitals between 2010 and 2020.
Methods: Descriptive ecological study of the data collected at the Informatics Department of the Unified Health System (DATASUS).
Results: There were 1,143,187 admissions due to TBI. There was a predominance of males with 871,999 (76.28%) cases and the age group between 20 and 29 years old 199,857 (17.48%). Brown patients were the ones with the highest hospitalization rate: 370,639 (32.42%). The mortality rate in the period was 9.52/100 hospitalizations, with the Southeast region occupying the first place (10.44 per 100 hospitalizations). In total, 108,853 deaths were recorded, of which 50,013 occurred in the Southeast, the region with the highest rate. Although the number of deaths was higher in people between 20 and 29 years old (16,687), the age group with the highest mortality rate was over 80 years old (19.84 per 100 hospitalizations).
Conclusion: In the last 10 years, TBI has caused 1,143,187 hospitalizations in Brazil, with a predominance of males and the age group between 20 and 29 years. Brown patients had the highest rate of hospitalization. The region with the highest mortality was the Southeast and the smallest was the South.

MeSH terms: Craniocerebral Trauma; Brazil; Brain Hemorrhage, Traumatic; Brain Injuries, Traumatic.
Key words: Epidemiology; Morbidity; Mortality; Cranioencephalic Trauma; Ecological study; Traumatic Brain Injury.

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Fatigue presence in amiotrophic lateral sclerosis and related clinical and functional aspects

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Background: Some symptoms are reported in Amyotrophic Lateral Sclerosis (ALS), such as fatigue, which, despite having an impact on the individual, is still poorly investigated, seeming to have a multifactorial cause and manifesting itself as tiredness. Therefore, it is necessary to investigate this symptom and check the factors associated with this condition.

Objective: To investigate the presence of ALS fatigue and the correlated clinical and functional factors.

Objectives: 65 people with ALS attended at the Neuromuscular Diseases Clinic of HC / UFMG participated. Demographic, clinical, functional aspects were assessed and the Fatigue Severity Scale (FSS), Functional Scale (ALSRFS-R), Quality of Life Questionnaire (ALSAQ-40) and mobility were used.

Results: Participants (56.6 ± 11.0 years), about 44.6% (n = 29) presented fatigue. The average intensity was 5.4 ± 1.2 and 10.4% used specific medication. The fatigue group differed from the fatigue group in terms of: gender (male n = 48.3% vs female n = 72.2% (p = 0.049)); the presentation of greater pain intensity (p = 0.026); the worst results in functionality and independence in ALSFRS-R (p = 0.004); worse perception of Quality of Life (QOL) (p = 0.000). Fatigue correlated with pain (r = 0.425; p = 0.001), overall muscle strength (r = -0.356; p = 0.004), functionality (r = -0.363; p = 0.003) and QOL (r = 0.481; p = 0.000).

Conclusions: Fatigue is a symptom that is correlated with worse functionality and QOL, therefore, it is necessary to investigate this symptom and adopt treatment.

MeSH Terms: Amyotrophic Lateral Sclerosis, Fatigue, Quality of life

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Lessons of a multicenter non-invasive brain stimulation trial in patients with unilateral spatial neglect after stroke: barriers to trial participation from a developing country

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Background: There is a high demand for stroke rehabilitation in the Brazilian public health system, however most studies that addressed rehabilitation for unilateral spatial neglect (USN) after stroke have been performed in high-income countries.

Objectives: Analyze the USN patient recruitment in a multicenter non-invasive brain stimulation clinical trial performed in Brazil**.**

Design and setting: Observation study of reasons for exclusion of patients in a multicenter, randomized, double-blinded clinical trial performed at Botucatu Medical School.

Methods: We evaluated reasons for exclusion of patients in a multicenter, randomized, double-blinded clinical trial of rehabilitation of USN patients after stroke.

Results: 173 of 1956 potential neglect patients (8.8%) passed initial screening. After screening evaluation, 87/173 patients (50.3%) were excluded for clinical reasons. Cognitive impairment led to exclusion of 21/87 patients (24.1%). Low socioeconomic status led to exclusion of 37/173 patients (21.4%). Difficulty in transportation to access treatment was the most common reason (16/37 patients, 43.3%).

Conclusions: The analyzed Brazilian institutions have potential for conducting studies in USN. Recruitment of stroke survivors with USN was restricted by the study design and limited financialsupport. Cognitive impairment, presence of stent or craniectomy and lack of transportation wasthe most common barriers to participate in a multicenter non-invasive brain stimulation trial in patients with unilateral spatial neglect after stroke.

Mesh words: Stroke;Transcranial Direct Current Stimulation;rehabilitation

Key words: unilateral spatial neglect;clinical trial;brain stimulation

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Importance of early diagnosis of galactosemia and encephalopathy: case report

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Introduction: Galactosemia is an autosomal recessive genetic condition, with alteration of galactose metabolism, leading to increased serum concentration of galactose (galactosemia). The first symptoms occur in the neonatal period, associated with the ingestion of galactose. Untreated patients usually have growth failure, liver and kidney dysfunction, tubulopathies, encephalopathy and susceptibility to infections.

Case report: We describe a case of diagnostic investigation of a patient born at 38 weeks, after an uncomplicated gestation, with congenital cataracts, hepatomegaly, diabetes and Fanconi syndrome, as well as encephalopathy, hypotonia and cognitive deficit. She remained in the service for 15 days for diagnostic investigation, leading to hypothesis of galactosemia, confirmed later with genetic testing. Until then, the patient received unrestricted food, being instructed to change the diet, eliminating foods with galactose. After diagnosis, guidance and appropriate treatment were possible. Currently, patient is 20 years old, being monitored by neurology, ophthalmology, hepatology, occupational therapy and speech therapy teams.

Conclusions: Brazil does not have neonatal screening for galactosmia, thus, the clinical recognition of its initial signs is important for early diagnosis and treatment, avoiding further complications and sequelae.

MeSH terms: galactosemia, genetics, encephalopathy

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Management of patients with spinal cord trauma in the hospital environment and life quality

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Background: Spinal cord trauma has a negative prognosis, with low life quality. Management procedures increase chances of survival and a better life quality.
Objectives: Review in the scientific literature which treatments are recommended to spinal cord trauma in the hospital and how it affects life quality.
Methods: A literature review was carried out in the MEDLINE/Pubmed, Scientific Electronic Library Online (SciELO) and LILACS databases, using the terms "spinal trauma", "recovery", "patient management", "accessibility" and "life quality", in Portuguese, English and Spanish. 87 articles were found and 15 followed for complete analysis. This exclusion criteria were used: (a) articles published before 2015; (b) articles that did not fit the proposed theme.
Results: At the hospital, treatment to spinal cord trauma is supportive, reducing secondary damage. Respiratory disorders are treated with intubation. Management of the respiratory tract should also include physiotherapy of the pectoral region, secretion clearance, mucolytic and bronchodilators. High-risk patients may need tracheostomy. The more complex the injury and the higher the level, the more aggressive the neurogenic shock. The first treatment should be fluid resuscitation, to maintain euvolemia. The second, vasopressors and inotropes. MAP should be above 85-90 mmHg during the first week to avoid neurological damage.
Conclusions: The treatments are extremely important, but the prognosis is usually negative, given the limitations that reduce the life quality of these people, who suffer from a lack of accessibility.

MeSH terms: Spinal Cord Trauma; Hospital; Treatment outcome; Life Quality.
Key words: Patients with trauma; Prognosis; Recovery.

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A novel mutation in the RRM2 domain of TDP-43 in a Brazilian sporadic ALS patient.

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Introduction: Amyotrophic Lateral Sclerosis (ALS) is an adult-onset progressive and fatal neurodegenerative disease that selectively affects upper and lower motor neurons. Death occurs within 3 to 5 years of onset, usually from respiratory complications. Most cases of ALS are sporadic (SALS), but familial forms of the disease (FALS) represent approximately 10% of the cases. More than 30 genes have been associated with ALS and mutations in these genes account for more than a half of all familial cases and about 10% of sporadic cases. One of the most prevalent genes is *TARDBP*, responsible for approximately 4-6% of FALS and nearly 1-2% of SALS cases. The aim of this study was to perform the screening of known ALS genes, to increase the knowledge of the mutations that circulate in the population from Rio de Janeiro.
Methods: The screening of mutations was performed through the Illumina Next Generation Sequencing (NGS) platform with the use of a sequencing panel that contained the *TARDBP*, *SOD1*, *FUS*, *VAPB*, *SMN1* and *SMN2* genes.
Results: A novel missense mutation (p.Phe194Leu) in exon 5 of the *TARDBP* gene was found in a sporadic male patient who died at the age of 58 (2018). The mutation, a TTT/CTT substitution, was not detected in any mutation databases and in the literature. In silico analysis of this variant with different algorithms were performed and the results pointed to a probably damaging impact and that the mutation is disease causing.
Conclusion: Through the study of the ALS genes by the NGS, we were able to identify a novel TARDBP mutation in a non-familial ALS patient. In addition, this study also increases the number of known *TARDBP* mutations in ALS patients and our knowledge of the mutations that affect the patients from of population from Rio de Janeiro.

MeSH terms: Amyotrophic Lateral Sclerosis, Missense Mutation and Illumina Sequencing.
Key words: ALS, TARDBP, RRM2 domain, Next Generation Sequencing.

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Analysis of physical activity level and sedentary behavior before and after stroke: A cross-sectional study

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Introduction: Stroke is a major cause of death and mortality worldwide. The sedentary lifestyle is a modifiable risk factor and the regular practice of physical activity can reduce the recurrence of stroke and its symptoms.
Objective: To characterize the level of physical activity of post-stroke patients before and after the event.
Methodology: This is a cross-sectional, analytical study. The population of the study consisted of patients diagnosed with stroke, in the chronic phase under treatment or that have already been discharged from the Physiotherapy School Clinic of FACISA in Santa Cruz-RN. The individuals were evaluated by the Modified Baecker Questionnaire for the Elderly (QBMI) that classifies the

level of physical activity in: sedentary (-9), active (9 to 16), and athletes (+16). The normality of the variables was verified by the Shapiro-Wilk test. Wilcoxon's test was used for comparative analysis of QBMI before and after stroke.
Results: Nineteen patients participated (8 male and 11 female) with a mean age of 63 years, of these, 11 had systemic hypertension. Before, 3 were classified as sedentary (score mean: 5.34), 5 active (score mean: 12.254) and 1 athlete (score mean: 27.04). After the stroke, 18 were classified as sedentary (score mean: 1.46) (p=0.001).
Conclusion: There was a reduction in the participants' level of physical activity, showing greater sedentariness after stroke, although physical activity is essential for secondary prevention of stroke.

MeSH terms: Cerebral Stroke, Brain Vascular Accident, Exercise.
Key words: Stroke, Physical activity, Sedentariness.

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Clinical effects of non-pharmacological treatment of ADHD

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Background: Though pharmacotherapy of Attention Deficit Hyperactivity Disorder (ADHD) is widespread, some patients suffer with side effects or do not improve with it.
Objectives: Evaluate clinical outcomes of non-pharmacological therapy on ADHD.
Design and Setting: This is a literature review, produced in Bahiana School of Medicine and Public Health.
Methods: Articles published between 2011 and 2021 were taken from PubMed, using the following search: ("Non-pharmacological treatment" OR "Non- pharmacological therapy" OR "Non-pharmacological intervention" OR "Non-drug treatment" OR "Non-drug therapy" OR "Adjuvant treatment" OR "Adjuvant therapy") AND ("ADHD" OR "Attention Deficit-Hyperactivity Disorder"). Studies that did not match this review's objectives were excluded.
Results: 20 of the 57 articles found, were selected. Reviews that approach treatment in general indicate non-pharmacological therapy specially when there are obstacles to use of drugs, but highlight the lack of studies with methodological quality in this field. Clinical studies indicate reduction of symptoms through neurofeedback, transcranial magnetic stimulation, and aerobic exercises. One of the interventions with the most articles was nutritional supplementation, though most of them did not find significant improvement.
Conclusions: Non-pharmacological treatment of ADHD is a relevant alternative, especially when there is no response to medication, but studies with better methodological quality are necessary.

MeSH terms: Attention Deficit Hyperactivity Disorder; pharmacotherapy; outcome, treatment.
Key words: ADHD, drug-therapy, outcomes.

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Vestibular rehabilitation by telemonitoring

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Introduction: Dizziness is one of the main symptoms of vestibular disorders, with high prevalence and functional impact. Vestibular Physiotherapy (VP) is a part of the treatment in these disorders, targeting functional improvement. Currently, telehealth (TH) appears to expand access, being an immediate solution for COVID-19 pandemic.
Objective: To seek evidence of the benefits of VP via TH regarding assessment and interventions for patients with VD. Design and settings: Study carried out at São Camilo University.
Methodology: Integrative review of clinical studies, **Key words:** "Vestibular disorders" and "TH", in the PubMED and PeDRO databases, with no language or year limit.
Results: 10 articles were found, 5 were included after review. Of these, 80% had a TH care protocol guiding adaptations to assessments for acute/ subacute symptoms, considering the severity and need for referrals. 60% of the works highlight the barriers found: devices and the patient's ability to manage them, data and internet security; but also raise the possibility of greater reach to specialized professionals. One article adapted the Dix-Hallpike test from a distance. Only one study proposed remote interventions by exercise, comparing with face-to-face assistance, demonstrating similar results.
Conclusion: Evidence suggests viable use of TH in dizziness, with better evidence in the evaluation processes,considering the barriers to be controlled. Only one study showed results on VF and exercises, showing that it is a possibility to be further investigated.

MeSH Terms: Vestibular Diseases; Telemedicine; Physical Therapy.
Key words: Telerreabilitação; Vertigem, Tontura.

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Diagnosis and treatment of Multiple sclerosis: Brazilian and global overview

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Introduction: Multiple sclerosis (MS) is a neurodegenerative autoimmune disease of the central nervous system with a chronic, progressive and inflammatory character. In addition, it presents itself in a heterogeneous way, and can be as an isolated syndrome or as a recurrent remitter, in the first stage, or as progressive, in the second stage. The present work was developed with the objective of determining which is the best form of diagnosis and therapy for multiple sclerosis in Brazil.
Methods: The review was performed in PubMed platform, with the descriptors: "multiple sclerosis", "diagnosis", "therapy" and "research".
Results: The research result in 148 articles. After a criterious reading and the application of the used criteria, was selected 20 articles.

Conclusion: For the diagnosis of this chronic neurological disease, magnetic resonance imaging is used to assess myelination of the different regions of the central nervous system, which is the most suitable for the diagnosis of MS. Moreover, as a complement, cerebrospinal fluid extraction and blood tests are performed in order to ascertain the concentration of B cells. Regarding therapeutics, this is diversified, including drugs, diets and therapies that stimulate cognition and motor action, such as the use of virtual reality programs and motor images. In relation to drugs, it is of importance that SUS makes natalizumab and ocrelizumab available because they are more efficient and enable users to have a better quality of life. Finally, nutritional monitoring is also suggested to establish a ketogenic or fasting diet in a balanced way.

MeSH terms: multiple sclerosis; diagnosis; therapeutics; natalizumab; ocrelizumab.
Key words: multiple sclerosis; diagnosis; therapeutics; natalizumab; ocrelizumab.

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Adalimumab treatment in a patient with severe presentation of Vogt-Koyanagi-Harada

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Context: Vogt-Koyanagi-Harada syndrome (VKH) is a rare, multisystemic, autoimmune disease mediated by a Th1 response against melanocytes in the eye, inner ear, central nervous system, skin and hair. In this article, we report a case of VKH with severe visual impairment and discuss the therapeutic response to corticotherapy followed by the use of Adalimumab, a tumor necrosis factor (TNFα) inhibitor.
Case report: A 61-year-old black woman started bilateral frontal headache of severe intensity, associated with bilateral eye pain, hyperemia and watery eyes, progressing with visual turbidity with gradual worsening, seeing only figures after eight days. After ten days bilateral hypoacusis started, also progressive. She denied eye movement pain, diplopy, dizziness, fever, joint pain or skin injuries. On examination, visual acuity (VA) in RE: hand movement for 30 cm, LE: light perception, fundus of the eye with serous bilateral retinal detachment. CSF with 155 lymphomonocyte predominance cells, proteins: 73, negative bacterioscopy and cultures. Pulsotherapy was performed for 7 days followed by 1g of cyclophosphamide and maintenance therapy with fortnightly Adalimumab. Two months after discharge, she presented VA in RE: 20/200 and LE: counting fingers at 1 meter.
Conclusions: Aggressive and early treatment with immunosuppression is key to the effective treatment of VKH. Immunotherapy can be used in patients who are unresponsive to corticosteroid doses. Biological agents that target TNFα have effective results in non-infectious uveitis. Adalimumab is a safe and effective option, which also reduces the need for chronic corticosteroid therapy. The prognosis depends on the early diagnosis and treatment.

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Thromboembolic Central Nervous System Complications of COVID-19

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Context: COVID-19 is well-known to increase the risk of developing thromboembolism; thus, patients may present with diverse neurovascular manifestations.
Case report: A 56-year-old man presented with sudden onset of incoordination of his left arm and leg. He also had a history of recurrent episodes of transient left hemithoracic pain radiating to his left arm, along with right visual hemi-field positive phenomena. Additionally, he reported self-limited fever and anosmia three weeks earlier. Examination revealed left hemiataxia (NIHSS score: 2). Initial assessment with brain CT, intracranial and cervical CT angiography was normal. Shortly after admission, the patient developed acute weakness of his four limbs and urinary retention. Neurological exam showed left homonimous hemianopia, asymmetric tetraparesis and a superficial sensory level at C4. Neuraxis MRI was performed and diffusion-weighted imaging revealed acute ischemic lesions in the occiptal lobes, cerebellum and cervical-thoracic spine. A thorough diagnostic work-up was conducted. Laboratory tests were unremarkable, including inflammatory markers, viral hepatitis, HIV and syphilis serologies, as well as rheumatologic tests and a thrombophilia panel, except for SARS-COV-2 serology, with detection of IgM antibodies. RT-PCR nasopharyngeal swab was negative. Further investigation with CSF analysis, CT angiography of the aorta, transthoracic echocardiogram, 24-hour holter monitoring and transcranial Doppler didn't show any abnormalities. Transesophageal echocardiogram revelead a minor patent foramen ovale.
Conclusion: This is a case of acute cerebral, cerebellar and spinal embolic infarction, probably related to Covid-19, illustrating the infection's associated coagulopathy[1].

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Scientific production on the effects of COVID-19 on the central nervous system: a systematic review

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Background: The presence of COVID-19 in the world has brought changes to our society. The research groups around the world started an analysis of how the SARS-CoV-2 virus interacts pathophysiologically with biological systems.
Objectives: Quantify, based on the literature, the scientific production by Institution and country of origin, which related the damage of COVID-19 in the Central Nervous System (CNS).
Design and setting: We conducted a literature review. It was use the databases of PubMed, LILACS (Latin American and Caribbean Literature on Health Sciences), SciElo and The Lancet.
Results: 91 articles were included. The Institutions with the most publications were: University of California (United States), All India Institute Of Medical Sciences (India) and Qingdao University (China), with May 2020 being the period with the most publications. The most frequent symptoms caused by COVID-19 in the CNS were: Anosmia, Headache, Vomiting, Nausea and Hyposmia.

Conclusions: United States, India and China were the countries with an expressive, even small, number of publications relating the effects of COVID-19 on the CNS. The largest number of publications in May 2020 shows that studies were rapidly developed shortly after the disease was raised to the level of a pandemic in March of the same year. The symptomatic effects of the disease show the primary involvement of the respiratory system with effects on the CNS.

MeSH terms: Coronavirus Infections, Disease, Central Nervous System, Pandemics
Key words: COVID-19, Central Nervous System, Scientific Publication

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Non-pharmacological therapy in the management of behavioral and cognitive symptoms of dementia: a literature review

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Background: Pharmacological treatments for dementia, such as antipsychotics and benzodiazepines, cause significant side effects. Therefore, the search for non-pharmacological alternatives for relieving behavioral and psychological symptoms of dementia is increasing. Up to 90% of patients with dementia are affected by one or more symptoms: behavior change, disturbing vocalization, restlessness, rambling, apathy, among others.
Objectives: Analyze the effectiveness of non-pharmacological measures in the management of dementia.
Design and Setting: Review of the literature.
Methods: The PubMed database was used with the descriptors "non pharmacological interventions", and "dementia". From the 450 found, 9 articles published between 2015 and 2019 were selected.
Results: Some non-pharmacological measures reported were art therapy, music therapy, aromatherapy, behavioral therapy and physical exercises. However, intervention methods varied between studies as they used different teoric bases and investigated individually the effect of personalized activities. The best results were found when the treatment was adapted to the interests and skills of the participants, mainly regarding apathy and agitation. In addition, a study has shown that an organized non-pharmacological intervention program was also effective in controlling external and intrinsic symptoms, including hallucination and delirium.
Conclusion: Studies focusing on alternative approaches reveal that different non-pharmacological interventions are able to reduce psychological symptoms and behavioral disorders. Therefore, they should be considered as first option interventions for treatment. In addition, these variants of precise treatment for greater visibility and more comprehensive studies.

MeSH terms: Cognitive Dysfunction; Demencia; Music Therapy; Art Therapy; Behavior Therapy
Key words: Neurology; Neuropsychology; Therapeutics

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Analysis of hospitalization rates for epilepsy in children between 2014 and 2020 in Bahia

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Background: Epilepsy is a neurological disease characterized by abnormal and excessive electrical discharges in the brain, with the occurrence of two or more seizures during 12 months, without causing fever, traumatic brain injury, hydroelectrolytic alteration or concomitant disease. Knowing the panorama of hospitalizations makes it possible to manage and direct resources in order to adapt to the needs of the age group.
Objectives: Compare the age groups in relation to the number of hospitalizations for Epilepsy in Bahia between 2014 and 2020.
Methods: Work carried out based on secondary data through public consultation to the DataSUS platform, through the Hospital Production System of the Unified Health System (SIH- SUS). All cases of hospitalization for epilepsy in children between January 2014 and December 2020, in the state of Bahia, were included.
Results: The age group that presented the highest rate of hospitalization was 1-4 years old with an average of 39.49%, followed by the age group between 5-9 years old with 20.16%, in addition to those younger than 1 year old with 16, 70%, with the age groups between 10-14 years old and 15-19 being the last with 13.65% and 10% respectively.
Conclusions: It is observed that there is a higher incidence rate of hospitalizations in children under 9 years of age, explained by the high rate of epilepsy that evolve, most of the time, with the disappearance in adolescence, elucidating the lowest rates in the age group over 10 years.

Key Words: Epilepsy. Hospitalization. Child. Adolescent.

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Phantom pain: pathophysiology and therapeutic approaches

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Background: Phantom pain is a mentally debilitating neuropathy that affects post-amputees. It interferes with the independence and performance of activities, therefore affecting the quality of life. Its pathophysiology ranges from lesions in peripheral innervations, to spinal functional changes, modulation of cortical circuits and psychological factors.

Objectives : Demonstrate new therapeutic approaches and establish a relation with the pathophysiological mechanisms.
Methods: Integrative review applying the descriptors: "phantom pain", "physiopathology", "post amputation pain", "treatment", and the Boolean operator AND. The searches were carried out at PUBMED with 142 results, at BVS with 113, and at Scielo ,showing no results. At the end, 9 papers were selected. No linguistic filters were used and articles published between 2016 and May 2020 were incorporated.
Results: (1) Motor images, mental and visual representation of the limb and its function; (2) peripheral interfaces enables prosthetic control; both techniques active cortical reorganization by promoting sensory feedback to motor stimuli. (3) repetitive transcranial magnetic stimulation and (4) direct current, a non-invasive approach, for maladaptive cortical neuromodulation, in addition to stimulate peripheral innervation. In surgical interventions, (5) targeted muscle reinnervation is used in the residual nerves on amputation process to reinnervate the motor terminal of the remaining muscles, promoting nerve growth and organization.
Conclusions Physiological investigation applied to treatments enables effective therapeutics, anticipating rehabilitation. The representation of images, peripheral interfaces, brain stimulation and less invasive surgical techniques

Mesh Terms - Phantom Limb, Pain Management, Chronic Pain,
Palavras-chave - Neuropathic pain, mechanism, Treatment

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Motor neuronic disease starting in the elderly and young adults

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Introduction: Motor neuron diseases (MND) are degenerative disorders that affect motor neurons, leading to disability and dependence throughout their course. The onset of symptoms is variable and can occur in adults(A) and elderly(E), however little is known about the characteristics of the disease in different age groups.
Objective: To investigate the characteristics and the difference between clinical and functional factors considering the onset of MND in the elderly and young adults.
Method: There were 26 young adults and 26 elderly (≥60 years) evaluated, matched by gender and length of disease, treated at HC/UFMG. The following were investigated: demographic and clinical, using specific instruments (ALSFRS-R/BR and ALSAQ-40); fatigue (FSS); manual muscle strength; mobility and balance (SPPB). Analysis was performed descriptive and comparison (*student t* test, *Mann-Whitney* or X2), using SPSS, significance level of 0.05.
Results: Differences were observed significant as to the place of onset of symptoms (p=0.034), presence of pain (p=0.034) and use of ambu (p=0.023). No significant differences were verified for the others: occurrence of falls (p=0.254), presence of comorbidities (p=0.158) and use of Riluzole (p=0.548), sit and stand (p=0.931), turn over in bed (p=0.402) and walk (p=0.740), total ALSFRS-R (p=0.656), MND severity level (p=0.307),

strength muscular (p=0.940), SPPB (p=0.296), quality of life (p=0.686).
Conclusion: The clinical and functional characteristics were similar between individuals who started the disease in the elderly and adult phase. However, it was observed a higher prevalence among the elderly with bulbar onset, which is the beginning of the worst prognosis of disease progression.

MeSH terms: Motor neuron disease, elderly, young adult.

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Association between nutritional status of pediatric patients with refractory epilepsy and clinical response to the ketogenic diet

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Background: The ketogenic diet (KD) is a high-fat, low-carbohydrate diet, prescribed for pediatric patients with refractory epilepsy. Although effective, the response to KD depends on factors that must be identified. **Objectives:** to evaluate the impact of nutritional status of pediatric patients on the KD clinical response.
Methods: This is a retrospective longitudinal study based on the follow-up of patients with refractory epilepsy (ICr-FMUSP) in treatment with KD after 3 (T1) and 6 months (T2). At baseline, patients were split into Eutrophic group (EG; BMI ≤25 kg/m2) and Non-Eutrophic group (NEG; BMI>25 kg/m2). The clinical efficacy of KD was assessed by the percentage of epileptic seizures reduction and classification in responders (reduction ≥ 50%) versus non-responders.
Results: KD resulted in seizures reduction at T1 (-66.7%) and T2 (- 74.2%). Both groups showed reduction at T1 (GE = -70%; NEG = -67%; p = 0.704) and T2 (GE = -83%; NEG = -55%; p = 0.094). At T2, EG presented 79.2% of responders and NEG 56.2% (p = 0.166). Eight patients (30.8%) of GE achieved 100% seizure reduction at T1 and maintained it, while six patients (28.6%) of GNE who achieved 100% seizure reduction at T1 and only 3 (18.8%) kept it at T2.
Conclusions: KD promotes seizure reduction. As for clinical efficacy, EG presented a 29% higher percentage of responders than NEG. All GE patients who had total seizure control at T1 maintained it at the end of the study. There is need of further studies with larger samples.

MeSH terms: Drug Resistant Epilepsy, Ketogenic Diet, Nutritional Status
Key words: Refractory Epilepsy, Intractable Epilepsy, Medication Resistant Epilepsy, Carbohydrate-Restricted Diet, Diet Therapy, Health Status

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Neurocognitive Implications in Children Undergoing Chemotherapy and Radiotherapy

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Background: Radiotherapy and chemotherapy drugs were essential for increasing the survival rates of pediatric cancer patients, but dysfunctions associated with treatment, mainly neurological and cognitive, are recorded and should be considered in deciding the therapeutic plan.
Objectives: Analyze the current literature on the neurocognitive effects in children undergoing chemotherapy and radiation therapy.
Methods: A bibliographic review was carried out in the MEDLINE / Pubmed and LILACS databases, using the terms "cognitive effects", "chemotherapy", "radiotherapy" and "child", in Portuguese and in English. 79 articles were found and 6 followed for complete analysis. Articles published more than 5 years ago and that did not address the proposed subject were not used.
Results: Radiotherapy, especially cranial (CRT), is associated with serious effects, such as induction of vasculopathy, stroke, cerebrovascular malformations, in addition to an increased risk for subsequent malignant CNS tumors. Despite being a standard treatment for several neoplasms, radiotherapy has been replaced, when possible, by higher doses of chemotherapy, which has a considerable level of neurotoxicity, capable of causing coagulopathy, encephalopathy, seizures and neuropathies, both sensory and motor. However, deficits in children's attentional capacity in both treatment categories stood out, sometimes implying educational difficulties and decline in non-verbal skills.
Conclusions: Although chemotherapy and radiation therapy represent impressive advances, their consequences remain a concern. Future studies should seek strategies for prevention, early recognition and management of neurotoxicity, in order to promote better life quality for patients.

MeSH terms: Children; Child Health; Cancer survivors; Cognitive Neuroscience.
Key words: Cognitive Dysfunction; Cancer treatment; Pediatric patients.

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Cognitive Symptoms in Post-Covid-19 Patients: A Systematic Review

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Background: Although the main reported manifestation of COVID-19 is respiratory syndrome, several organs can be affected, including the central nervous system (CNS), which might cause cognitive changes.
Objectives: Evaluate the relationship between COVID-19 and cognitive symptoms in infected patients with Sars-CoV-2.
Methods: A search was performed using PubMed, Embase, BVS and Web of Science databases with the descriptors: "Cognitive symptoms", "Brain fog", "Covid-19" and "Sars-CoV-2". The inclusion criteria were: articles in English and peer-reviewed; the exclusion criteria were: those who did not address cognitive symptoms after COVID- 19 and systematic reviews. Six articles were included.
Results: Decline in memory and executive functions were the main reported cognitive symptoms. Greater susceptibility of the prefrontal cortex may explain neuropsychiatric morbidities, hence the increased risk of cognitive symptoms after acute infection. Sars-CoV-2 can trigger a high immune response that leads to the production of autoantibodies that can act against nervous tissue. Cortical hypometabolism, without direct cortical involvement and death of neurons, has been reported, which can be associated with damage to the white matter. Therefore, the deterioration could be reversible. Inflammation of endothelial cells and deposition of megakaryocytes can cause

microvasculopathy and deposition of microcoagulants in capillary cortices. Cognitive deficits linked to the length of hospital stay have also been reported, especially in patients admitted to theICU.

Conclusions: There was a relationship between infection by Sars-CoV-2 and cognitive changes, mainly executive functions and working memory. Mechanisms might be related to inflammatory processes, immune response and length of stay in the ICU.

MeSH terms: Cognitive symptoms, Covid-19, Immunity, Inflammation.
Key Words: Brain fog, Working Memory, Executive Functions, Sars-CoV-2

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Sociodemographic Analysis of Neural Tuberculosis in Brazil from 2010 to 2020

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Background: Neural tuberculosis is an infection of the central nervous system caused by the bacterium Mycobacterium tuberculosis. Bearing in mind that neural tuberculosis is the most severe form of extrapulmonary tuberculosis and results in significant morbidity and mortality rates, it is important to analyze its sociodemographic characteristics in Brazil.

Objectives: To describe the sociodemographic characteristics of neural tuberculosis cases in Brazil in the period from 2010 to 2020.

Design and Setting: Cross-sectional, retrospective, and descriptive study, carried out using data collected from the Notifiable Diseases Information System (SINAN) and the Hospital Information System (SIH / SUS) of confirmed cases and hospitalizations for neural tuberculosis.

Methods: Variables used: region, sex, age group, color/race and year of service.

Results: In the period from 2010 to 2020, the number of notified cases of meningoencephalic tuberculosis was 7.451, with mean cases per year of 677.36. The Southeast region was the most affected with 43.8% of the total cases, followed by the South and Northeast regions, with 24.1% and 20.1%, respectively. There was a wide predominance in individuals aged 30-39 years (42.8%) and in the age group 40-59 years (35.9%). The male sex was the most affected with 63.3% of the total.

Conclusions: The study shows a predominance of cases in the South and Southeastregions, with a significant prevalence of males and age groups of 20-59. This could bean alert for new prevention and health promotion strategies for the most affected groups.

MeSH terms: Tuberculosis; Tuberculosis, Central Nervous System; Tuberculosis, meningeal; Tuberculosis, intracranial; Epidemiology.
Key words: Infection; Brain; Bacteria, neurologic; Hospitalizations.

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Family with atypical Parkinsonism due to CHCHD10 gene mutation

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Introduction: Parkinson's disease - PD is the second most common age-related neurodegenerative disorder. Characterized by a variety of motor and non-motor symptoms that relate to the loss of dopaminergic neurons in the midbrain black substance. Although most cases of PD are sporadic, 5–10% of patients have monogenetic mutations with a description of more than 20 genes for the familial form. Mitochondrial mutation in CHCHD10 has also been reported to be associated with a wide spectrum of neurodegenerative disorders, including PD.

Objectives: Description of a rare recently described genetic cause of autosomal dominant parkinsonism.

Methodology: Describe the case of a Brazilian woman with atypical parkinsonism due to *CHCHD10* pathogenic variant that was followed up in our service.

Result: Female, 64 years old.". He started episodes of imbalance about 5 years ago, with falls, in addition to limb stiffness, worse on the left. 4 years ago, he started myalgia to great efforts with low subsequent tolerance to light effort. 1 year ago with urinary incontinence and choking past of poor performance in physical activities without pre-motor symptoms FAMILY: mother with clinical picture of possible dementia syndrome at age 60, history in the maternal family of myalgia, intolerance to physical exercise and hearing loss in adulthood. EXOMA: presence of variant c.146C > T (p.Ala49Val) in simple heterozygosity without CHCHD10 gene. MRI with thigh muscle hypotrophy in anterior and posterior thigh compartments; slight muscle edema in the legs.

Conclusion: Pathogenic variants in the *CHCHD10* gene should be considered in cases of atypical parkinsonism, especially in cases of positive familial history of mitochondrial myopathy or dementia.

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Pontine and extrapontine myelinolysis secondary to alcoholism: A case report.

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Departamento of Neurology, Federal University of Paraná MeSH terms: Neurology; Myelinolyis; Demyelination.

Context: Osmotic demyelination syndrome (ODS) is rare, acute, severe and non-inflammatory. It is caused by the demyelination of neurons with the preservation of axons. It is called central pontine myelinolysis (CPM) when it affects the central pontine region and extra-pontine myelinolysis (EPM) when it affects other areas. Few cases of ODS due to non-electrolytic causes are reported.

Case report: 54-year-old man with a history of heavy drinking. After about 24 hours of alcohol withdrawal, he developed generalized tonic-clonic seizures, associated with a lower level of consciousness. Protective orotracheal intubation was performed and the use of anti-crisis drugs was initiated. After sedation was switched off and mechanical ventilation was set to minimum parameters, the patient remained comatose and with convergence-retraction nystagmus movements. A skull MRI was performed, which showed lesions compatible with CPM and EPM. There was no variation in the patient's plasma sodium during hospitalization.
Conclusion: this is a patient with no evidence of any significant hydro-electrolyte disturbance and who presented a compatible neurological condition and neuroimaging characteristic of CPM / EPM. There is no specific clinical treatment for this pathology. Furthermore, the patient presents with the finding of convergence-retraction nystagmus, possibly explained by atrophy of the dorsal midbrain region.

Key words: Osmotic demyelination; alcoholism; convergence-retraction nystagmus.

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Lambert-Eaton syndrome without an identified neoplasm

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Introduction: Lambert-Eaton syndrome occurs due to the attack of autoantibodies to voltage-gated calcium channels in the presynaptic terminal of the neuromuscular junction and is usually paraneoplastic.
Objectives: Describe the case of a patient with weakness which was investigated for neoplasm.
Design and setting: Case report
Methods: Analysis of medical record, photographic record of the diagnostic methods and literature review.
Case description: Woman, 60 years old, diabetic, hypertensive and ex-smoker, with proximal weakness in the lower limbs for 4 months with paresthesia in the extremities. In 2 months she needed a cane due to frequent falls, followed by proximal weakness of the upper limbs. She lost 8 kg in 4 months. Neurological examination showed hypotrophy in thighs, proximal tetraparesis predominantly in lower limbs and global hyporeflexia. Electroneuromyography showed decreases to repetitive low-frequency stimulation, but significant increases with repetitive high-frequency stimulation and increased amplitude of compound muscle action potentials after effort, suggesting impairment of the neuromuscular junction in the presynaptic topography. She was diagnosed with Lambert-Eaton syndrome. An investigation of paraneoplastic syndrome was carried out, with tumor markers, tomography of the chest, abdomen and pelvis, thyroid ultrasound, mammography and oncotic colposcopy, all without findings of neoplasia. It was proposed a treatment with human immunoglobulin and follow-up with physiotherapy, occupational therapy and psychology. She showed a significant improvement in strength after starting treatment.
Conclusion: Patients with Lambert-Eaton syndrome should be investigated for an underlying neoplasm and followed up periodically, considering the possibility of cancer diagnosis even months or years after the neurological syndrome.

MeSH words: Lambert-Eaton Myasthenic Syndrome, muscle weakness, neoplasms
Key words: Lambert-Eaton syndrome, neuromuscular junction, weakness

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An Unexpected Smile: *risus sardonicus* and wing-beating tremor in a first office visit

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Context: We present a noteworthy reminder of Wilson disease's classical manifestations, which may become rarer in clinical practice as availability of genetic tests increases, allowing timely diagnosis and treatment.
Case report: A 29 year-old woman developed progressive and asymmetric upper limb tremor and dystonia over 1 year, along with speech and feeding impairment in the last two weeks. Examination revealed segmental dystonia with *risus sardonicus*, open-jaw oromandibular and severe left arm dystonia, along with wing-beating tremor. Bilateral Kayser-Fleischer ring, low serum ceruloplasmin level, high urinary copper level, bilateral putaminal lesions on brain MRI and detection of ATP7B mutation confirmed Wilson disease (WD). A nasoenteric tube was inserted and D-penicillamine was started.
Conclusion: This case illustrates the hallmark neuro-ophtalmological signs of WD: wing-beating tremor, *risus sardonicus* and Kayser-Fleischer ring. The former is probably associated with lesions in the dentato-rubro-thalamic pathway[1] and means a low frequency, high amplitude, posture-induced proximal arm tremor. *Risus* sardonicus means a fixed smile due to risorius muscle dystonia[2]. Although it is a well-known manifestation of cephalic tetanus, it is also frequent in WD[1]. Finally, the Kayser-Fleischer ring is caused by copper accumulation in the Descemet membrane and occurs in almost 100% of patients with neurological WD[2].

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Successful treatment with rituximab in a refractory Stiff-person syndrome (SPS)

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Background: SPS is a disorder consisting of rigidity of axial muscles with painful spasms. More than 80 % of SPS patients have high titer antibod-

ies against glutamic acid decarboxylase (GAD). The use of rituximab for the treatment of SPS is a recent therapeutical approach showing promising results. We present a case of SPS treated with rituximab, showing a good and safe response.

Case: A 38-year-old female patient presented with a history of rigidity of abdominal and paravertebral muscles associated with painful spasms in lower back region, increased tonus, lumbar lordosis, frequent falls and severe functional limitation. The anti-GAD antibodies were positive in high titles. Electromyography showed continuous motor activity with normal morphology especially on paravertebral muscles. She had a partial response to baclofen and diazepam, but could not tolerate it because of somnolence, and started the treatment with rituximab. After one year, the baclofen was discontinued and the diazepam reduced. The axial stiffness and spasm frequency improved, including postural instability, without new episodes of falls.

Discussion: Rituximab is a monoclonal antibody targeting the CD20 antigens on the surface of mature B lymphocytes. After binding to these antigens, it initiates a cascade of biochemical events leading to apoptosis. Its use has been approved for numerous diseases with promising results. The use of rituximab in the treatment of SPS is a recent approach and good results have been reported.

Conclusion: Rituximab may be a promising option in SPS treatment. However, this is a preliminary paper showing partial results requiring long-term follow-up.

Key words: Stiff-Person Syndrome, Case Report, Rituximab

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Trousseau Syndrome in a patient on Direct Oral Anticoagulant use: A Case Report

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Background: The Three Territory Sign (TTS) is a radiologic marker of ischemic stroke associated with malignant neoplastic diseases (Trousseau Syndrome) and corresponds to a rare stroke etiology.

Case Report: Female, 62-year-old patient, with comorbidities of smoking, hypertension and diabetes, presented with a sudden faciobrachial-predominant left hemiparesis settled in the day before the admission. Diagnosed with a metastatic rectal adenocarcinoma seven months before, she underwent a rectosigmoidectomy three months ago and developed deep vein thrombosis, starting anticoagulant therapy with rivaroxaban 20mg daily. A Magnetic Resonance Imaging (MRI) revealed several lesions with restricted diffusion in multiple vascular territories, bilaterally, corresponding to ischemic stroke. Etiologic investigation did not detect signs of cardioembolism, nor significant vessel stenosis or unstable atherosclerotic plaques. In admission, she had a D-dimer level of 11,43μg (0- 0,5μg/mL).

Conclusion: The evidence of TTS is about six times more frequent in stroke related to malignancies compared to cardioembolic etiology. The D-dimer is a marker of malignancies in cryptogenic stroke, elevated in 75% of cases. The most common associated neoplasms are pulmonary (40%) and gastrointestinal (33,3%). In the MRI, the lesions can be isolated or gathered, generally small and peripheral. There is no evidence regarding the ideal preventive therapy. It is necessary to reinforce the importance of investigating malignancies in patients presenting with cryptogenic stroke and TTS, a syndrome that is still poorly recognized.

Key words (MeSH terms): Cerebrovascular Disorders, Stroke, Neoplasms, Anticoagulants

Authors' key words: Cerebrovascular Disease, Cryptogenic Stroke, Trousseau Syndrome, Neoplasm, Anticoagulants

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Morphometric analysis of the sella turcica in Northeastern Brazil

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Introduction: The sella turcica is a structure of the median region of the sphenoid bone. Variations in its morphology are relevant as it is a region subjected to several surgical procedures, mainly related to the pituitary gland.

Objective: To analyze the morphology of the sella turcica and its sexual dimorphism in Northeastern Brazil.

Methods: Fifteen human skulls from the Federal University of Paraíba (UFPB) were used. The qualitative analysis was performed by classifying the shape of the sella turcica into three types: U, J and flattened. Morphometric data was collected and statistically analyzed to evaluate the relationship between sella morphometry and gender, and between sella and skull measurements. Values of $p<0.05$ were considered significant.

Results: Qualitative analysis shows 2 skulls U-shaped, 7 J-shaped, and 6 flattened- shaped. There was a difference between the sexes ($p < 0.05$) in the sella turcica length (STL) and skull length (SL), with male skulls being larger in both cases. The other linear measurements didn't show differences between the sexes ($p>0.05$). There was a positive linear correlation between STL and SL, and a negative linear correlation between sella turcica width (STW) and sella turcica height (STH) and between STH and bitemporal width (BTW).

Conclusion: The results point to important differences in the morphometric parameters evaluated with original findings for this population. Knowledge of the morphology of the sellais essential to plan safer surgical approaches in the pituitary gland or related anatomical structures.

MeSH terms: Sella turcica; Anatomy; Osteology.

Key words: Morphology; morphometric; Dry skull.

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Impact of the COVID-19 pandemic on coping with Leprosy in Sergipe, Brazil, 2020

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Background: The COVID-19 pandemic had an impact on the dynamics of other existing diseases in Brazil, such as Leprosy.
Objectives: To analyze the impact of the COVID-19 pandemic on leprosy indicators in the general population and in children under 15 in the state of Sergipe, in 2020.
Methods: An ecological time series study was carried out including all new cases of leprosy diagnosed and reported in the state of Sergipe between 2017 and 2020. The variables were analyzed: i. Number of new cases, monthly average and detection coefficient in the general population and in children under 15 years old/ 00 thousand inhabitants, ii. Proportion of ignored / blank / unclassified in the epidemiological variables, iii. Proportion of contacts of new leprosy cases that were examined during the year. A descriptive analysis was conducted.
Results: In 2020, there was a 22.2% reduction in the number of new leprosy cases in the general population (325 in 2019; 253 in 2020) and a 44.4% reduction in the general detection coefficient (14.1/100 thousand in 2019; 7.9 cases/100 thousand in 2020). In children under 15 years old, there was a 50.0% decrease in records (22 cases in 2019; 11 cases in 2020) and 49.8% in the detection coefficient (4.2/100 thousand in 2019; 2.1/100 thousand in 2020). The number of municipalities without a record of the disease increased, both in the general population, which went from 25 (33.3%) municipalities in 2019 to 29 (38.6%) in 2020, and in those under 15 years of age, from 63 (84.0%) to 68 (90.7%). There was an increase in the proportion of ignored/ blank/ unclassified fields in the variables race/color, education, clinical form and assessment of physical disability in the diagnosis. The contact examination decreased from 78.7% to 68.9%.
Conclusions: The COVID-19 pandemic resulted in a negative impact in the fight against leprosy in Sergipe. The challenges posed by the pandemic must urgently be considered in the development of mitigation plans and or strategies.

Key words: COVID-19; Leprosy; Pandemic.

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INPP5K-Related congenital muscular dystrophy: when juvenile cataracts give clues to a complex diagnosis

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Introduction: Congenital muscular dystrophies (CMDs) are a group of rare genetic muscle diseases that present at birth or during infancy with hypotonia and weakness. Multiple forms of CMDs are also associated with cerebral and ocular phenotypes. Recently, *INPP5K* mutations have been described associated with CMD, cataracts and cognitive impairment. The INPP5K gene, encodes SKIP, one of the enzymes that phosphorylate the 5-phosphate position of phosphoinositides and is highly expressed in developing and adult brain, eye and muscle.
Methods: We performed a case report of three Brazilian patients with *INPP5K*-CMD with cataracts and intellectual disability under clinical follow-up at our service.
Results: Case 1: 39 years old, female, presenting with progressive leg weakness since childhood, mild intellectual disability and bilateral cataracts at 20 years. Her 35-year-old sister (Case 2) had a similar clinical picture with limb-girdle weakness since childhood, cognitive impairment and early- onset bilateral cataracts. Both with myopathic pattern in EMG, elevated creatine phosphokinase (CK) and dystrophic pattern in muscle biopsy. Brain MRI studies disclosed a large megacistern in the elderly and no abnormalities in the younger sister. Genetic testing: c.653_655del(p.(Ser218del) in homozygosity in *INPP5K* gene. Case 3: 20 years old, female, normal motor development but learning difficulties since childhood. Presented with progressive pelvic girdle weakness in childhood and bilateral cataracts in late adolescence. Exams disclosed elevated CK, brain MRI was normal and genetic testing with the following mutation in *INPP5K* gene:c.[881_883del];[1088T>C];p.[Ser294del];[Ile363Thr].
Conclusion: We describepatients with CMD, cataracts and intellectual disability, caused by mutation in the *INPP5K* gene. In literature few cases are reported.

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Myopathy following statin use

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Introduction: Myopathies can be caused by various drugs, including statins and corticosteroids, and can be toxic or inflammatory, one example being necrotizing myositis triggered by statins.
Objectives: Describe the case of a patient with weakness after statin use.
Design and setting: Case report
Methods: Analysis of medical record, photographic record of the diagnostic methods and literature review.
Case description: 69-year-old female, obese, hypertensive, diabetic, dyslipidemic and hypothyroid, taking atorvastatin since 2017, referred by endocrinol-

ogy for generalized myalgia in 2019, with increased creatine phosphokinase (CPK). Discontinued statin use since then, maintaining symptoms. Neurological examination showed tetraparesis, with proximal predominance. Electroneuromyography (ENMG) showed signs of myopathy. Corticotherapy with deflazacort was initiated, with improvement of symptoms and reduction of CPK levels. Investigation for paraneoplastic syndrome was performed, with negative results. He started using pioglitazone, prescribed by endocrinology, with reduced corticotherapy, for better glycemic control, presenting worsening weakness, frequent falls, and dyspnea on effort. The patient repeated ENMG in one month, without changes. Performed an anti-HMG-CoA reductase autoantibody test, with a positive result, concluding the diagnosis of immune-mediated necrotizing myositis triggered by statins, with a probable toxic myopathy after use of pioglitazone. Azathioprine was introduced, with gradual weaning from corticosteroids, and physical therapy was started.

Conclusion: Several medications can cause myopathy, directly (toxic) or indirectly (immune-mediated), and this patient used 3 potentially myopathy-causing drugs (atorvastatin, deflazacort, and pioglitazone). The non-improvement upon medication withdrawal suggested an immune-mediated inflammatory cause,confirmed in this case by the determination of a specific autoantibody for statin-induced necrotizing myositis.

MeSH words: Hydroxymethylglutaryl-CoA Reductase Inhibitors, muscle weakness, Myopathy
Key words: Myopathy, statin, muscle weakness

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Cerebral venous thrombosis related to the use of combined oral contraceptives

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Background: Cerebral venous thrombosis (CVT) is a rare condition (less than 1% of stroke). It occurs in the younger population (less than 50 years old), 3 times more common in women, especially those of reproductive age.
Objectives and methodology: Narrative review to correlate CVT with the use of combined oral contraceptives (ACO). The following databases were used: Pubmed, Scielo and Medline.
Results: A systematic review had 11 studies included showing that the use of OAC increases the chances of developing CVST (central venous sinus thrombosis). Among the 9 studies that reported odds ratios, the combined probability of developing CVST in women of reproductive age who use OAC was 7.59 times the probability of developing CVST compared to those who do not take oral contraceptives (OR = 7.59, 95 CI % 3.82-15.09). A retrospective study of 37 female adolescents was diagnosed with CVT, 22 (59%) of whom used OAC and the remaining 15 had other etiological factors. The data indicate that adolescents using OAC to treat hirsutism, menstrual dysfunction or polycystic ovary syndrome may also have some risk factors for thrombosis, such as hereditary coagulopathy. The coexistence of these diseases mentioned with the use of OCA can increase the risk of CVT.
Conclusions: The two main studies analyzed concluded the association between the use of ACO and cases of CVT in women. It's necessary to be attentive to suggestive signs and symptoms in this population, as they are common to other pathologies, making the diagnosis of CVT difficult.

MeSH terms: Intracranial Thrombosis, Cerebral Thrombosis, Brain Thrombosis, Cranial Sinus Thrombosis, Combined Oral Contraceptive
Key words: Trombose venosa cerebral, trombose de seio venoso central, anticoncepcional oral combinado, contraceptivos hormonais

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Post-traumatic vertebral artery dissection

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Introduction: Vertebral artery dissections are responsible for 2% of all ischemic strokes and correspond to more than 25% of events in young adults. Its main etiologies, such as spontaneous and traumatic, which compromise the structural integrity of the arterial wall, allowing blood to accumulate between the layers of the vessel as an intramural hematoma, which can progress to stenosis or luminal occlusion in stroke.
Case report: We attended a woman, 29 years old, who suffered a mild trauma in the cervical region during weight training in the gym presenting symptoms hours after the accident, a sudden headache of strong intensity irradiated to cervical, which evolves to a picture of cerebral ischemia characterized by changes in balance and coordination. The diagnosis was confirmed through complementary examinations of cranial tomography and angiotomography and treatment was composed by a combination of aspirin and clopidogrel with favorable evolution of the condition.
Conclusion: The report illustrates that the change in cerebral circulation due to ischemia can occur either suddenly or even days after the injury, and it is likely that many cases classified as "spontaneous" without identifying the cause, may have been caused by minor trauma. In general, there is a good prognosis if earlyrecognition and correct management.

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Chemical thrombolysis with extended 15-hour window in a patient undergoing perfusion CT scan with Rapid CT protocol: a case report

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Context: Recently, with the advance of neuroimaging modalities, the windows of reperfusion therapy in patients with acute stroke have been reviewed and extended, especially for mechanical thrombectomy.

Case report: 81 year old patient, previously hypertensive and dyslipidemic, fully functional (modified Rankin scale = 0), admitted to the emergency room of a tertiary hospital with global aphasia, right hemiparesis, right homonymous hemianopsia and severe hypoesthesia of the right upper limb, scoring 26 on the NIHSS, with report of having contacted family members for the last time 15 hours before admission. She was treated according to the institution's acute stroke protocol, and underwent non-contrast brain computed tomography (CT), perfusion CT with Rapid CT protocol and cerebral artery + neck angio-CT, which ruled out bleeding and showed an ASPECTS of 8, an estimated ischemic core volume of 17 mL, and an area with hypoperfusion of 118 mL (perfusional mismatch of 101 mL), besides occlusion of the M1 segment of the left middle cerebral artery. Thus, she was submitted to chemical thrombolysis, with a decrease in NIHSS score to 15 and evolving without complications upon hospitalization.
Conclusions: In patients with uncertain ictus, the use of advanced neuroimaging modalities, such as perfusion tomography with Rapid CT protocol, may assist in the indication of reperfusion therapies safely.

MeSH terms: Stroke, therapeutic thrombolysis, CT scan
Key words: extended therapeutic window, acute Stroke treatment, thrombolysis, tpa, neuroimaging

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Treatment satisfaction for gene silencing pharmacotherapies for the treatment of hereditary transthyretin amyloidosis with polyneuropathy

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Background and Aims: Hereditary transthyretin amyloidosis (hATTR) is a rare, progressive, systemic, fatal condition in which misfolded transthyretin proteins form amyloid in tissues and organs, often manifesting in polyneuropathy (hATTR-PN). The FDA has approved 2 gene-silencing pharmacotherapies for hATTR-PN: inotersen, administered subcutaneously; and patisiran, administered intravenously. Patient satisfaction for each treatment was examined during a period overlapping with the COVID-19 pandemic.
Methods: Patients with hATTR-PN (with and without accompanying cardiomyopathy) in the United States participated in an observational, online survey between January 1 and October 25, 2020. The Treatment Satisfaction Questionnaire for Medication, version II (TSQMvII), was administered to 29 patients currently being treated with inotersen (n=11) or patisiran (n=18). TSQMvII produces 4 scale scores—Effectiveness, Side Effects, Convenience, and Global Satisfaction—ranging from 0 to 100. Higher scores indicate greater satisfaction. TSQMvII scores were descriptively compared between treatment groups.
Results: Patients receiving inotersen indicated greater satisfaction with convenience than patients receiving patisiran (mean, 76.3 [SD=19.4] vs 58.6 [15.3], respectively), and less dissatisfaction with treatment side effects (86.1 [16.4] vs 68.3 [19.0]). Ratings were comparable between treatments with respect to effectiveness (72.0 [21.5] vs 67.1 [19.7]) and global satisfaction (78.0 [20.0] vs 74.5 [21.7]).
Conclusions: While inotersen and patisiran were rated similarly in effectiveness and overall treatment satisfaction, inotersen was associated with less dissatisfaction with side effects and greater convenience, with the latter possibly reflecting differences in mode of administration (ie, at home vs visit to a clinical site), which may be particularly important during a pandemic.

MeSH terms: Hereditary Amyloidosis. Transthyretin Amyloidosis, Antisense Oligonucleotides
Key words: hereditary transthyretin amyloidosis; treatment satisfaction; inotersen; patisiran

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Covid-19 Brachial plexopathy: a case report

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Context: The understanding of neuromuscular manifestations secondary to infection by SARS-CoV-2 is scarce. Peripheral neuropathies are a heterogeneous group of diseases affecting the peripheral nervous system, with a variable motor, sensitive and autonomic involvement. There are recent descriptions of atypical patterns of neuropathies after COVID-19. In this study we aim to report a brachial plexopathy secondary to COVID-19 with its clinical and electrophysiological characterization. We performed a cross-sectional, observational, descriptive, case report type, using medical record review.
Case report: A 42 year-old female was hospitalized for 2 months due to severe respiratory syndrome due to COVID-19. She remained in the ICU for 20 days. During her stay in the ward she complained of weakness and pain in his right upper limb. Physical examination revealed weakness in the right shoulder abduction and elbow flexion. Nerve conduction studies demonstrated involvement of the upper trunk of the right brachial plexus. There was no report of trauma. Her BMI was 50 kg/m2.
Conclusions: Recent studies bring atypical descriptions of focal neuropathies, multiple mononeuropathies and plexopathies, opening a new field of study in addition to the description of neuromuscular weakness following ICU stay after COVID-19. From an electrophysiological point of view, there is a recent interest in better characterization of patients with axonal neuropathies suggesting a possible vasculitic mechanism of neuronal damage after COVID-19. Further investigations are necessary to improve the characterization of this particular group, helping its diagnosis and early treatment to reduce complications and disabilities.

MeSH terms: Brachial Plexus Neuropathies, COVID-19 and Neuromuscular Diseases.
Keywords : SARS-CoV-2, ICU weakness, electrophysiology, vasculitis.

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Cerebral Venous Sinus Thrombosis and Covid-19: an Integrative Review

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Background: Although the majority of those infected by COVID-19 develop an asymptomatic or mild condition, there are those who evolve to a critical

condition, such as Cerebral Venous Thrombosis (CVT), which deserves attention, as it is a neurovascular emergency.
Objectives: The objective of the abstract is to analyze CVT as a complication of COVID-19.
Design and setting: This is an integrative literature review, conducted in the Pubmed database.
Methods: The descriptor "cerebral venous thrombosis covid" was used. The inclusion criteria were English studies published in 2020. The exclusion criteria were the non- relevance of the information to the theme. In all, 7 articles were selected.
Results: It was observed that most patients were middle-aged men diagnosed with CVT after 7 days of Covid-19 discharge. CVT may be associated with endotheliitis caused by the virus interaction with the Angiotensin Converting Enzyme receptor, also with an abnormal proliferation of cytokines, and both of them favor vasoconstriction and hypercoagulopathy. It has been proposed that the disease may induce a prothrombotic state by the elevated levels of circulating fibrinogen, D-dimer, and pro-thrombotic microparticles. Furthermore, increasing levels of antiphospholipid antibodies detected in patients with COVID-19, such as anti-cardiolopin IgA, anti-β2-glycoprotein I IgA and IgG may precipitate hypercoagulability and vascular infarctions.
Conclusion: This review shows the influence of the post-COVID on the occurrence of TVC. However, the studies are still incipient and have not systematically described other previous prothrombotic conditions that may be additive factors.

MeSH terms: Cerebral Venous Thrombosis; Covid-19; Sars-CoV-2; Hipercoagulopathy.
Key words: Trombose Venosa Cerebral; Covid- 19 ; Sars- Co V- 2 ; Hipercoagulopatia.

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Treatment and main complications of Amyotrophic Lateral Sclerosis: a literature review

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Background: Greek, the word sklerosis means hardening. In medicine, the term sclerosis refers to the stiffening of body tissues - scars. These scars (sclerosis), when located in motor neurons, are signs of Amyotrophic Lateral Sclerosis (ALS), a neurodegenerative disease that affects neurons located in the primary motor cortex, brain stem, spinal cord and pyramidal tract. ALS has no cure and its treatment options are currently limited.
Objectives: Review on the major complications of ALS, as well as the therapeutic methods for its treatment.
Methods: Study conducted trough articles found on The New English Journal of Medicine, SpringerLink and Scholar Google and dated between 2009 and 2021.
Results: ALS is known for the gradual atrophy of the muscle fibers associated with muscle loss, dysarthria and dysphagia complicated by sialorrhea, depending on the condition. All forms of the disease lead to paralysis, which causes the main consequent complication for the early mortality of patients - respiratory failure. The treatment of ALS has only one specific approved drug: riluzole, which decreases motor neuron damage, reducing disease progression and increasing patient survival. New therapeutic methods are being studied, such as treatment with stem cells and STING- induced inflammation, but they remain with limited evidence.
Conclusions: ALS still has extremely restricted targeted treatment. There's evident need for further studies aimed at a greater understanding of therapies with the potential to become effective in delaying the progression of the disease.

MeSH terms: Motor Neuron Disease; Amyotrophic Lateral Sclerosis (ALS); Dysarthria.
Key words: Amyotrophic Lateral Sclerosis; Targeted treatment; ALS; Complications.

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Antibiotic therapy as a risk factor in Parkinson's disease

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Background: Antibiotics exposure is related to gastrointestinal tract dysbiosis and appearance of systemic repercussions. Due to the correlation between Enteric Nervous System (ENS) and Central Nervous System (CNS), abnormalities in the gut microbiota have been associated with neurological disorders including Parkinson's Disease (PD).
Objectives: Search evidence in the scientific literature relating antibiotic therapy and Parkinson's disease.
Methods: A systematic review has been done using the descriptors "Parkinson's disease", "antibiotics" and "gut microbiota" in PubMed's database. The research was conducted in april 2021, without temporal limitations, in english and portuguese.
Results: Studies suggest that PD begins with intestinal inflammation and abnormal alpha-synuclein deposition in the ENS that follows, through nerves, to the CNS. Results show that leaky gut and dysbiosis preceded 5-10 years PD's initial symptoms, while the intense exposure to antibiotics preceded 10-15 years the diagnostic. On average, PD patients received larger amounts of antibiotics than controls (p=0.021). Dysbiosis post-antibiotics presented reduced diversity of *Bacteroidetes*, *Firmicutes* and *Prevotellaceae* and growthing of *Enterobacteriaceae,* resulting in higher risk of gastrointestinal infections, higher rates of pro-inflammatory cytokines, increased permeability of gastrointestinal and brain-blood barriers and hyperexpression of the alpha-synuclein protein in the colon.
Conclusion: Poorly controlled antibiotic therapy and its subsequent damage to gut microbiota anticipates PD's early symptoms.

MeSH terms: Dyskinesia. Gastrointestinal Microbiome. Cytokines
Key words: Parkinson's disease. Antibiotic therapy. Dysbiosis.

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Repetitive peripheral sensory stimulation (RPSS)

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Background: Repetitive peripheral sensory stimulation (RPSS) followed by 4-hour task-specific training improves upper limb motor function in subjects

with stroke who experience moderate to severe motor upper limb impairments.

Obectives: Here, we compared effects of RPSS versus sham followed by a shorter duration of training in subjects with moderate to severe motor impairments in the chronic phase after stroke.

Design and setting: Single-center, randomized, placebo-controlled, parallel-group clinical trial.

Methods: We compared effects of 18 sessions of either 1.5 hours of active RPSS or sham followed by a supervised session of 30-minutes of functional electrical stimulation (FES) and 45-minutes of task-specific training (TST) of the paretic upper limb. In both groups, subjects were instructed to perform functional tasks at home, without supervision. The primary outcome measure was the Wolf Motor Function Test (WMFT) after six weeks of treatment. Grasp and pinch strength were secondary outcomes.

Results: In intention-to-treat analysis, WMFT improved significantly in both active and sham groups at 3 and 6 weeks of treatment. Grasp strength improved significantly in the active, but not in the sham group, at 3 and 6 weeks. Pinch strength improved significantly in both groups at 3 weeks, and only in the active group at 6 weeks.

Conclusions: RPSS enhanced hand strength in chronic stroke. Despite the short duration of supervised training (2.75 hours/session), changes in WMFT in both groups were comparable to those reported after longer, more intensive training protocols. These findings are relevant to settings that impose constraints in duration of direct contact between therapists and patients.

ClinicalTrials.gov identifier: NCT0265878
MeSH terms: Stroke, rehabilitation, upper extremity
Key words: Neuromodulation, sensory stimulation, training

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Relevance about the use of dexametasone in a patient with chronic suddural hematoma: a literature review

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Introduction: The use of corticosteroids, especially dexamethasone, for the treatment of Chronic Subdural Hematoma (CSDH), is a secular conduct protocol. However, recent studies contradict this recommendation in some points.

Objectives: To score the use of dexamethasone in patients with Chronic Subdural Hematoma.

Methodology: Literature review, based on PubMed database using the descriptors "Desamethasone", "Chronic Subdural Hematoma" and "Treatment", using a time filter from the years 2020-2021.

Results: In a study with 443 neurosurgeons, 26.2% of respondents estimate that corticosteroids are highly effective in CSDH, with 46.2% using dexamethasone as monotherapy in conservative treatment. According to a randomized study conducted by The New England Journal, 375 people diagnosed with CSDH were treated with dexamethasone while 373 received the placebo, where 94% had undergone surgical treatment previously. At the end of the study, only 680 candidate patients continued to be analyzed, of which a favorable outcome was seen in 286 of 341 (83.9%) in the dexamethasone group and in 306 of 339 patients (90.30) in the placebo group, where there is a difference of 6.4 percentage points in favor of the placebo. In addition, in the same study, more adverse effects occurred in the dexamethasone group, however, 1.7% of the patients in this group needed surgery for hematoma recurrence compared to 7.1% in the group that used the placebo.

Conclusion: It is possible to say that treatment with dexamethasone caused more adverseeffects and resulted in less favorable outcomes, however, the recurrence for the number ofsurgeries was lower.

Key words: Dexamethasone; Treatment; Chronic Subdural Hematoma.

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Post-COVID-19 multiple mononeuritis in a patient from a city in São Paulo

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Context: COVID-19 is a disease capable of harming the entire organism, especially the lungs. It may lead to hospitalization in Intensive Care Units (ICU) and neurological conditions due to the possibility of development of myopathy in critically ill patients (MCIP) and even Multiple Mononeuritis (MM). That disorder presents itself with symmetrical lesions, significant disability, and no evidence of myopathy or demyelination in the electroneuromyography (ENM).

Case report: We bring the case of a 57-year-old man with diabetes, systemic arterial hypertension, and dyslipidemia without previous neurological alterations. He was interned in ICU for 31 days because of a COVID-19 infection requiring mechanical ventilation and developed MM proven by ENM after hospital discharge. He presented as symptoms of incoordination, weakness, and gait ataxia. The patient's ENM exam showed evidence of a reduction in the amplitude of the sensory potentials of all researched nerves and reductions in the values of sensitive nerve conduction on both median and sural nerves. It also exhibited an absence of sensitive response of the left superficial peroneal nerve, bilateral increase in the latency times of the H reflex, and absence of distal responses from both peroneal nerves.

Conclusions: COVID-19 is a new entity, and it can cause neurological sequels. Even though MCIP is the primary neurological complication in ICU COVID patients, it is necessary to investigate the possibility of differentials like MM.

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Guillain-Barre related to Covid-19

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Background: COVID-19 is a disease that affects the nervous system as proven by the presence of symptoms such as headache, nausea, dizziness, myalgia, anosmia and ageusia - and can cause numerous neurological complications. These complications include Guillain-Barré Syndrome, an autoimmune polyneuropathy usually caused by a previous infectious process. Its main clinical manifestation is asthenia in the limbs, in an ascending form.

Objectives: Review studies that suggest relation between COVID-19 infection and Guillain-Barré Syndrome.

Methods: A systematic review was carried out in April of 2021 of studies published in the scientific database PubMed. The key words used were: "Guillain-Barré syndrome" and "COVID-19". 345 articles were found, of which 12 were selected and 5 were used for review.

Results: The reviewed articles demonstrated an association between cases of Guillain-Barré Syndrome after infection by the COVID-19 virus. The symptoms are asthenia and paresis of the members in an ascending way. The onset of neurological symptoms related to Guillain-Barré Syndrome was about 1 to 4 weeks after the diagnosis of COVID-19.
Conclusions: The reviewed articles suggest an association between Guillain-Barré Syndrome and COVID-19. It is expected that there will be an increase in the number of Guillain-Barré cases compared to years before the pandemic. In patients with active infection, as well as in those post-COVID, attention should be paid to any manifestation of asthenia that may suggest Guillain-Barré syndrome. Further studies are needed to understand the effects of COVID-19 infection on the nervous system and which relate to the development of Guillain-Barré Syndrome.

MeSH terms: Guillain-Barre Syndrome, COVID-19, Polyradiculoneuropathy, Nervous System Autoimmune Disease, Experimental.
Key words: Post-covid syndrome, Ascending paralysis, Asthenia, Previous infection, Guillain-Barre post-COVID.

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Dyslexia: the relationship between the learning disorder and increased creativity

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Background: The relationship between dyslexia and increased creativity scores has been studied since 1981, when possible causes were given: compensation as alternative mechanism to the area of disability or the deficit working as an organising element of the subject's interest through higher focus. However, literature shows a lack of clarity thereof.
Objective: To review recent studies relating dyslexia and increased creative potential.
Methods: Descriptors "Dyslexia" and "Creativity" were searched on PubMed and VHL. Clinical trials and cohorts were filtered, totaling 33 articles; 20 were excluded for evading the topic and 7 for not meeting the research purposes. Parameters that measure creativity were analyzed.
Results: Studies point to higher creativity scores in dyslexics, compared to non-dyslexics. Aspects of creativity such as fluency, flexibility, originality and elaboration were superior in dyslexics. Greater detail was found in design tasks performed by dyslexic children. A recent study found children with dyslexia performed better and quicker in the production of original figures. It is believed that artistic talents seen in many dyslexic subjects result from the delay in the development of language in the dominant hemisphere, originating an 'inhibition' in the parietal lobe on the opposite side to develop creative productions and artistic talents.
Conclusion: That there is scientific substrate to suggest better creative performance of dyslexic people, compared to non-dyslexics. It also provides bases for the social and educational inclusion of people with learning disorders. This should happen not through the imposition of traditional, established certainties, but through working with these subjects' potentialities.

MeSH terms: dyslexia; creativity; cognition.
Key words: learning disorders; creative abilities; language.

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Mortality of chronic-degenerative and infectious neurological disorders from 2009 to 2019: follow-up of epidemiological transition

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Background: The epidemiological transition states that degenerative diseases are the main responsible for morbidity and mortality, assuming infectious diseases place. This trend can be explained by interaction between socio- environmental and demographic factors. Understand where Brazil is it's important in the planning of cost-effective health policies and in reduction of morbidity and mortality.
Objectives: Describe the number of deaths from infectious and degenerative neurological diseases between 2009 and 2019 in Brazil.
Design and setting: This is an descriptive study considering brazilian deaths for neurological disorders.
Methods: Using Ministry of Health database (DATASUS) from 2009 to 2019, mortality of following diseases were analyzed: Meningitis and Encephalitis, as infectous disorders; and Parkinson's, Alzheimer's and Epilepsy as degenerative disorders. Data from Human Development Index (HDI) were taken from the United Nations Development Program (UNDP). Proportions were calculated to simplify analysis and correlation between variables were verified using simple linear regression.
Results: In the period, HDI increased by 6.4%, while mortality from infectious diseases decreased by 25% and from degenerative disordes grew 132%. Considering infectous disorders, Meningitis decreased by 33%, while Encephalitis increased 64%. In chronic-degenerative diseases, deaths due to Alzheimer's disease increased by 158%, in Parkinson's disease 90%, and 63% in Epilepsy. Correlation analysis using simple linear regression revealed a Pearson coefficient (r) of 0.924 and -0.967 for the relationbetween HDI and mortality from degenerative and infectious diseases, respectively.
Conclusion: Brazil has followed the trend of epidemiological transition, with increase in mortality from chronic-degenerative diseases and reduction in infectious disorders.

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Telerehabilitation in Amyotrophic Lateral Sclerosis

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Introduction: Amyotrophic Lateral Sclerosis (ALS) is a progressive and degenerative motor disease of the nervous system. Symptoms are variable, the main one being muscle weakness. Treatment is based on medication and monitoring by a multidisciplinary team to maintain quality of life (QoL) and autonomy. There are barriers, like mobility, and telehealth (TH) can be a possibility of care.
Objectives: To identify evidence of the use of TH in patients with ALS to improve symptoms and QoL. Design and settings: Study carried out at Centro Universitario São Camilo.

Methodology: Literature review in the PubMed, Lilacs and PEDro, between 2011 and 2021, in Portuguese, English or Spanish, with "ALS", "telemedicine", "TH". **Results:** Of the 14 studies found, 13 were selected after review. The majority (93%) made use of video and telephone calls for monitoring and new orientations, after face-to-face evaluation; but all showed the possibility of remote assessment, associated or no with technological resources (such apps, accelerometers, smartwatches). 31% of the studies reported indication of TH for respiratory care in critically ill patients. In general, 93% of the papers demonstrated that TH brought benefits in maintaining QoL and improving respiratory parameters. **Conclusion:** Use of TH in patients with ALS seems to be to viable, safe and beneficial for assessment and monitoring, especially in advanced stages and for respiratory symptoms.

MeSH Terms: Amyotrophic lateral sclerosis; Telemedicine; Physical Therapy; rehabilitation.
Key words: telerreabilitação; Doença Neuromuscular; Covid-19.

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Conus medullaris syndrome caused by spinal cord schistosomiasis: case report

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Background: Neuroschistosomiasis is a rare but severe complication of schistosomiasis that is often underdiagnosed and can affect both the brain and the spinal cord. CNS involvement occurs during hepato-intestinal or intestinal phase of the disease, when the Schistosoma eggs or adult worms reach the vertebral venous plexuses via Batson plexuses.
Objective: To report a case of a patient with conus medullaris syndrome caused by spinal cord schistosomiasis whose symptoms had great improvement after undergoing treatment with praziquantel and prednisone.
Case report: A 45-year-old woman, from Bahia, Brazil, with no significant medical history, presented with intense pain in her legs from knees below, associated with progressive loss of strength, tingling and dysesthesias in both lower limbs, causing gait impairment followed by urinary retention. At physical examination, grade III paraparesis in proximal limbs and grade IV in distal limbs and unsteady dysbasic gait were observed, no meningeal signs were found. MRI study revealed hyperintense signal in medulla at the level of T12-L1 to conus medullaris in T2 sequences, mainly on central portions and medulla, also slight impregnation with gadolinium showing dotted pattern was observed, suggestive findings of inflammatory myelitis. Kato-Katz test was performed evidencing Schistosoma eggs. After diagnosis, patient was treated with prednisone and praziquantel for 5 weeks. At the end the of treatment, she has showed progressive improvement of her symptoms. In our last evaluation, the patient showed a great recovery of movement and strength, now grade IV in proximal limbs and grade V in distal limbs as well as a steadier gait. Urinary retention is still present, and she still needs intermittent catheterization for the time being
Conclusion: Neuroschistosomiasis, when symptomatic, is a severe disorder in which can cause significant incapacity and morbidity. It is an underdiagnosed disorder but has been increasingly reported in populations in endemic areas and in tourists. Prognosis depends largely on early diagnosis and treatment.

Mesh: Neuroschistosomiasis, conus medullaris syndrome, praziquantel
Palavras chave: Neuroinfecção, schistosoma, spinal cord

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Diverse clinical presentations of Moyamoya disease: a case series

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Context: Moyamoya disease or chronic occlusive cerebrovascular disease is characterized by proximal occlusion of the internal carotid artery and its branches bilaterally, generating an angiographic "smoke" pattern (moyamoya, from Japanese "something hazy") and by diverse ischemic manifestations.
Case report: The sample consists of three female patients, aged between 13 and 46 years, followed in our service due to the diagnosis of Moyamoya Disease. Among the clinical manifestations presented, ischemic cerebrovascular events with neurological deficit predominated, and one of the patients presented two episodes compatible with stroke and one episode compatible with transient ischemic accident. The youngest patient presented with a choreic picture initially interpreted as Sydenham's chorea. Although the gold standard for the diagnosis of chronic occlusive cerebrovascular disease is cerebral arterial angiography, it was possible to observe a pattern compatible with the disease in other modalities of examination, such as cerebral arterial angiotomography and cerebral arterial angioresonance. From the therapeutic point of view, one of the patients underwent surgical intervention (encephaloduromyosinangiosis), with improvement of symptoms after treatment.
Conclusions: In this paper, we emphasize the importance of complementary imaging tests in the evaluation of patients with cerebrovascular syndromes and the diversity of clinical presentation of Moyamoya disease.

Mesh: Moya-Moya Disease, Progressive Intracranial Occlusive Arteropathy (Moyamoya), neuroimaging
Key words: Stroke, Chorea, Ischemic Transient Attack, Acute Stroke, Primary Moyamoya Disease

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Mutation in the Codon V180i in Familial Creutzfeldt-Jakob Disease with Diffuse Cortical Hyperintensity, in Brazil

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Context: Familial Creutzfeldt-Jakob Disease (fCJD) represents 10 to 15% of CJD. Among its subtypes there is a mutation in codon V180I, in which, in complementary exams are observed an absence of specific findings in the electroencephalogram, low concentration of proteins in the CSF and a pattern of diffuse

cortical hyperintensity (DCH) in the diffusion sequence identified by MRI. The fCJD with mutation in the V180I codon is predominant in females, presenting symptoms at an advanced age, slow progression, marked by important cognitive decline and low presence of myoclonus. Regarding therapeutic management, there is still no curative or modifying treatment, although the multidisciplinary approach plays a fundamental role in control and quality of life.

Case report: A 72 years old male patient reported a history of recent progressive memory loss for three months. It evolved with difficulty in recognizing family members, repetitive behavior, global aphasia, instability when walking until reaching akinetic mutism. The diffusion sequence of MRI revealed areas of diffuse hyperintensity throughout the cerebral cortex. In view of this and after ruling out other etiologies, a mutation in the V180I codon related to fCJD was found.

Conclusion: Given the rarity of this form of the disease, a rapid suspicion is essential, with imaging tests, especially skull MRI, and genetic tests, aiming at the proper diagnosis of CJD and its genetic form, with its correct therapeutic management.

MeSH terms: "Codon" and "Mutation" and "Creutzfeldt-Jakob Syndrome" and "Cerebral Cortex/diagnostic imaging"

Key words: Familial Creutzfeldt-Jakob Disease; Mutation in Codon V180I; Diffuse Cortical Hyperintensity.

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Bilateral diaphragmatic eventration and alveolar hypoventilation in congenital myotonic dystrophy

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Context: Congenital myotonic dystrophy (CMD) is a subtype of type 1 myotonic dystrophy presented in the neonatal period associated with a 16–40% mortality rate. CMD cause significant morbidity and mortality and often require intensive intervention at birth because of hypotonia, respiratory failure and feeding difficulties. It can cause respiratory problems including ineffective cough, recurrent pulmonary infections, orthopnea, dyspnea, poor sleep, apnea and snoring. However, there are few descriptions about diaphragmatic impairment in CMD. We present a baby who had bilateral diaphragmatic eventration associated with CMD.

Case report: A term outborn female baby with normal birth weight, delivered by cesarean presenting hypotonia and breathing difficulty since birth. There was no history of meconium aspiration syndrome and aspiration pneumonia. Neurological examination showed a severe hypotonia, eyelid ptosis, oral motor weakness and suction inability, without contractures. Chest X-rays confirmed the bilateral diaphragmatic paralysis. Electroneuromyography confirmed a marked myopathic involvement with frequent myotonic discharges. The mother presented clinical and electrical myotonic phenomena. The baby started mechanical ventilation as was not maintaining saturation on head box oxygen. After surgical repair the baby started on non-invasive respiratory support with improvement of ventilatory conditions.

Conclusion: Diaphragmatic eventration is a congenital condition where the muscle maintains its normal costal attachments but is significantly elevated with limited motility. Clinical manifestations vary to life-threatening respiratory distress. Bilateral congenital diaphragmatic eventration is rarer and has more guarded prognosis. Early diaphragmatic plication enhances weaning process and may prevent or minimize the morbidity. Infants with CMD should be monitored for diaphragmatic impairment.

MeSH terms: Congenital Myotonic Dystrophy; Neurology; Diaphragmatic Eventration; Neonatology

Key words: Neonatal mortality; Diaphragmatic impairment

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Parallels between neurologist training in Brazil and in other countries

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Introduction: Neurology training involves practice in infirmaries and outpatient clinics in several subspecialties, as well as training in procedures and examinations. The analysis of Medical Residency Programs (MRPs) in Neurology in other countries is important to identify points of contrast and similarities as a way to keep the national training equivalent to other countries.

Objectives: To analyze the duration and characteristics of the training of neurology physicians in Brazil and other countries.

Methods: Cross-sectional study by active search on official web pages of governments and organizations/entities representing neurologists from 12 countries: Australia, Portugal, Italy, Greece, India, USA, Canada, Puerto Rico, Argentina, Chile, Uruguay, and Colombia. Information was obtained on the duration of medical school and residency, as well as the characteristics of this.

Results: The duration of medical school was 4 to 7 years (median: 6; IIQ: 0.5). Duration in neurology was 3 to 6 years (median: 4; IIQ:1). Developed countries have a median duration of residency of 4.83 years ± 0.68 years, whereas in developing countries it was 3.66 ±0.47 years. Regarding access, 25% of the countries require a prerequisite. Regarding rotations, those present in most of the programs studied were: neurology outpatient clinic (100%), neuroradiology (83%), neuropediatrics (75%) clinical medicine (58%), psychiatry (58%).

Conclusion: We identified differences in the standardization of PRM in Neurology among the countries studied. The duration of Brazilian residency is below the average of the other countries studied, but it includes the required rotations in developed countries.

MeSH terms: Neurology, Educational Measurement, Global Health.

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Optical neurorretinitis by Bartonella Henselae - case report

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Introduction: Cat scratch disease is an infection caused by Bartonella henselae, usually transmitted to humans through cat scratch or bite. The most com-

mon clinical manifestation is lymphadenitis, but 5 to 10% of patients with cat scratch disease may have ocular involvement.

Objectives and methodology: This work aims to report a case of Neuroretinitis optica by Bartonella Henselae. Data were collected through analysis of medical records with the patient's consent.

Results / Case report: Female, 22 years old, born in Joinville, presented, acutely, decreased visual acuity in RE, without pain on eye movement. She reported flu with fever in the previous month and denied recent vaccination. Visual acuity was 20/40 in RE and the fundus revealed papilla edema, hemorrhage and uveitis (+ / 4 +). In laboratory tests there were no changes. Serology for toxoplasmosis revealed a slight increase in IgM and the other serologies were negative. Sulfamethoxazole 800 mg / trimethoprim 160 mg started 12/12 hs and prednisone 80 mg / day, without improvement. Evolved with worsening and visual acuity (20/100) in OD. Retinography showed vascular narrowing, papillary blurring, decreased foveal brightness and macular edema, configuring optic neuritis D, with no changes in the LE. The neurological evaluation did not find any findings other than visual changes. The CSF study, cranial and orbit MRs were normal. At that time, the patient reported having had contact with a dead kitten. Serology was positive for Bartonella (IgM 1/100). Doxycycline 100mg started at 12 / 12h. After 15 days, a stellate macula and a slight improvement in papilla edema were observed. The patient evolved with full recovery.

Conclusion: B.henselae is the main etiological agent of DAG. Kittens are the main reservoirs of B.henselae. Contact with mucous membranes or conjunctivae may be involved. Cat scratch disease (GAD) has two clinical presentations. Typical GAD is characterized by subacute regional lymphadenopathy; atypical GAD is the designation for numerous manifestations involving several organs, and occurs in 10-15% of cases, being responsible for Parinaud's oculoglandular syndrome.

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Analytical Study of the Evolution of Hospitalizations for Traumatic Brain Injury In Brazil, In Comparison With Region, Race, Gender, Age Range and Death, Between January 2011 and December 2020

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Background: Traumatic brain injury (TBI) consists of an damage to the brain tissue by an external agent, whether due to falls, car accidents or aggressions. It is a situation that often requires emergency care, due to possible sequelae and the imminent risk of death. Thus, TCE is one of the main causes of death worldwide, especially in children and young adults, translating into an important public health problem with a high socioeconomic impact.

Objectives: To report the number of hospitalizations for TBI, in order to clarify the relationship between it and the variables studied.

Methods: Analytical epidemiological study carried out by research at DATASUS based on data on head trauma in Brazil, with patients aged less than 1 year to 80 years or more, between January 2011 and December 2020, associating the location according to the age group, region, race, gender, mortality rate, year and number of deaths in the country.

Results: Observing the cases of intracranial trauma, in the last 10 years (2011-2020), 1,033,512 cases were noted, 787,480 (76.19%) of which were male. As for the regional proportion, there is a higher incidence in the southeastern region, with 431,785 (43.02%) cases, with São Paulo being 236,653 (54.80%) the state with the largest number, followed by the northeast region, in which it occupies the second position with the highest number of cases, with 274,781 (26.58%) and Ceará the most relevant state with 65,602 (23.87%) cases. Regarding race, browns with 348,581 (33.72%) cases had the highest rate. Evaluating an age group, 17.23% of the cases are between 20 and 29 years old, followed by 14.88% between 30 and 39 years old. In relation to deaths, there is a total of 98,537, with the age group between 20 and 29 years with the highest incidence with 14,814 (15.03%), with a highlight in the male gender with 13,152 (88.78%). With regard to the mortality rate, a higher rate was observed in males aged over 80 years.

Conclusion: Traumatic brain injury often requires an early diagnosis for a better prognosis. Judging from the large number of cases, it is worth investing in methods for early diagnosis, seeking to improve the prognosis and reduce the total number of deaths. In addition, it is necessary to look at the causes of TBI and to emphasize the prevention of causes that can be avoided, especially among the youngest who are the most affected group.

Key words: Traumatic Brain Injury; Hospitalizations; Mortalities.

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Full attention meditation and the: benefits in self- perception of health in post-stroke individuals: pilot study

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Introduction: Meditation is a technique that can be used in the rehabilitation of post-stroke individuals, helping to reduce stress and mental fatigue.

Objective: To assess whether mindfulness meditation can influence the reduction of stress and improve the well-being of post-stroke patients.

Methodology: This pilot study included post-chronic stroke individuals who understood simple commands and had a mobile cell phone. The intervention protocol was performed remotely and consisted of conducting guided meditation. Assessments were made before starting the program (T0), after four weeks (T4) and at the end of eight weeks (T8) using the following instruments: WHO well-being index (WHO-5), Numerical pain scale (END), Perceived Stress Scale, Modified Rankin Scale and Focused Rankin Assessment, Post-Stroke Self-Efficacy Scale (SSEQ-B), Functional Independence Measure (MIF), Participant's Weekly Report, Participant's Final Report and attendance.

Results: Of the 12 patients contacted, only two completed the study. P1 obtained a total of 24 points in WHO-5 in (T0), (T4) and (T8) and 31 points for perceived stress in (T0), 27 points in (T4) and 30 points in (T8). The Numerical Pain Scale (END) obtained a zero score in all evaluations. P2, obtained a total of 15 points in WHO-5 in the period (T0) and 16 points in (T4 and T8). For the Perceived Stress Scale, it obtained 31 points in (T0) and 30 points in (T4) and (T8). At END he obtained a zero score in all evaluations.

Conclusion: Mindfulness meditation did not demonstrate any benefits

regarding the variables analyzed. However, some limitations need to be recognized, such as the low adherence of individuals to this type of intervention, since only 16.67% of the contacted participants completed the program.

MeSH terms: Stroke. Rehabilitation. Telerehabilitation.
Key words: Cerebrovascular Disorders. Self-Management. Meditation.

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Gliomas: tumor markers and prognosis

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Background: Gliomas are classified based from the molecular parameters involved in their pathogenesis, which influence their prognosis. The parameters are based on the mutation of the genes encoding the enzyme isocitrate dehydrogenase 1 and 2 (IDH1 and IDH2), on the codelection of the arms of chromosome 1p/19q and the promoting hypermethylation of the MGMT gene.
Objectives: identify tumor markers related to gliomas and their prognostic values.
Methods: integrative review of the literature based on pubmed, lilacs and scielo platforms. Articles published in English, Portuguese and Spanish between 2016 and 2021 were included. Articles that were not related to the theme were excluded from the analysis.
Results: The IDH1 and 2 genes are traditional markers and mutations in these genes are associated with a better prognosis. The codeletion 1p/19q, on the other hand, is indicative of a more favorable prognosis when related to tumors without codeletion. MGMT gene hypermethylation has strong prognostic value in patients treated with radiotherapy and chemotherapy with alkyl agentes, because the low expression of the MGMT gene allows better efficacy of the therapy, which would be prevented by the MGMT enzyme. The circulating marker microRNA – 221 (miRNA), obtained by less invasivetechniques, is an indicator of poor prognosis, however, it has not yet obtained clinicalvalidation for use.
Conclusion: It is concluded that the tumor markers that indicate a better prognosis are the genes IDH-I and II, the codelection 1p / 19q and the hypermethylation of the MGMT gene. While miRNA showed a worse prognosis.

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Predictive factors for brain collateral circulation analysis in ischemic stroke

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Introduction: Cerebral collateral circulation has become increasingly important in recent years. It is a physiological vascular protection circuit, designed to preserve cerebral irrigation in a failure context of the primary pathways.
Methods: This retrospective, descriptive and analytical study aims to analyze the predictive factors for the collateral circulation presence in patients with acute ischemic stroke, seen in the emergency room of the Santa Casa de Misericórdia Hospital in São Paulo, with large vessels occlusion on angiotomography.
Results: 21 patients were analysed between january 2018 and april 2020, 10 men and 11 women, with a median age of 71 years. The median NIHSS score was 16 and intravenous thrombolysis was performed in 71.4% of the patients. We identified the presence of hyperglycemia, cervical obstruction and female gender as factors independently associated with an unsatisfactory leptomeningeal collateral state. Systemic arterial hypertension, smoking, alcoholism and a history of stroke had no association with poor collateral status, as well as the previous use of sinvastatin does not improve the combined score.
Conclusion: Knowing the risk factors and comorbidities associated with the rarefaction of cerebral collateral circulation is of great importance in assessing the ischemic stroke acute phase, contributing to improvement in treatment and primary and secondary prevention.

Descriptors: "collateral circulation", "stroke", "modifiable risk factors", "angiotomography".

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16p microtriplication case report associated with autistic spectrum disorder

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Context: The literature on interstitial microtriplications at the 16p11.2 locus is scarce and unclear. We bring a rare case of microtriplications in the 16p11.2 locus associated with Syndromic Autistic Spectrum Disorder (ASD) and Intellectual Disability (ID) to stimulate discussion about this rare and complex condition.
Case report: A.M.C., female, 10 years old, with history of agitation and aggression. Referred to neuropediatrician at 6 years old for behavioral change, socialization difficulties, agitation, heteroaggressiveness, developmental delay and school difficulty. She is not literate, has motor stereotypes when agitated, preferably plays with younger children, has tactile (water), taste (food) and sound sensory dysfunction, a low frustration threshold, difficulty in accepting routine changes and BMI of 14. Genetic evaluation showed interstitial triplication of 610Kb in the short arm of chromosome 16, raising diagnostic hypotheses of ASD and ID.
Conclusions: Changes in microduplication in this locus are predisposing genetic factors for neurodevelopmental delays, ASD and ID. Changes in the number of 16p11.2 copies are believed to promote BMI index body change and brain changes in a dose-dependent manner on the phenotype. Brain changes include areas associated with reward, language and cognition. We bring this case to bring attention and discussion about to this rare condition.

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Clinical-epidemiological profile of patients hospitalized with Multiple Sclerosis in the state of Sao Paulo

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Introduction: Multiple Sclerosis (MS) is an autoimmune disease of the central nervous system that consists of the development of autoantibodies against the myelin sheath in neuronal axons causing demyelinating inflammatory sites. It is a disease currently incurable.
Objectives: The objective was to describe the epidemiological clinical profile of patients hospitalized with MS in the State of São Paulo, in the period from 2011 to 2021.
Methods: This is an epidemiological, descriptive and retrospective study, with quantitative analysis, whose source of data was the Information System for Notifiable Diseases, from the Ministry of Health. The data were tabulated in graphs and tables using Microsoft Excel 2010.
Results: 10,386 admissions of MS were reported in the state. Of the total cases, 67.4% occurred in females and 80.3% in race white. 43.5% of patients in the age group between 30 and 39 years. 94.4% were hospitalized on an elective basis. The average length of stay is between 3.3 days, with mortality rate representing 0.64% of the total.
Conclusion: A higher prevalence was observed in the age range between 30 and 39 years and a predominance of hospitalizations among women. Although it is a disease with high morbidity and mortality, the mortality was low. It suggests that there are variables to be analyzed, such as a possible underreporting of this disease and also the advent of early diagnosis strategies and treatments that can modify the course of the disease, mitigating mortality.

MeSH terms: Demyelinating Disease, Autoimmune, CNS
Key words: Autoantibodies, Inflammatory Sites, Myelin Sheath

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Case Report of Tuberous Sclerosis with early West Syndrome

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Context: We present a patient diagnosed with Tuberous Sclerosis (TS) who developed West Syndrome (WS) early on. Early diagnosis of TS is important for genetic counseling and WS requires early intervention to avoid neurodevelopmental deficits.
Case report: Y.S.L.C., female, 45 days old, presented cardiac rhabdomyoma and 9 hypomelanotic lesions, being diagnosed with TS. At 2 months old, she presented epileptic seizures of flexion spasms, which progressed in 1 week to neuropsychomotor development (NP) regression and hypsarrhythmia. She was diagnosed with WS and treated with vigabatrin. There was suppression of hypsarrhythmic pattern at 8 months old. Currently 8 years old, she has hypochromic stains, hemangiomyolipomas in the right kidney, bilateral renal cysts, sebaceous adenomas, facial angiofibromas, cortical tubers, subependymal nodules, Intellectual Disability and Focal Epilepsy.
Conclusions: ET is an autosomal dominant disease caused by mutations in TSC1 and TSC2 genes leading neurodevelopmental changes and cellular hyperplasias. TE diagnosis is clinical, based on major (such as facial angiofibromas, nail fibroma and hypopigmented macules) and minor criteria and molecular tests in doubtful cases. TE is associated with epilepsy in 80-90% of cases (30 to 50% of infantile spasms). WS is an encephalopathy of infantile spasms, NP arrest/regression and hypsarrhythmia. Early diagnosis and use of anti-epileptic drugs are necessary to avoid cognitive impairment.

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Effects of Aerobic Exercise on Cognition and Activities of Daily Living in Alzheimer's Disease: A Systematic Review

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Background: Alzheimer's disease (AD) represents one of the main causes of cognitive and functional decline in the world. Concomitant with pharmacological treatment, the practice of aerobic exercises (AE) can help in the symptomatic control of the disease.
Objectives: To evaluate the effects of AE on activities of daily living and cognition in patients with AD.
Methods: A systematic review was undertaken. EMBASE, Pubmed and BVS databases were searched using the terms "Alzheimer disease", "Alzheimer syndrome" and "Alzheimer dementia"; "aerobic" and "exercise". The inclusion criteria were: randomized controlled trials from 2016 to 2021, English language studies and human studies. Among 854 studies found, six were included in the review.
Results: The potential benefits of AE training in AD patients are: improvement of functioning, quality of life and cognitive performance; better control of neuropsychiatric symptoms and possible reduction of systemic inflammation.
Conclusions: AEs are associated with cognitive and functional performance gain in AD, probably related to synaptic plasticity optimization and improvement of the feeling of well-being. Although AEs may improve cognitive and neuropsychiatric symptoms, the response to treatment is individual. Future longitudinal studies with larger cohorts and functional neuroimaging studies are required for a better understanding of the real benefit of AE in AD.

MESH Terms: Cognition; Exercise; Alzheimer disease
Key words: Physical activity; Non-pharmacological treatment; Cognitive function; Executive function

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iClinic: Software specialized in management of clinics and medical offices

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Introduction: iClinic is a company that develops software with the purpose of assisting the doctor in the business management of his office or clinic. We believe that healthcare professionals are increasingly intertwined with technology. With that in mind, we offer an efficient and intuitive system, allowing our users to increase their productivity, reduce costs, decrease the no show rate and save time so that they can focus on humanized service.
Methodology: A study was structured in order to understand what the doctors' difficulties were when they became entrepreneurs. In order to contribute to the health area and when realizing that professionals are unassisted in the face of technological advances in their routines, iClinic has developed software capable of managing essential medical care tasks, namely: administrative management, medical records and electronic prescription, agenda service, telemedicine and online appointment scheduling.
Results: Through market studies, interviews, routine monitoring of offices and clinics, it was found that the stored information of patients was largely contained in paper charts, notebooks, diaries and spreadsheets. Therefore, the insertion of technology in the administrative routine of offices and clinics was extremely important. With the use of the software, doctors obtained greater control of information, better management of time, financial control, reduction in the show and increase in the number of consultations.
Conclusion: The health sector has stood out over the years and iClinic has as a pillar to encourage the evolution of good practices using technology, so the software developed by iClinic contributes immensely to the doctor or professional who runs the clinic and / or office increase the level of organization and efficiency, as the use of technology in administrative activities is indispensable in the globalized world.

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Health education in physiotherapy for spinocerebelar ataxia

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Introduction: Ataxia is a symptom of several degenerative medical conditions; the most common in Brazil being Spinocerebelar ataxia (SCA). These patients have difficulty performing fine coordination motors activities, altered body balance and gait. The treatment is based on multidisciplinar rehabilitation, to improve quality of life and mantain general health. Health education (HE) can benefit these patients, but there are few reports about it, especially in SCA patients.
Objectives: To search the literature for evidence of the use of HE in phyisiotherapy for SCA patients in Brazil. Design and settings: Study carried out at Centro Universitario São Camilo.
Methodology: Literature review in the databases: Scielo, UNIFESP and LILACS, **Key words:** "SCA", "rehabilitation", "HE" and "physiotherapy", in Portuguese, English or Spanish .
Results: 27 articles were found, of which 16 were eligible. Studies demonstrates the need for more evidence for HE to be part of the physiotherapist's routine, encouraging the participation and autonomy of the patient and family in the rehabilitation process. It is possible to develop educational materials that complement the health guidelines for these patients.
Conclusion: There is a literary gap about the direct role of the physiotherapist asa HE agent, with responsibilities beyond rehabilitation; within the scope of prevention, health promotion and self-management of the patient and family.

MeSH Terms: ataxia; spinocerebellar; physical therapy; exercise; health education.
Key words: educação em saúde; incoordenação; reabilitação.

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Comparison of the mortality rate due to neurological diseases in Brazil: an epidemiological study from the last 5 years

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Background: In Brazil, about 9 thousand people die annually from nervous system (NS) diseases and its complications. Additionally, the neuropathology mortality rate (MR) is in eighth place, when considering the 21 chapters of the International Classification of Diseases.
Objectives: To analyze the MRs of neurological disorders in the 5 regions of Brazil and to identify where professional training or increased investment may be necessary.
Methods: Epidemiological study, whose statistics were taken from the Department of Informatics of the Brazilian Unified Health System (DATASUS).
Results: The following MRs due to diseases of the NS were found for each region, in decreasing order: North (6.21%); Southeast (4.98%); Northeast (4.77%); South (3.96%); Midwest (3.93%). Also, the national average is expressed by a rate of 4.68%. It was also possible to observe that states in the same region have similar MRs, with some exceptions. Furthermore, the states with the highest MRs are Amazonas (9.42%); Acre (8.94%) and Rio de Janeiro (7.58%). Also, it was possible to notice that the states with the highest mortality, were those that invested less in patients with neurological disorders. However, the monetary factor is not the only determining aspect, since in some places that have similar investments, it is possible to identify a high difference between the MRs.
Conclusions: Therefore, Brazil presents differences between the MRs due to diseases of the NS according to each region. It is evident that investments are fundamental, since states that invest less are, for the most part, those with the highest MRs.

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Bilateral carotid and vertebral arterial dissection after vaccine for COVID-19: case report

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Context: This case report describes a patient with bilateral dissection of the carotid and vertebral arteries after being immunized by the Astrazeneca vaccine against COVID-19.

Case report: AVC, female, 55 years old, health professional, without previous illness, received ChAdOx1 nCov-19 AstraZeneca vaccine and evolved after one day with flu-like symptoms, headache, odynophagia, fever, myalgia for 5 days. On the 7th day, she sought hospital service complaining of sudden headache, and numbness in the left upper limb. A non-reactive Sars-Cov-2 RT-PCR test was performed. The patient was released after clinical improvement. She returned after 8 days, being diagnosed with migraine and was treated with sintomatic drugs. After more 7 days, during the neurologist appointment, she reported daily headaches of varying intensity and episodes of unverified fever, with no findings on physical examination. Laboratory tests, brain resonance with cranial and cervical angioresonance, which showed findings of bilateral carotid dissection, involving the supra-bulbar segments of both internal carotid arteries, notably in the right internal carotid artery, as well as degrees of dissection of both vertebral arteries. On admission, antiplatelet aggregation was chosen, with the patient showing good evolution and being discharged after 4 days for outpatient follow-up.

Conclusion: The patient has no evident risk factor for arterial dissection. In addition, the post-vaccine adverse reaction and the temporal gap between the application of the vaccine and the development of multiple arterial dissections drew attention. A possible link between the patient's immune response and vascular endothelial inflammatory reaction is suggested, resulting in multiple arterial dissections.

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Clinical-epidemiological profile of patients hospitalized with Multiple Sclerosis in the state of Sao Paulo

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Introduction: Multiple Sclerosis (MS) is an autoimmune disease of the central nervous system that consists of the development of autoantibodies against the myelin sheath in neuronal axons causing demyelinating inflammatory sites. It is a disease currently incurable.

Objectives: The objective was to describe the epidemiological clinical profile of patients hospitalized with MS in the State of São Paulo, in the period from 2011 to 2021.

Methods: This is an epidemiological, descriptive and retrospective study, with quantitative analysis, whose source of data was the Information System for Notifiable Diseases, from the Ministry of Health. The data were tabulated in graphs and tables using Microsoft Excel 2010.

Results: 10,386 admissions of MS were reported in the state. Of the total cases, 67.4% occurred in females and 80.3% in race white. 43.5% of patients in the age group between 30 and 39 years. 94.4% were hospitalized on an elective basis. The average length of stay is between 3.3 days, with mortality rate representing 0.64% of the total.

Conclusion: A higher prevalence was observed in the age range between 30 and 39 years and a predominance of hospitalizations among women. Although it is a disease with high morbidity and mortality, the mortality was low. It suggests that there are variables to be analyzed, such as a possible underreporting of this disease and also the advent of early diagnosis strategies and treatments that can modify the course of the disease, mitigating mortality.

MeSH terms: Demyelinating Disease, Autoimmune, CNS
Key words: Autoantibodies, Inflammatory Sites, Myelin Sheath

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Scientific production of an online monitoring in neurology and neuroemergency as the construction of knowledge in academic training: experience report

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Introduction: Monitoring comprises a contribution tool in the teaching-learning process. It is an instrument that helps in the understanding, production and improvement of university knowledge, in addition to stimulating scientific initiation and university extension. The present work brings an innovative proposal of the modality, in which medical specialists guide students in the production of materials on themes in the area with virtual later dissemination, allowing an interaction of students from different regions.

Objectives: Report on the experience of virtual monitoring during the COVID-19 pandemic and to evaluate the effectiveness of active methodologies for the digital use of resources.

Experience report: The monitoring consisted of weekly online meetings, for three months, with clinical cases related to eight themes that were distributed and rotated among the monitors for the production of digital materials containing sub-themes within major touches, which is available for free on the networks monitoring. The following topics were discussed with: headache, ischemic and hemorrhagic stroke, seizures, vertigo, lowering of the sensory, neuroinfections and traumatic brain injury. Reflections on the experience: The active production process, as it is an effective learning method, reinforces the monitors' knowledge on the themes and consolidates important skills.

Conclusion: Online monitoring, in addition to being an alternative to the traditional face-to-face model, contributed to medical training in teaching, research and extension and in thedevelopment of other qualities, such as: interpersonal relationships, didactic language, encouraging teaching and improving the search and filtering data from thescientific literature.

Key words: Monitoring; Neurology; Academic Training

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Cortical and subcortical atrophy in individuals with Huntington's disease and Huntington-like disease

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Background: Huntington-like (HL) syndrome represents a group of diseases clinically similar to Huntington disease (HD) with different genetic etiology. Here, we aimed to compare clinical and neuroimaging features between HL and HD.

Methods: We assessed 12 patients with HL (6 men; 53.66±13.02 years old) and 12 with HD (genetically confirmed, 6 men; 52.58±11.64 years old). All patients were followed at UNICAMP and were matched to sex, age, age at onset and duration of disease. They underwent 3T MRI scans, detailed neurological examination, the unified Huntington's disease rating scale (UHDRS), the Montreal cognitive assessment (MOCA), Beck depression inventory (BDI), and the scale for the evaluation of rating ataxia (SARA). We APPLIED voxel-based morphometry technique (SPM12/CAT12/MATLAB software) to assess differences in the gray and white matters between groups and matched controls.
Results: Groups were clinically similar, but the VBM study revealed widespread cortical (bilateral) and subcortical atrophy in HD (bilateral globi pallidi, amygdala, hippocampi, caudate and putamen), with a more restricted cortical (left temporal lobe) subcortical atrophy in HL (bilateral thalami, putamen and left hippocampus). Cortical atrophy in HL concentrated in the bilateral putamen. The left hippocampus were atrophic in both groups.
Conclusion: Despite similar clinical presentation, patients with HL and HD have distinctive patterns of atrophy subcortical structures, mainly in the thalami. These results may raise insights into the underlying disease mechanisms in HL and HD and could be useful as biomarkers of disease progression in future therapy trials.

MeSH Terms: Huntington's Disease; Atrophy; Image Processing, Computer-Assisted
Key words: Huntington-like; VBM; Neuroimaging

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Spastic paraplegia type 73: expanding phenotype of the first two Brazilian families

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Context: Hereditary spastic paraplegias (HSPs) represent an expanding group of neurodegenerative diseases characterized mainly by progressive spastic paraparesis of the lower limbs. More than 80 different genetic loci have been associated with HSPs. In 2015, heterozygous pathogenic variants in the *CPT1C* gene were first associated with SPG73, not yet described in Brazilian patients.
Objective: We present clinical, neuroimaging and genetic features of three Brazilian patients with SPG73.
Cases reports: We report one male and two female patients, age range 36 to 78 years old. Case 1 presented with a 4-year-history of spasticity, predominantly crural tetraplegia, bladder incontinence, dysphagia and dysphonia. Family history disclosed a sister with epilepsy. Whole-exome sequencing (WES) disclosed a heterozygosis variant c.863G>A (p.Arg288His) in exon 9 of the *CPT1C*. Cases 2 and 3 are first degree relatives (mother and son). Both presented with long-standing slowly progressive spastic paraplegia. Case 3 presented bladder incontinence, constipation, dysphagia and dysphonia at late stages. Cases 2 and 3 WES disclosed the heterozygosis variant c.196T>G (p.Phe66Val) in exon 4 of the *CPT1C*.
Discussion: Previous literature described six patients from an Italian family with pure HSPs phenotype and the pathogenic variant c.109C>G (p.Arg3. 7Cys) in *CPT1C* gene. Another group described three patients associated with pure HSPs phenotype and the pathogenic variant (c.226C>T) in the *CPT1C* gene. All previous reported cases had benign clinical course and bulbar involvement was not described before. One of our cases presented with a *de novo* variant and rapidly progressive motor and bulbar compromise.
Conclusion: our cases expand the current knowledge about SPG73, including a rapidly progressive phenotype with bulbar involvement and cognitive compromise at late stages of disease course.

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Guillain-Barré Syndrome due to Covid-19: A Review

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Background: With the pandemic of SARS-CoV-2 virus spreading, there has been an increase in the dissemination of information relating the infection to neuromuscular involvement. Articles indicate an increase in cases of Guillain-Barré Syndrome immediately or a few weeks after infection by the virus.
Objectives: The present study aimed to gather the current knowledge disclosed in the literature about the onset of Guillain-Barré Syndrome (GBS) related to SARS-CoV-2 infection.
Methods: The study design was based on PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses), using the Pubmed database, including articles in Portuguese and English language.
Results: Articles that indicated an increase in cases of Guillain-Barré Syndrome dated to publications in April 2020 of cases analyzed since February of the same year. Histopathological analyses that identified the virus in the central nervous system of patients, associated with the detection of anti-anglioside antibodies of the anti-GM1, anti-GD1a and anti-GD1b types in the patients analyzed, represent important findings about GBS associated with Covid-19. Pro-inflammatory cytokines present in the immune response as a result of SARS-COV-2 have been associated with the triggering of neuronal injury. In patients analyzed we observed the manifestation of symptoms between 5 and 21 days after Covid-19 infection, similar to the reported GBS interval after other viral infections.
Conclusion: The clinical pictures of patients affected by Covid-19 suggest an intense possible relating between infection by the new coronavirus and autoimmune neuromuscular conditions. Further studies are needed on this association, which has not yet been clarified.

MeSH terms: COVID-19, SARS-CoV-2, Guillain-Barre Syndrome
Key Words: Pandemia da Covid-19, Doença autoimune do sistema nervoso, infecção neuronal

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Canabinoids as a therapeutic alternative in refractory epilepsy

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Introduction: Epilepsy is characterized by abnormal electrical discharges in the brain that generate neuronal hyperexcitability and hypersynchrony. In the last years, pharmacological strategies have been efficient in the control of epileptic seizures of approximately 80% of patients, however, there are still refractory cases.

Objective: To elucidate new forms of epilepsy treatment with cannabinoids. Design: Systematic Review performed at Centro Universitário Atenas – Paracatu – Minas Gerais.

Methods: Literature review performed in the SciELO and PubMed databases, with the following terms: epilepsy and cannabidiol. Five papers, published from 2017 to 2020, written in English or Portuguese, were selected.

Review: Epileptic seizures affect conscience, motor, sensory, and cognitive functions. The treatment with available antiepileptic drugs does not display a complete therapeutic efficiency, as it is still observed the presence of refractory patients. In this context, the cannabidiol (CBD), by interfering in the information flow between neurons, acts therapeutically preventing overload. In the central nervous system, CBD acts in the CB1 receptors, present in GABAergic inhibitory neurons and glutamatergic excitatory neurons. Evidence from an electronic research performed in 2015, with 117 parents of children with refractory epilepsy that used cannabidiol, displayed that seizures were reduced by 85%, including 14% with total suppression.

Conclusion: The studies show that CBD, by acting with specific neuronal receptors, decreases cerebral hyperexcitability. Therefore, this therapeutic alternative may improve the physical and emotional well-being of refractory epileptics.

MeSH terms: Refractory Epilepsy, Cannabinoid, Therapeutics

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Effect of foot reflexology on pain, discharge and weight distribution in feet in patients with type 2 diabetes mellitus - pilot study

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Introduction: Different therapeutic approaches aim to mitigate the consequences caused by type 2 diabetes mellitus (DM2), among them the foot reflexology (FR), therapeutic and integrative method of easy application and low cost that uses pressure stimuli in reflex areas of the foot.

Objective: the objective of the present study was to analyze the effect of FR on pain, discharge and weight distribution (DWD) in the foot in patients with DM2.

Method: This is a controlled and randomized clinical trial. The study was carried out at the physiotherapy clinic of the UNIFAL.The sample consisted of 17 volunteers, of both sexes, with a clinical diagnosis of DM2. The volunteers were allocated into two groups: control group (n= 7), which received information about the care and health of the foot and intervention group (n = 10), which received the application of foot reflexology in specific areas of the foot, for ten consecutive days. For the evaluation and reevaluation, the following were used: visual analogue scale (VAS), baropodometry (DWD) on the foot. For statistical analysis we used the Shapiro-Wilk test, ANOVA with 1 factor for continuous variables and Chi-square for categorical variables. The Mann-Whitney, Wilcoxon test for variable EVA ANOVA test repeated DWD measurement on the foot.

Results: There was a significant improvement in pain symptoms ($p=0.01$), and in DDP in the feet, there was no significant improvement ($p \leq 0.05$).

Conclusion: It is concluded that the FR influenced the improvement of pain symptoms, but did not have any effect on the improvement in the DWD in the foot in patients with DM2.

keyword: Diabetes Mellitus, Type 2; Reflexology and Rehabilitation.

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Guillain Barré syndrome in late lupus: case report

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Context: In the literature, there are few cases of Guillain Barré syndrome (GBS) in association with systemic lupus erythematosus (SLE). There is description

of 19 neuropsychiatric syndromes associated with SLE, 12 of the central nervous system (CNS) and 7 of the peripheral nervous system (PNS). 10% of the patients with SLE and neurological manifestations have PNS complications. SLE is considered to have a late onset when it starts above 50 years of age and it consists in, on average, 26% of the total of individuals with SLE, however, in contrast to juvenile lupus, the number of studies is scarce.

Case report: A patient diagnosed with late onset SLE who came to the emergency department due to seizure crisis and during the management, the patient developed an atypical form of GBS (motor, facial and bulbar), requiring mechanical ventilation and gastrostomy. The patient obtained a favorable outcome after pulse therapy and plasmapheresis.

Conclusion: The atypical form of GBS is a very rare complication in patients with SLE, more studies need to be done for a standardized approach.

Key words: Guillain Barré syndrome, systemic lupus erythematosus, plasmapheresis

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Prognostic association between TOAST and functional dependence 90 days after ischemic stroke

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Introduction: The etiologic classification of ischemic stroke according to TOAST is fundamental in stablishing the correct treatment to patients in order to prevent recurring strokes, besides helping to determine their prognosis.

Objectives: To determine the relationship between TOAST and functional outcome 90 days after ischemic stroke, using the modified Rankin scale (mRS).

Design and Setting: It's a cross-sectional study with patients from HGRS – Salvador, Bahia.

Methods: We classified all patients according to TOAST and stratified the mRS post-90 days in "functional independence" (mRs 0-2) and "functional dependence/death" (mRs 3-6). We included patients > 18 years old, admitted up to 72 hours from ictus, excluding those previously dependent (mRs ≥ 3). We used central tendency measures, chi- squared test and relative risk (RR). We considered IC = 95% and p<0,05 for statistical significance.

Results: We included 268 patients. 59 had large-artery atherosclerosis (LAA), 39 small- vessel occlusion (SVO), 74 cardio embolism (CE) and 84 cryptogenic stroke (CS). There was no difference in gravity in admission between the groups nor in functional outcome in 90 days when the etiologies were grouped (p=0,07). Using CS as reference, CE had RR=1,34, LAA RR=1,31, SVO RR=0,99 for functional dependence (mRS ≥ 3) in 90 days.

Conclusions: The RR analysis numerically shows that CE and LAA elevated the risk of functional dependence in 90 days in 30%. Bigger studies are required to sensitize the analysis.

MeSH terms: Ischemic Stroke, Prognosis, Functional Status
Key words: TOAST, mRS, dependence.

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Progressive disseminated histoplasmosis with pulmonary and central nervous system involvement: a case report

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Context: Histoplasmosis (*Histoplasma capsulatum*) is a systemic disease that affects the lung and immune system1. The severity of histoplasmosis is directly related to the individual's immune response since it is an opportunistic pathogen2. It is one of the most prevalent infections in immunocompromised patients due to the use of tumor necrosis factor-alpha (TNF-alpha) inhibitors, resulting in a mortality rate of 20%. The evolution to CNS occurs in 5-10% of patients with disseminated symptoms3.

Case Report: M.G.M, a woman, 67 years, was admitted with bilateral tonic-clonic seizure with focal onset in the right upper limb. The patient had hypertension, diabetes and rheumatoid arthritis, and was use ASA, glibenclamide, hydrochlorothiazide, losartan, amlodipine, adalimumab and methotrexate. Complementary exams were performed that showed lesions suggestive of microangiopathy on cranial CT; nodular lesions in the pulmonary right upper lobe and prominent lymph nodes inthe hilum and mediastinum on chest CT; CSF with increased cytology (monomorphonuclear predominance), without glucose consumption. The biopsyof lung lesions identified *Histoplasma capsulatum*, confirming the diagnosis of progressive disseminated histoplasmosis with pulmonary and CNS involvement.Thus, treatment with amphotericin B was started, however, the patient died.

Conclusions: Histoplasmosis is the most prevalent invasive fungal infection in users of TNF-alpha inhibitors. In these cases, the disease can be more aggressive and have a rapid evolution, with CNS involvement - which confers a worse prognosis. Early diagnosis, suspension of the immunomodulator and adequate treatment for infection control are required.

MeSH terms: Histoplasmosis; Adalimumab; Central Nervous System Infections
Key words: Monoclonal antibody; Immunosuppression; Histoplasma.

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Epidemiological study on hospitalizations for viral encephalitis in Brazil between january 2010 to december 2020

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Introduction: Viral encephalitis (VE) is an inflammation of the brain parenchyma that progresses to neurological dysfunction of infectious origin. It occurs after hematogenous dissemination into the Central Nervous System and the most common agents are herpes virus, influenza, enterovirus, arbovirus, cytomegalovirus and Epstein-Barr. The signs and symptoms are headache, fever, decreased level of consciousness, seizures, focal deficits and behavioral changes.

Objective: Recognize the epidemiological pattern of hospitalizations for VE in Brazil, between 2010 and 2020.

Methods: A search for original articles and statistical information was performed in the databases Scielo, PUBMED, Medline and DATASUS, the latter related hospitalizations for VE with region, age, gender and year.

Results: Hospitalizations are greater between 0 and 14 Y.O. (59.6%) in both genders, being 1.38M: 1F. The data indicate: <1 Y.O. (15%), 1-4 Y.O. (18.1%), 5-9 Y.O. (16.2%), 10-14 Y.O. (10.2%), totalizing 59.5% (21,004) of hospitalizations (35,188) in these groups, also intensified, between 20-29 Y.O., with 3,956 cases (11.2%). Comparing 2010 and 2020 there was a 63.4% reduction in hospitalizations for VE and the Southeast had the highest rate of the disease (42.1%).

Conclusion: The epidemiological pattern of VE in the last decade represented higher prevalence in the interval between 0 and 14 Y.O.; mainly from 1 to 4. The decrease in the last 11 years may be due to adherence to vaccination campaigns and increased vector control, while the hypothesis for the higher incidence in the Southeast is because it is the most populous region, with favorable geographical areas for viral dissemination.

Key words: Encephalitis, Viral; Epidemiology; Brazil.

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Effects of ZIKV + IgG⁺ complex on murine microglial cells

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BraIns, PUCRS

Background: Infection by Zika virus (ZIKV) is associated with damage to the Central Nervous System, such as Congenital Zika Syndrome[1]. Due to its transplacental transmission, ZIKV induces neuroinflammation and microglial activation, resulting in lesions that can compromise neurodevelopment[2-4]. The fetus protection can be provided by maternal antibodies. However, this protection is still controversial[5]. In this context, it is necessary to elucidate the effects of ZIKV and the mechanisms involved.

Objectives: The present work aim to evaluate the role of the ZIKV+IgG⁺ complex in murine microglia cells (BV2).

Design and setting: BV2 were exposed for 24 or 72 hours, to ZIKV, ZIKA-IgG⁺ or ZIKV+IgG⁺ complex.

Methods: Effects of exposure to treatments were evaluated by MTT, oxidation of DCFHDA (ROS production)[6] and mitochondrial membrane potential ($\Delta\therefore\vartheta$), measured by JC-1[7] assay.

Results: It was observed that ZIKV-IgG⁺ and the ZIKV+IgG⁺ complex are cytotoxic to microglia, impairing the viability of these cells, altering $\Delta\therefore\vartheta$ and inducing the production of ROS, especially in long-term exposure[8,9]. Negative action mediated by these antibodies may be a result of oxidative stress and a intervention in the $\Delta\therefore\vartheta$.

Conclusion: ZIKV-IgG⁺ antibodies are harmful to microglia and these mechanisms may be related to the potential for ZIKV neuroinflammation.

MeSH terms: Zika virus; Microglia; Cell survival; Oxidative stress

Key words: ZIKV; Cell viability; Mitochondrial homeostasis Financial support: CNPq, CAPES and Panduratta

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Myelopathy in sickle cell disease: a case-oriented review

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Background: Although neurological complications are well recognized in sickle cell disease (SCD), myelopathy has been rarely described. We present

the first case report of longitudinally extensive myelitis (LETM) in SCD and review the differential diagnosis of myelopathy in these patients.
Design and setting: case-oriented review.
Methods: We report the case of a 29-year-old African-Brazilian man with SCD, who experienced a subacute flaccid paraparesis, with T2 sensory level and urinary retention. CSF analysis showed a lymphocytic pleocytosis and increased protein levels. MRI disclosed a longitudinally extensive spinal cord lesion, with a high T2/STIR signal extending from C2 to T12. Serum anti-aquaporin-4 antibody was negative. We searched Medline/PubMed, Embase, Scopus, and Google Scholar databases for myelopathy in SCD patients.
Results: Spinal cord compression by vertebral fractures, extramedullary hematopoietic tissue, and Salmonella epidural abscess have been reported in SCD. We found only three case reports of spinal cord infarction, which is unexpectedly infrequent compared to the prevalence of cerebral infarction in SCD. We found only one case report of varicella-zoster myelitis and no previous report of LETM in SCD patients.
Conclusion: Specific and time-sensitive causes of myelopathy should be considered in SCD patients. In addition to compression and ischemia, LETM should be considered as a possible mechanism of spinal cord involvement in SCD.

MeSH terms: transverse myelitis, sickle cell disease, case report
Key words: longitudinally extensive myelitis, ischemic myelopathy, differential diagnosis

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Impact of meningitis vaccination on mortality and notified cases of the disease in Brazil by region between 2009 and 2019

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Introduction: Meningitis is a disease with an important history of epidemics during the 20th century. In Brazil, the National Immunization Program (PNI) reduced the general incidence rate of meningitis. However, meningococcal, bacterial,viral and unspecified meningitis are still a challenge in controlling the disease.
Objective: Describe data related to vaccination coverage of meningitis, number of deaths and reported cases, between 2009 and 2019, by brazilian region.
Design and Setting: Observational study of time series.
Methodology: Used secondary data published in DATASUS for the period 2009-2019.The following data were used:Mortality considers deaths from meningitis and meningococcal infection, according to CID- BR-10. Cases were considered by the year of the first symptom and vaccines were evaluated:Meningococcus A/C(MnAC),Meningococcus B/C(MnBC), Meningococcal Conjugate-C (MncC),Meningococcal ACYW1325, Meningococcal B.Proportions were calculated to analyze the trend.
Results: 204,211 notifications and 14,562 deaths between 2009 and 2019 were analyzed.The reported cases and deaths from meningitis were decreased by 29% and 34%,respectively.Northeast and Southeast regions stood out with the largest proportional reductions in deaths, with 45% and 37% respectively.For notifications,the Northeast had 54% and the Midwest had a 41% reduction. For Vaccination, all regions had an increase in the period described, with emphasis on the North with an increase of 18,006%,and the Northeast with 30,839%.In addition,the South region increased its applied doses by 499%,with a 4% reduction in deaths,and 10% in notifications.
Conclusion: Despite it's limitations, the analysis suggests the expansion of vaccine coverage contributes positively to the incidence and deaths from meningitis in the Brazilian population.

MeSH Terms: Vaccines,Infectious Diseases , Meningitis, Immunization Program, Mortality

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Prevalence of methylphenidate use without medical prescription among university students: a review of the current reality

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Introduction: Methylphenidate is a neuropsychotropic agent, indicated for the treatment of Attention Deficit / Hyperactivity Disorder (ADHD) and narcolepsy, and is commonly prescribed for school and university age patients. The growing prescription of the drug and the misuse of methylphenidate by academics without a diagnosis of ADHD and / or narcolepsy have raised concerns on the part of medical societies of psychiatry. The over-the-counter use of this substance causes potential dependence and adverse effects such as hallucinations, anxiety, dry mouth and visual disturbances. Unfortunately, there is a precarious amount of epidemiological data on the use of methylphenidate without prescription by university students. In view of this reality.
Objectives: The present study proposed to review the assessment of the prevalence of methylphenidate consumption without medical prescription in university environments worldwide, with sources published between 2016-2021.
Methods: To perform this research, the PubMed (https://pubmed.ncbi.nlm.nih.gov/) and Scielo (https://www.scielo.org/) databases were used as a search tool, using the Key words "non-medical", "methylphenidate" and "university students".
Results: So far, 10 articles related to the study (carried out in China, Australia, Brazil, South Africa, Iran, Israel, Pakistan and the United States) have been identified, with 8 articles obtained from PubMed and 2 articles acquired from Scielo. The selected articles show that in 6 of these articles the groups of academics studied were undergraduate and graduate students in general areas, and 4 articles in medical students. The studies present cases of students who confirmed the use of methylphenidate without a prescription, with the justification that it improves academic performance even in healthy students.
Conclusion: Therefore, further studies on epidemiology and effects on academic performance with the improper consumption of this drug are recommended.

MeSH terms: Non-medical OR Methylphenidate OR University Students
Author's Key words: Non-medical use of prescription drugs, Academics, Pharmacological cognitive effect, Central nervous system stimulants

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The use of Botulinum toxin type A for the treatment of refractory chronic migraine

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Background: Chronic migraine is a neurological disorder described as refractory to preventive treatments. Based on the PREEMPT study, the National Institute for Health and Clinical Excellence (NICE) and the FDA approved, in 2010, the use of Botulinum Toxin type A (BoNT/A) to treat refractory chronic migraine.

Objectives: To review the effectiveness of the use of BoNT/A in the treatment of refractory migraine.

Methods: Bibliographic review based on PubMed database, using the descriptors "migraine" and "botulinum toxin". Clinical trials, meta-analyzes and randomized controlled tests, from the last five years, were defined as inclusion criteria.

Results: Sanz et al., (2016) infiltrated BoNT/A in 69 patients - mean age 43 years old, 88.4% women, mean infiltration rate was 2,0. The reduction of headache days and pain intensity was 48.5% and 20.5%, respectively, both statistically significant (p <0.006). Ion et al., (2018) intervened 61 patients - mean age 50 years old, 87% women, mean infiltration of 3.5. 73% showed a reduction greater than 50% for the frequency of migraine episodes, 48% for headache days and 48% for drug use. Dodick et al., (2019) applied BoNT/A in 688 patients - 696 received placebo. The severity and frequency of pain showed a statistically significant reduction (p <0.001) after the first week of treatment in relation to the control group.

Conclusions: The use of BoNT/A to treat refractory chronic migraine proves to be effective, although there is need for studies with larger samples to ensure its effectiveness.

MeSH terms: Botulinum Toxins; Type A; Migraine Disorders; Neurology; Therapeutics.

Palavras-chave do autor: Dor; Enxaqueca; Infiltração; Toxina Botulínica do tipo A; Tratamento.

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Fahr syndrome associated with post-thyroidectomy hypoparathyroidism

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Context: Fahr's syndrome is a rare disorder characterized by bilateral and symmetrical abnormal calcifications in basal ganglia and cerebral cortex. Those calcified deposits are due to changes in calcium and phosphorus metabolisms that can be caused by endocrine disorders, mitochondrial myopathies, dermatological and infectious diseases. Clinical manifestations may include a variety of extrapyramidal, cerebelar and neuropsychiatric syndromes.

Case report: This study describes a 75-year-old female patient that underwent total thyroidectomy in 1985 due to a multinodular goiter and presented post-surgical hypoparathyroidism. The patient missed follow-up apppoointments with Endocrinology and stopped treating her parathyroid condition. Some time later, she presented with change in behavior, drowsiness, paraesthesias, limb spasms and seizures. A CT scan of the brain was performed, showing multiple and extensive calcifications reaching the cerebellar hemispheres, basal ganglia, thalamus and white subcortical substance symmetrically. Laboratory examinations revealed hypocalcemia, hyperphosphatemia, and low parathyroid hormone (PTH) levels. Intravenous calcium gluconate was used to corret the Ca/P dysfunction. Additionally, appropriate antiepileptic drugs for seizures were used. She presented with progressive improvement of symptoms after treatment.

Conclusions: This case report demonstrates the importance of post- thyroidectomy follow-up and early recognition of Fahr syndrome's symptoms, which prevents the progression of neurological conditions.

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Cannabidiol Use as Treatment for Refractory Epilepsies

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Introduction: Refractory epilepsies have a great impact in patients' quality of life. Thus, studies with alternative drugs are extremely important to seek for effective treatments to control the condition, and cannabidiol (CBD) has shown promising results.

Objectives: To analyze CBD's efficacy as an alternative treatment of patients with refractory epilepsy.

Design and setting: this study is a literature review from Universidade Federal da Bahia.

Methods: We searched the following formula on PubMed: [cannabidiol] AND [epilepsy]. The inclusion criteria were clinical trials published from 2016-2021.

Results: 25 articles were found, from which 18 were selected and, from those, 1092 patients were analyzed. All studies pointed to a reduction in

frequency and/or intensity of epileptic crisis in adults and children with refractory epilepsy using CBD, independently of the etiology. In Laux's study, they noted reductions of 50% and 44% in motor and total seizures (respectively). Moreover, Birnbaum's study showed that using CBD with a meal may cause variability of exposure of patients to the drug. Adverse effects were dose dependent, mainly diarrhea, sleepiness and less appetite. The interaction between CBD and anticonvulsants was not shown to have a prejudicial or neutralizing effect.

Conclusion: CBD was shown to be capable of attenuating attacks in patients with refractory epilepsy. However, more randomized clinical trials are needed to analyze the efficacy and the safety of these medications in the short and long term.

MeSH terms: Cannabidiol, Drug resistant epilepsy, Seizure.
Key words: refractory epilepsy, convulsion, alternative drugs.

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Regression of Tumor in the Pineal Gland after Exclusive Radiotherapy: Case Report

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Background: Brain tumors are the most common solid neoplasia and the main cause of death from malignancy in children. Germ cell tumors (GCT) of the central nervous system (CNS) are rare. In pediatrics, the main location is close to the pineal gland and germinomas are the most common intracranial GCTs.

Objectives and Methods: To describe the case of a patient with a possible germinoma treated exclusively with radiotherapy. The case was studied and came from a referral hospital – João Pesssoa, PB.

Results: Reports "impaired failure", disorientation and headache. Computed tomography: Hydrocephalus and strong tumor suspicion in the pineal region. Alpha-fetoprotein (AFP) and beta-gonadotropin (beta-HCG) measurements: Normal. Treatment can be based on radiotherapy or chemotherapy followed by radiotherapy. In this case, radiotherapy was performed at a dosage of 10 Gy, with control, after one month, by means of magnetic resonance imaging that revealed regression of the lesion. The treatment corroborated the hypothesis of a germinoma, which is extremely radiosensitive. However, the regression made it impossible to perform the anatomopathological exam for diagnostic conclusion.

Conclusions: It can be seen, then, that primary CNG GCTs are part of a heterogeneous group of extremely rare lesions, with germinoma therapy still controversial. The case shows regression of a possible germinoma only with the use of radiotherapy.

MeSH terms: Pineal Gland, Neurosecretory System, Therapeutic Radiology
Key words: Pediatric Oncology, Endocrine Neoplasms, Neurology

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The use of cannabidiol in the treatment of epilepsy in neuropediatric: a review of the new contributions

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Background: Therapeutic cannabinoids are derived from marijuana, a plant of the cannabis genus. *Cannabis sativa* and *Cannabis indica* are the two main species. Cannabis plants contain more than 100 cannabinoids, but the biologically active and therapeutically researched ones are 9 tetrahydrocannabinol (THC) and cannabinol (CBD). Cannabinoids have been advocated for a number of neurological and psychiatric disorders, including multiple sclerosis, mood disorders, schizophrenia, Parkinson's disease, dystonia, neuropathic pain, nausea, anorexia and epilepsy. Epilepsy is a chronic disease characterized by recurrent unprovoked seizures, affecting more than 50 million people worldwide, in the pediatric age group, with childhood epilepsy being one of the most serious and developing epileptic encephalopathies.

Objective: In view of the above, the present study proposed to review the use of cannabidiol in the treatment of epilepsy in neuropediatric, with sources published between 2016-2020.

Methods: To perform this research, PubMed (https://pubmeed.ncbi.nlm.nih.gov/) and Scielo (https://www.scielo.org/) databases were used as a search tool, using the Key words "Cannabidiol", "Epilepsy", "Cannabis" and "Children".

Results: So far, 11 articles related to the study have been identified, the vast majority being reviewed, with 9 articles obtained from PubMed and 2 acquired from Scielo. Selected articles show that CBD is an effective anticonvulsant in many acute animal models, but its antiepileptic mechanisms are not yet fully recognized. In studies with children in Canada and the United States, they suggest an improvement in the frequency of seizures and an improvement in quality of life, but the numbers are still small. Studies report that CBD is well tolerated, however, it causes sedation, diarrhea and decreased appetite.

Conclusions: It is necessary to investigate the safety, pharmacokinetics and interaction between drugs already used by patients and CBD, also conducting more double-blind placebo-controlled trials to obtain conclusive data on their efficacy and safety in the most frequent epilepsies in children.

Author's Key words: Cannabidiol, Epilepsy, Cannabis; CBD - cannabidiol, Epileptic Encephalopathy.
MeSH terms: Cannabidiol, cannabis, epilepsy, clinical.

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Epidemiological Profile of Meningitis Cases in the Southeast Region in Brazil

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This project has as an objective the analysis of the epidemiological profile of the cases of meningitis in the southeastern of Brazil, comparing

etiologies, age group and evolution. The study has an epidemiological profile where confirmed cases were selected between 2010-2019. The approach was quantitative through research on the DATASUS platform, in the field of Diseases and Notifiable Diseases - SINAN. There's a predominance of deaths due to Other Bacteria, the same being predominant in the age group of 40-59 and less in 80 year olds or more. In addition, it's noticed less occurrence of Haemophilus Meningitis with a predilection for infants. In Espirito Santo, there's a higher incidence of deaths from, mainly affecting the age group of 20-39 year olds, which accounts for 20% of the cases. In Rio de Janeiro, there's a predominance of Other Bacterias, which corresponds to 20.7% of the total cases, in those aged 20-39 years. In São Paulo, there's a supremacy of Viral with 59% of total cases, affecting mainly children, with emphasis on 1-4 year olds, having a good clinical evolution, however, corresponds to 7% of the total deaths. If untreated, the morbimortality is profound, it's important to recognize the epidemiological profile of the pathology so that the approach to patients who present it, is the most targeted and effective as possible. Data analysis showed that Other Bacterias Meningitis is the main cause of death, therefore, epidemiology is associated with severity and lethality.

Key words: Meningitis, Etiology, Evolution
MeSH terms: Bacteria, Infection, Neurology

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The use of Amantadine in Cognitive and Behavioral Recovery After Severe Cranioencephalic Trauma: A Systematic Review

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Background: Traumatic brain injury (TBI) is the main cause of death among individuals between 1 and 44 years of age, and severe TBI is associated with a mortality rate between 30% and 70%. In this context, randomized clinical trials have studied medications to reduce morbidity in severe TBI, one of which is Amantadine. This drug acts on the increase of extracellular dopamine and as an NMDA antagonist.
Objectives: Developing a systematic review of systematic reviews to evaluate the efficacy of Amantadine in reducing morbidity in patients with severe TBI.
Methodology: The search was conducted in the PubMed, Embase, Cochrane Library, and Portal Regional BVS databases.
Results: Eleven systematic reviews were included. The literature review of 7 articles demonstrated the efficacy of treatment with Amantadine in the following clinical aspects after TBI: aggression, irritability, agitation, mood, and attention deficit. On the other hand, one article did not consider the use of Amantadine significantly beneficial, due to increased agitation in critically ill patients, suggesting that there is worsening of the condition in individuals with cognitive, executive, memory, and attention symptoms. Therefore, three studies reported that there was not enough evidence for the use of this drug in patients with severe TBI.
Conclusions: The results are heterogeneous. However, this study found good efficacy of Amantadine for cases of agitation/aggression in severe TBI and in cases of diffuse axonal lesion that compromises the glutamate pathways.

MeSH terms: "Amantadine", "Traumatic Brain Injuries", "Brain Trauma"
Key words: "Amantadine, "Trauma", "Cognitive", "Behavior", "Recovery"

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Association between Burnout Syndrome and the SARS-Cov-2 pandemic in healthcare professionals - a literature review

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Background: The SARS-Cov-2 pandemic has presented numerous challenges to health systems. Exposure to stress scenarios by frontline workers has generated the exhaustion of this group as a response. Consequently, there was an increase in the incidence of Burnout Syndrome (BS) amongst these professionals.
Objectives: Analysis of the correlation between BS in the healthcare professionals and the SARS-Cov-2 pandemic.
Design and setting: Narrative literature review conducted by Centro Universitário de Mineiros, Campus Trindade.
Methods: Articles selected from the PubMed and Scielo database between 2020 and 2021, with the descriptors "Burnout" AND "SARS-CoV-2". 9 articles were analyzed.
Results: The quantitative study carried out by the Jornal Brasileiro de Psiquiatria with 94 nursing technicians working in the SARS-CoV-2 pandemic indicated that 25% had BS ($p \leq 0.25$). Another study carried out by the same magazine identified health problems as impaired mental health workers. The study was carried out with 123 professionals, using scores from the Self-Reporting Questionnaire, in which approximately 45% had a score compatible with BS ($p < 0.05$). Amongst the causalities, the professionals' lack of emotional preparation, extended shifts, limited resources, lack of access to updated information, disturbed sleep patterns, anxiety and depression stood out. The increase in these stressors during the pandemic exposed professionals to a greater risk of developing Burnout
Conclusions: This study suggests a strong association between the SARS-Cov-2 pandemic and the development of BS among health professionals, emphasizing the importance of measures to minimize the impact on these professionals' mental health.

MeSH terms: SARS-Cov-2, Burnout Syndrome, health professionals.

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Case report of fibrous dysplasia in a pediatric patient: importance of adequate treatment to avoid malignization

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Background: Fibrous dysplasia is a congenital and benign bone tumor. There may be malignant transformation in some cases, with a mortality rate of 53.6%.
Objectives and Methods: To describe a patient with fibrous dysplasia in childhood in the parietal and temporal bones, and to report the importance of surgical correction to prevent malignant transformation. The case was studied and came from a referral hospital – João Pesssoa, PB.
Results: History of daily headache and bulging in the temporal and parietal regions on the right. Computed tomography revealed lesions in the aspect of "ground glass". Surgery was performed with exposure of two lesions, with craniectomy, followed by cranioplasty. Such an approach should be recommended, since malignant transformation occurs in up to 1% of cases, but after radiotherapy this rate can reach 44% of cases, mainly osteosarcoma. In this case, the anatomopathologicalstudy revealed a diagnosis of fibrous dysplasia and the patient has been followed up for 20 years without recurrences, which are common in adolescence.
Conclusions: It is important to make a differential diagnosis with malignant diseases, in addition to contraindicating radiotherapy to prevent malignant transformation; long-term follow-up is essential to avoid relapses and / or complications resulting from the disease.

MeSH terms: Bone Fibrous Dysplasia, Bone Neoplasm, Genetic Material
Key words: Pediatric Oncology, Bone Neoplasms, Neurology

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Pallister-Hall Syndrome - case report

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In 1980, Hall et all described a syndrome characterized by "hamartoblastoma", hypopituitarism, unperfurated anus, polydactyly postaxial and numerous visceral anomalies, today known as Pallister-Hall Syndrome. On the study, Hall et all reported six cases of children with that malformation syndrome - lethal on neonatal period. None of the newborns had anterior hypophysis and the hypothalamic tumor was apparent in the inferior part of the brain, going from the optic chiasm to the interpeduncular fossa. Besides, other anomalies were found, such as: laryngeal split, abnormal pulmonary lobation, renal agenesis or dysplasia, shorts fourth metacarpals, nail dysplasia, multiple mouth frenulum, hypoadrenalism, congenital cardiomyopathy and intrauterine growth retardation. Every case was sporadic, the chromosome were apparently normal, without consaguinity relations. Several similar, milder and even asymptomatic cases were described later on. Kletter and Biesecker (1992), Topf et all (1993) and Penman Splitt et all (1994), define the disease as dominant autosomal inheritance. Kettler and Biesecker (1992) stated that most cases as sporadic, as a result of a gene mutation with variable expressiveness. According to Biesecker et al (1996), an international workshop determined diagnostic criteria to the Syndrome: Hypothalamic Hamartroma and Central Polydactyly; First degree relative with hypothalamic hamartroma and polydactyly; Dominant autosomal parrent inheritance or in a consistent form with germaine mosaicism. The radiological changes are important for differential diagnosis between Pallister-Hall Syndrome and other hamartroma-present diseases. The hypothalamic hamartroma isolated has phenotypical features and causes hormonal disorders such as early puberty. On the MRI (Magnetic resonance imaging) it shows hyperintese sign on attenuated fluid. On the other hand, the Pallister-Hall Syndrome the hamartroma shows itself as a isointense signs along with other deformities as polydactyly, for example. According to Kuo et al (1999), on MRI, the classic hypothalamic hamartroma isn't calcified, is homogenous and isointense to the grey matter on weight images in T1, and isointense and often hyperintense on weight images in T2. Those findings are pretty distinctive and help distinguish the hypothalamic hamartroma from ordinary lesions, as craniopharyngioma and hypothalamic/opticalchiasmic glioma, observed in children.

Case report: The patient ALDV, male, born in 30/12/1995, was referred to evaluation on the Medical Genetic Service from HCPA. At the time, aged one year and 8 months, he was the only son of a young, healthy couple with no consanguinity. The family history of similar cases or other genetic pathologies are unknown. The prenatal happened with no intercurrences, unless the smoking mother. It was a natural birth; Birth Weight: 2kg; High: 42cm; PC: 32cm. APGAR 9. At 8 months, starts an investigation for precocious puberty, and a karyotype was performed in her hometown: 46, XY (normal). He presents convulsive crises since one year old. DNPM: cephalic support when he had 8 months, sat without support at the age of one.

Physical examination: Head circumference in the 97th percentile, length above the 97th percentile. Good general condition, dysmorphic, facies with fusion of eyebrows (sinofre), epicanthus, small nose, dysplastic ears with a broad shield, three café-au-lait spots on the body. Presence of pubic hair. Increase in length and diameter of the penis, as well as of the testicles, in relation to chronological age. In the hands, significant brachydactyly with bitateral hexadactyly. In the feet, bilateral hexadactyly. Proximal cutaneous syndactyly between the 2nd and 3rd bilateral arthroids, mainly on the right.

Additional exams: Rx of hands and wrists for bone age: 7 years; Chronological Age: 1 year and 10 months. Normal abdominal ultrasound; Computed Tomography of Skull/Magnetic Resonance of Skull: hypothalamic expansive lesion (3 cm), compatible with hamartoma; triventricular hydrocephalus; Cavum septum pellucidum. Endocrinological Evaluation: compatible with precocious puberty of central cause. High resolution karyotype: 46, XY (normal).

Computed tomography of the brain: Examination for neurological control, performed on 10/12/2014, 18-year-old patient. It was observed solid nodular formation in the hypothalamic region, hypodense, with well-defined limits, in close contact with the mesencephalon, without impregnation by contrast medium administered intravenously, measuring about 2.9 X 2.4 X 3.0 cm, in the respective laterolateral, anteroposterior and craniocaudal planes, which in correlation with the patient's clinical history may be related to hypothalamic Hamartoma.

DISCUSSION: According to the published consensus in Am J Med Genet 65:76-81 (1996) the ALDV patient meets the criteria for the diagnosis of Pallister-Hall Syndrome. Imaging exams diagnosed a hamartoma. The presence of bilateral postaxial polydactyly, precocious puberty and facial dysmorphisms corroborate the diagnostic hypothesis. To control precocious puberty, the patient was instructed to use a specific medication (Neo Decaptyl). According to the neurological evaluation, significant mental retardation and epilepsy were noticed. The convulsive crisis proved to be resistant to conventional treatment, such as Phenobarbital, Carbamazepine, Valproate, and Phenytoin, in monotherapy or associates.

The patient was also treated with Lamotrigine 100mg 8/8h, Oxcarbazepine 600mg 8/8h, however, in the presence of some infectious process, such as pneumonia or urinary tract infection, would trigger convulsion, being a septic shock due to aspiration pneumonia the cause of death in 2018.
Since it's an autosomal dominant inheritance syndrome, patients' parents should also be investigated in the laboratory. After this investigation, the correct risk of recurrence can be established for the couple. According to the literature, this syndrome may be related to a mutation in the zinc GLI3 gene transcript, which resides on chromosome 7p13.
As shown above, the correlation between radiological, clinical and laboratory characteristics is of utmost importance for the differential diagnosis between Pallister-Hall Syndrome and other diseases where hamartoma is also seen.
It is noticed that this syndrome has a different neurological phenotype from the isolated hamartoma syndrome. That said, both the comprehensive evaluation of children with isolated hamartoma and the diligent observation of possible signs of Pallister-Hall Syndrome are essential, ensuring the most appropriate therapeutic choice and genetic counseling.

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Acute inflammatory polyradiculoneuropathy of atypical presentation.

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Introduction: Guillain-Barré syndrome is an acute / subacute inflammatory polyradiculoneuropathy that classically results in flaccid areflex palsy. However, there are other possibilities of clinical presentation that must be remembered so that an adequate diagnosis and treatment is carried out.
Case report: Female patient, 23 years old, without comorbidities, with complaint of paresthesia in extremities and right peripheral facial paralysis, having diagnosis until then of Bell's Palsy. She denied previous or current infectious complaints. The neurological examination revealed facial diparesis, proximal weakness of the lower limbs that made walking difficult, tactile and painful hypoesthesia in the feet, with reflexes 1+/4+ in the lower limbs and 3+/4+ in the upper limbs. An investigation was started with CSF collection that showed albuminocytological dissociation (proteins 440 mg/dl and leukocytes 01 mm3). Neuroimaging exams showed contrast impregnation in facial and trigeminal nerves. A diagnosis of acute inflammatory polyradiculoneuropathy was made and treatment with human immunoglobulin was initiated for 5 days. Electroneuromyography showed peripheral, sensory-motor polyradiculoneuropathy and questioned the physiopathological possibility of juxtaparanodopathy. The patient presented a significant and early improvement after treatment.
Conclusions: It is essential to consider that Guillain-Barré syndrome has symptom variability, especially according to its pathophysiology and clinical and electrophysiological variant, thus avoiding that conditions such as this one are underdiagnosed.

MeSH terms: Guillain-Barré, polyradiculoneuropathy, peripheral facial paralysis.

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The relation between the menopause transition with higher rates of Alzheimer in the female gender: a literature review

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Introduction: The reproductive senescence and the complete exhaustion of the germ cells result in processes capable of provoking changes in the hormone profile of women. The decrease in the bioenergetic metabolism during the menopause transition (MT), due to modifications in the estrogen levels, can be substrate for neurological dysfunctions. The physiopathological mechanisms of the Alzheimer's Disease (AD) are activated years before the symptoms and coincide with MT, making the female gender a risk factor. The review aims on analyzing the higher rates of AD in the female gender, based on physiological changes that occur in the MT.
Methods: Literature review based on articles from the PubMed database.
Results: Were compared results from cerebral images of women in MT with cognitively normal men with the same age. In the women were found alterations such as abnormalities in the biomarkers of AD and reduction of the cerebral metabolic rate. It was noticed that women in the post menopause presented hypometabolism in the same cerebral regions as patients with AD and a reduction of the mitochondrial cytochrome oxidase of the platelets.
Conclusion: The study presented evident bioenergetic factors that corroborate to the relation of MT and higher incidence of AD in the female gender. This way, such transition represents a window of opportunity for possible therapeutic interventions.

MeSH terms: Alzheimer Disease, menopause, female
Key words: risk factor, reproductive senescence, climacteric

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Dramatic cognitive improvement with acetylcholinesterase inhibitor in cerebral amyloid angiopathy-related inflammation

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Context: Cerebral amyloid angiopathy (CAA) is characterized by progressive deposition of amyloid-ß fibrils in the walls of small arterioles and capillaries of the leptomeninges and cerebral cortex. A rare subtype of CAA is CAA-related inflammation (CAA-RI), which exhibits marked perivascular or transmural inflammatory infiltration in brain tissue. The major clinical features of CAA-RI are rapidly progressive dementia, behavioral changes, headache, seizures, or stroke-like signs. Conclusive diagnosis requires histopathological confirmation, but validated clinicoradiological criteria for the diagnosis of probable CAA-RI have good sensitivity (82%) and specificity (97%). Treatment with high dose corticosteroids with or without other immunosuppressive therapy is recommended. We report a case of probable CAA-RI that did not respond to corticosteroid therapy but had a surprising improvement with acetylcholinesterase inhibitor.

Case report: A 77-year-old illiterate woman presented with a history of subacute onset of seizures and behavioral changes. Her medical history was positive for a hearing loss due to a toxic exposure in childhood, and a cured breast cancer. The neurological examination showed attention impairment, disorientation, and incoherent speech. CSF showed a mildly elevated protein count. Brain MRI met criteria for probable CAA-RI. She had a poor response with high doses of corticosteroids, but after a trial with Donepezil she showed important cognitive and functional improvement.

Conclusion: This result attracts attention to the importance of the cholinergic pathway in the etiology and pathological mechanisms of CAA. Randomized Controlled Trials would be required to confirm our hypothesis and to find new therapeutic options for CAA.

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The diagnostic challenge of Hashimoto's Encephalopathy

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Introduction: The diagnosis of Hashimoto Encephalopathy (HE) is generally considered in patients with a wide range of neurological symptoms, accompanied by normal or nonspecific findings on magnetic resonance imaging and CSF, normal thyroid function or mild hypothyroidism, increased serum levels of thyroid peroxidase antibodies, and clinical response to steroids.

Case report: We attended a 76-year-old patient, brought by lowering the level of consciousness 3 days ago, insidiously. Neurological exam: did not obey commands, and only said incomprehensible sounds. Myoclonus in upper limbs and random multidirectional movements of the eyes with horizontal nystagmus, rapid phase to the left. Cranial tomography had only signs of microangiopathy. Electroencephalogram: diffuse slow waves, with no signs of status epilepticus. Laboratory tests: there were increased protein in CSF (107mg/dl) and Anti-TPO serum (>1000 U/ml) levels, without other specific alterations. After these results, therapy with Methylprednisolone 1g/day for 5 days, and Levothyroxine, were chosen. There was a gradual improvement in the neurological condition from the 3rd day of treatment.

Conclusion: immediate recognition of Hashimoto encephalopathy is important. Although the pathogenesis is unknown, the disorder is treatable. This entity should always be remembered for the proper direction of therapeutic approaches, thus enabling better outcomes to the patient.

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Trigeminal Neuralgia associated with Wallenberg Syndrome, a case report

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Context: Trigeminal neuralgia is typically associated with structural lesions that affect the brainstem, pre-ganglionic roots, gasserian ganglion and the trigeminal nerve. The association of trigeminal neuralgia with infarction of the dorsolateral medulla is rare, being more associated with pontine lesions, in the context of brainstem infarction.

Methods: Report the case of a 55-year-old male patient, who presented with a left dorsolateral bulbar infarction, and developed a ipsilateral trigeminal neuralgia afterwards.

Case report: A 55-year-old man attended to the emergency room referring sudden incoordination of the left limbs, associated with numbness of the contralateral limbs. The neurological examination showed nystagmus, numbness of the left face, ataxia of the left limbs and numbness of the right limbs. The Magnetic Resonance of the Brain revealed an area of recent infarction in the left posterolateral aspect of the medulla. He underwent thrombolysis, evolving with complete resolution of symptoms. In the week after the initial event, he returned to the outpatient clinic, reporting paroxysms of excruciating pain in the upper lip, nose and left zygomatic region, being diagnosed with neuralgia of the maxillary segment of the trigeminal nerve, improving with introduction of Gabapentin.

Conclusion: Although most cases of trigeminal neuralgia are determined by vascular compression of the trigeminal nerve root entry zone, other causes must be considered. The association of this condition with dorsolateral medulla infarction is rare, with only 4 cases reported in the last 10 years.

MESH TERMS/Key words: Trigeminal Neuralgia ; Wallenberg Syndrome

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Epidemiological profile of deaths from cerebrovascular diseases in residentes of the state of São Paulo in 2019

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Background: Cerebrovascular diseases (CBVD) constitutes the second leading cause of death worldwide. Among the risk factors that can contribute to the pathology, the modifiable factors are related to lifestyle habits and the unmodifiable to gender, age and race. The proper management of these factors reduces the susceptibility of the person dying. Thus, it's valuable to have this knowledge, once the identification and control provides the primary prevention.
Objectives: Expose the epidemiological profile of deaths by CBVD in the population in 2019.
Design and setting: Quantitative study, descriptive and observational, with data obtained in the Mortality Information System.
Methods: Analysis of deaths due to CBVD in the state of São Paulo (SP) according to age range, gender and race.
Results: The number of deaths by DBVD in 2019 in the state of SP were 21.716; according to gender, 51,0% were male patients, and 49,0% female. Regarding the age range, they all showed deaths by CBVD, the age group most affected, with 36,1% of deaths, were over 80 years old. Furthermore, the mortality of people with 60 years or more, represented 81,9% of the cases. The caucasion race had the highest number of deaths by DBVD with 68,0%, followed by mixed race with 20,8% and black race with 8,0%.
Conclusions: The knowledgment of the epidemiological profile of deaths causedby CBVD in the state of SP is important, especially for identifying risk factors, planning and executing preventive actions, aiming to reduce the frequency of complications and deaths.

MeSH terms: Cerebrovascular diseases, Epidemiological Study, Mortality, Risk factor.
Key words: Epidemiology, Cerebrovascular Disorders, Mortality Records.

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Profile of the elderly population in neurological emergency attended by Urgence Service in Juiz de Fora (JF)

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Introduction: Elders are a heterogeneous group with gender and age-based differences. The frailty concept makes the debate about the major factor that leads those patients to emergency relevant. Therefore, the high potential of morbidity and mortality of neurological occurrences established the scenario in which this study has been designed.
Objective: Report the number of hospitalizations by neurological diseases to evaluate its prevalence in the context of emergency admissions and establish a connection between etiology-health promotion.
Methods: It is a cross-sectional retrospective study settled in Juiz de Fora, which is part of the Consórcio Intermunicipal de Saúde da Região Sudeste (CISDESTE). Care provided by Serviço de Atendimento Móvel de Urgência (SAMU) to elderly above 61 years old for the period between April/2015 to March/2019 were included in Microsoft Excel 2010 spreadsheets. Information such as age, gender, and type of patient's neurological occurrence was added to the script.
Results: In the period of analysis, 28718 occurrences of elders attended by SAMU were notified. From this total, 7778 (27%) were related to neurological occurrences. Analyzing gender, female patients represented the majority of occurrences, despite the incidence of neurological disorders, which was lower than in male patients (23,5% to 25,6% and 28,5% to 34,5% respectively).
Conclusion: It was demonstrated that male is a population at risk of disabling and acute neurological events. The importance of individual care to the elderly is noted, and new studies must be done.

MeSH terms: Neurological Disorders; Elderly; Profile.
Key words: Aged; HealthServices for the Aged; Nervous System Diseases.

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Ataxic syndrome in a chronic phenytoin user

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Introduction: Phenytoin is an anticonvulsant used routinely for about eight decades. However, depending on the dose and plasma concentration, its use may be associated with side effects due to toxicity, such as ataxic syndrome.
Case report: We attended a 37-year-old patient, epileptic since childhood, who had been using Divalproate Sodium 250mg 8 / 8h, Phenobarbital 150mg once a day and Phenytoin 100mg 8/8 for a long time. He denied smoking and drinking. He was admitted due to acute rotational vertigo, nausea, motor incoordination and impaired speech and gait, progressing for 7 days. Neurological examination revealed drunken dysarthria, pendular patellar reflexes, signs of axial and appendicular incoordination and ataxic gait. Cranial nerves: there was decomposition of the eye movement and hypometric saccades to the vertical upward look, horizontal nystagmus with alternating phases to the extreme looks. Laboratory exams, cranial tomography with and without contrast, brain magnetic resonance with gadolinium): within the normal range. Given the above, our diagnostic hypothesis was Phenytoin Poisoning. After gradually replacing it, there was a progressive improvement in the neurological condition. His serum level was not determined due to the unavailability of this test in our service.
Conclusion: In view of its routine use, excluding other etiologies, this diagnosis should always be remembered.

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Persistent hemicrania as onset manifestation of Ramsay Hunt Syndrome

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Context: Ramsay Hunt Syndrome (RHS), also named Optic Herpes Zoster is caused by the reactivation of Varicella-Zoster Virus that occurs in the geniculate ganglion. The classic syndrome is composed of vesicular lesions in the ear, ipsilateral otalgia and peripheral facial palsy. The onset of the syndrome with persistent hemicrania is absolutely atypical as a manifestation of RHS.
Case report: A 69 year old woman with subacute onset of left exclusive hemicrania in moderate strong intensity without autonomic signs. Eight days after the onset of headache, she presented left peripheral facial paralysis and after 4 days, she noticed the appearance of vesicles in the left ear and pain in swallowing. She has developed nausea with several episodes of vomiting, important imbalance that made impossible gait. On physical examination she presented vesicles in the left ear and oropharynx, left peripheral facial paralysis House Brackmann grade IV, left hypoacusis, nystagmus and vestibular gait. The brain CT and cerebrospinal fluid analysis were normal. The patient has progressive improvement with Acyclovir.
Conclusions: Otalgia or even intermediate neuralgia are more frequent painful manifestations of RHS. This case report highlights the need to consider the diagnosis of SRH in patients with persistent hemicrania, even if without initial classic signs of the syndrome.

MeSH terms: ramsay hunt , hemicrania, varicella
Key words: zoster, facial palsy, neuralgia

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Stroke death profiles in Brazil between the years 2010 and 2019

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Background: In most cases, strokes are events with an abrupt onset characterized by a neurological deficit attributed to a focal vascular cause. Such events can have ischemic or hemorrhagic origin with diagnosis attributed to clinical and imaging exams. In this work, we analyze the profile of deaths by stroke in the Brazilian population, outlining an overview of the disease in Brazil.
Objective: Analyze stroke death profiles between the years 2010 and 2019.
Methodology: We perform a descriptive documentary study based on the Mortality Information System (SIM) for the years 2010 to 2019, made available by the Brazilian Unified Health System (SUS) Information Department. Our study is delimited by age, starting from 15-year-olds, and considering the ICD-10 I64 pathologies.
Results: In the analyzed period, 400.395 stroke deaths were registered. Over the years, these deaths showed a decrease of approximately 24.47% with 2011 being the year with the highest number of registered deaths (n=44 892). The southeast region registered most deaths with 38.18% of the total. The most affected groups were men (50.79%), whites (46.43%), over 80 years-old (41.80%) and with no formal education (27.31%).
Conclusion: There is a decrease in stroke cases in Brazil between 2010 and 2019. The high prevalence of deaths from stroke in the elderly highlights the need for greater control of modifiable risk factors to reduce mortality. Thus, the continuous improvement of socioeconomic, educational, and hospital care conditions in Brazil is necessary.

MeSH terms: strokes; Brazil; risk factors

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Thrombolytic Therapy for Acute Bilateral Carotid Artery Occlusion

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Context: Acute bilateral internal carotid artery occlusion is a rare condition which is frequently associated with prolonged coma or brain death. There is no consesus on which is the optimal therapy for this condition, although there are reports of clinical improvement after mechanical thrombectomy. We present a case report of a patient treated with intravenous thrombolytic therapy.
Case Report: A 82 year-old woman with previous history of hypertension and coronary artery disease presented with seizures, followed by coma. There was no description of focal neurological deficit. On examination, patient was comatous, with decebrate posturing after painful stimulus, bilateral myosis, showed absent oculocephalic reflex and absent corneal reflex on the left eye. CT scan showed diffuse hypodensities on the frontal and parietal lobes and on the superior temporal lobes. CT angiography showed occlusion of the right internal carotid artery and of the left common carotid artery. The patient was treated with 72mg of IV alteplase within 4 hours after symptom onset. There was no improvement after 24 hours. A new CT scan showed infarction of all anterior circulation territory. Diagnosis of brain death was made after 48 hours.
Conclusions: Acute bilateral carotid artery occlusion is usually associated with poor outcome despite treatment. Endovenous thrombolytic therapy did not lead to clinical improvement on the presented patient. There is limited data on the efficacy of IV thrombolysis and other recanalization therapies for acute bilateral carotid artery occlusion.

MeSH terms: Carotid Artery Disease

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Neurocall: an explanatory communication platform for diagnostics

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Introduction: In the current context of the 21st century, it has become necessary to incorporate new tools to clinical practice, especially those that al-

low communication at the nationally or internationally remotely, enabling the interruption of diagnostic doubts, joint interpretation of imaging exams, meeting of various protocols and updates in the management of diseases. When there is an application, which brings together specialists in neurology, psychiatry and the like, an ethical, safe and promising environment will be established.

Objectives: Reduce diagnostic errors and promote the creation of a virtual Community active disseminator of knowledge in neurology.

Design and setting: Quantitative observational study based on the results of a online form applied with professionals from the Uniceuma institution, in force in São Luís, located in the state of Maranhão (Brazil), in the year 2021.

Methods: This is a quantitative survey applied to a non-sample probabilistic. The instrument for data collection was Microsoft Forms, with results applied to a Microsoft Excell spreadsheet.

Results: Of the 22 selected medical professionals, 14 were neurologists, 3 were psychiatrists and 5 were general practitioners. Among all, 86% of them demonstrated a high degree of of interest in the application, with the 14 neurologists included; all stated that the platform would reduce diagnostic errors and 17 of them would use it in clinical practice.

Conclusions: Therefore, there is an urgent need to promote an online teaching tool, responsible and accessible, via IOS and Android, which makes therapeutic conduct feasible, diagnostic thinking and update the medical community.

MeSH terms: Neurology, Medical Informatics Applications, Diagnosis, Computer-Assisted.

Key words: educational applications, online platform, communication in neurology.

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Guillain-Barré Syndrome and Hyperreflexia: a case report

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Context: areflexia and hyporeflexia are mandatory clinical criteria for the diagnosis of Guillain-Barré Syndrome (GBS). However there are case reports in literature of GBS that exhibit hyperreflexia.

Case report: Male patient, 38 years old, after weakness and pain in lower limbs, after exercise, for 4 days, without alteration of balance and sphincter. A week earlier, he had diarrhea and fever. Previous bariatric surgery. On examination: For both upper limbs, the grade of power was 5/5 in the proximal muscle group and 4/5 in the distal muscle group. For the lower limbs, the grade of power was 4/5 in both proximal and distal muscle groups. The deep tendon reflexes were brisk (+2) throughout all four limbs. Patellar tendon reflex had bigger response (+3). Babinski's and Hoffmann's signs were negative. Tactile, painful, vibrating sensitivity and cranial nerves examination were all intact. The presence of reflex in the four limbs with patellar hyperreflexia, made the GBS hypothesis to be disregarded. Laboratory: normal CK, TGO, aldolase, TGP, LDH and vitamin B12. Electroneuromyography (ENMG) revealed the diagnosis of AMAN. After ENMG, cerebrospinal fluid known as leukocytes: 3.1 mm^3, proteins: 95.2 mg/dl. Human immunoglobulin (0.4 g/kg/day) was prescribed for 5 days and the patient recovered in 3 months.

Conclusions: The case reported by us shows the importance to take into account the GBS hypothesis in the presence of hyperreflexia, especially in axonal variants, to prevent the treatment from being mistakenly postponed.

Key words: Neuromuscular; Guillain-Barré Syndrome; Hyperreflexia;

MeSH terms: Guillain-Barre Syndrome; Neuromuscular Diseases; Reflex, Abnormal;

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Epidemiological comparison of stroke patients before and after Cincinatti Scale implementation

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Introduction: Stroke is an obstruction or rupture of cerebral arteries that leads to brain damage. The Cincinnati Prehospital Stroke Scale (CPSS) aims to identify early stroke signs.

Objectives: To epidemiologically compare stroke victims in Brazil before and after CPSS implementation.

Design and setting: A cross-sectional study in Brazil.

Methods: Data collected was published by the Health Ministry through DATASUS. A ten-year period was selected before and after the Cincinnati Scale (2010) implementation in Brazil. The data collected were mortality rate, lethality and average length of stay.

Results: The average stroke mortality rate from 2000 to 2009 was 16.99, while from 2011 to 2020 it was 15.10, representing a 12,5% reduction. However, comparing these same periods, the average lethality rate increased by 4.92%. The median of stay averages before the implementation of the CPSS is 7.15 days, whereas the one afterwards is 7.45.

Conclusions: The CPSS aims to identify stroke by evaluating weakness, speech and facial drop. A significant reduction in mortality has been noted since the implementation of the protocol, which may suggest its effectiveness in early stroke detection. Before the scale, the treatment was possibly late, leading to worse prognosis. Thus, the average stay increase between the evaluated periods could be explained by premature deaths.

MeSH terms: Stroke, Early Diagnosis, Prehospital Emergency Care

Key words: Cincinnati Scale, Mortality, Brazil.

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Generalized choreoathetosis secondary to non-ketotic hyperglycemic disorder

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Introduction: Type 2 diabetes mellitus is one of the diseases that is most associated with chorea, and although it is a rare complication, it is necessary to

be aware of it so that the correct diagnosis and early treatment can be made.
Case report: Male patient, 78 years old, diabetic and uncontrolled hypertension. Began uncontrolled glycemic 7 days before admission. Evolves with imbalance when walking and with involuntary movements in the left upper limb. At admission, dextro 682 mg/dl and at neurological exam the presence of asymmetric choreoathetotic movements, more evident in the left dimidium. Investigation with neuroimaging, brain tomography showed the presence of hyperdensity in bilateral basal nuclei, confirmed by brain MRI. Other differential diagnoses were ruled out, such as hyperthyroidism, liver failure and rheumatic fever. The most likely diagnosis was generalized choreoathetosis secondary to a non-ketotic hyperglycemic disorder. During hospitalization, adequate glycemic control was performed and clonazepam was introduced as an aid, with significant improvement of movements and absence of the same at discharge.
Conclusions: Cases of non-ketotic hyperglycemia are associated with the onset of chorea, and although it is a rare complication, it is not uncommon given the high incidence of diabetes mellitus in the Brazilian population, and clinical improvement may take weeks to months, even after adequate glycemic control.

MeSH terms: chorea, hyperglycemia, movement disorders.

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Thrombectomy by primary aspiration technique in a patient with critical internal carotid artery stenosis

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Context: Stroke is one of the main leaders of death and disability in the world. Currently, mechanical thrombectomy with stent retrievers is the technique of choice for large vessel occlusion, however, the primary aspiration technique has been proposed as a fast and safe alternative.
Case report: J.E.M, male, 57 years old, hypertensive, atrial fibrillation. Started claudication of neurological deficits, with intermittent paresthesia in left upper limb for 2 days. Admitted with NIHSS 2 (nasolabial sulcus erasure and hypoesthesia in LUL), in thrombolysis window, has seen in cerebral and neck angiotomography critical stenosis of the internal carotid artery and in CT scan with perfusion Mismatch volume 72 ml and infinite ratio. Since the patient did not have sufficient criteria for thrombolysis and since the clinical prognosis was unfavorable, a diagnostic arteriography was indicated, which showed ICAR stenosis 90%. The patient proceeded with angioplasty and stenting using the ADPAT technique and mechanical thrombectomy due to occlusion in segment M1 with total recanalization (TICI 3) and NIHSS after and at discharge of 0.
Conclusion: The advent of thrombectomy impacts the improvement of functional dependence and the reduction of mortality, especially in stroke with large vessel occlusion, whose treatment with thrombolytic therapy only has a low chance of recanalization.

MeSH terms: acute stroke, thrombectomy, angiotomography.

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Gene expression of calcium channel CACNA1H in epileptogenesis can be modulated by mesenchymal stem cells

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Introduction: Temporal Lobe Epilepsy (TLE) is the most common refractory epilepsy, and it is characterized by abnormal firing of a population of neurons in the brain, and by cognitive deficit[1]. This abnormal intrinsic phenomenon can cause deregulation of the T-type calcium channels, increasing neuronal excitability, leading to structural changes in the Central Nervous System[2]. Mesenchymal Stem Cells (MSCs) are a therapeutic alternative for the TLE for they can modulate neurotransmitters liberation, reducing neuronal death and increasing neurogenesis[3,4,5]. The present study analyzed MSCs effects on gene expression of T-type calcium channel CACNA1H in the brain of pilocarpine-induced TLE animal models.
Methods: The MSCs were obtained from the bone marrow of Wistar rats, cultured, and transplanted intravenously and intranasally. The animals were separated into the following groups: control and pilocarpine-induced status epilepticus, then they were euthanized 1- and 7-days post-transplant for gene expression analysis.
Results: The results show that 1-day post-transplant there was no difference in the CACNA1H gene expression between the MSC-treated pilocarpine groups and the control and untreated pilocarpine groups. Subsequently 7-days post-transplant, the treated groups showed greater expression of the gene in both means of administration. Moreover, there was an increase in CACNA1H gene expression in the prefrontal cortex of the treated pilocarpine group, which makes us conjecture a mechanism of greater need for its transcription in this area.
Conclusion: Thus, MSCs were able to modulate the expression of the CACNA1H gene in the brain, increasing its importance as a target for future studies on epilepsy therapies involving cells.

MeSH terms: temporal lobe epilepsy, mesenchymal stem cells, calcium channels T-type Author
Key words: channelopathy, cell therapy, gene expression

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Dejérine-Roussy syndrome associated with unilateral thalamic glioma

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Context: Déjérine-Roussy Syndrome is a rare entity that occurs after an ischemia located in the ventral posterolateral nucleus, and it is characterized by hemiplegia, superficial hemianesthesia, mild hemiataxia and astereognosis, pain on the paretic side and choreoathetosis movements. This unusual condition can be caused by haemorrhage or neoplasm. Thalamic tumors make up less than 5% of all intracranial tumors. The rare clinical presentation of a thalamic tumor is a diagnostic and therapeutic challenge for neurology and neurosurgery practice and generally requires treatment without biopsy.

Case report: A 54-years-old man presented complaining of burning and tingling paraesthesias, decreased sensitivity in left dimidium, associated with decreased visual acuity in the left eye. Physical examination showed complete left hemiparesis provided grade 4-, normoreflexia with athetoid movements of the left arm and hand, painful, thermal hemihipoesthesia and epicritic touch, allodyne in the left hemibody, pressure sensitivity present globally, visual campimetry by confrontation with heteronymous hemianopia without changes in the cranial nerves. Magnetic Resonance Imaging of the Skull Base showed an oval mass, with hyposignal in T1 and hypersignal in T2 and FLAIR, with peripheral contrast uptake in the thalamus and nuclei from the right base. The patient showed good clinical-surgical evolution after surgery with Glasgow Outcome Scale 4 and modified Rankin scale 2. Anatomical Pathology confirmed low-grade glioma.

Conclusions: Early diagnosis and immediate therapy can delay a fatal outcome or decrease treatment-related morbidity.

MeSH terms: Thalamus / pathology; Thalamic Diseases / diagnosis; Glioma / diagnosis; Brain Neoplasms / pathology

Key words: Dejerine–Roussy syndrome; Thalamus; Thalamic pain; Glioma

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Spinal Muscular Atrophy type 4 with respiratory involvement: a case report

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Context: The Spinal Muscular Atrophy (SMA) is a genetic disease responsible for degeneration of the motor neurons of the spinal cord and the motor nucleus of the cranial nerves.

Case report: Male patient, 32 years old, 6 years ago presented proximal weakness in lower limbs and distal weakness in upper limbs with progressive worsening and episodes of dyspnea on physical exercise, without dysphagia and dysarthria. The lower limbs showed grade of power of 3/5 in the proximal muscle group and 4/5 in the distal muscle group. On the upper limbs the grade of power was 4/5 in both proximal and distal group of muscles. Patellar tendon reflex and the bicipital reflexes were intact. Proximal lower limb atrophy, polyminiclonus in upper limbs, and the examination of sensitivity and cranial nerves were unremarkable. Electroneuromyography showed lower motor neuron involvement. MRI of cervical and lumbar spine was normal. Genetic test with homozygous deletion in the SMN1 gene, with four copies of the SMN2 gene. The patient was unable to perform spirometry due to the worsening of the respiratory condition. BIPAP requested, which improved the patient's condition.

Conclusions: There is poor information on literature about the lung function with the disease in adults, with no longitudinal study of the lung function in patients with Spinal Muscular Atrophy 3b and 4. Our case report demonstrates the importance of attempting respiratory symptoms even in adult patients with SMA.

Key words: Neuromuscular; Spinal Muscular Atrophy; Respiratory involvement;

MeSH terms: Neuromuscular Diseases; Muscular Atrophy, Spinal; Signs and Symptoms, Respiratory;

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Deep Brain Stimulation (DBS) in the treatment of primary dystonia of the pediatric population: a review

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Background: Deep Brain Stimulation (DBS) is a neurosurgical technique widely used for the treatment of several pathologies, such as Parkinson's Disease and dystonias. Dystonias, primary or secondary, have several determining factors, among which we can mention genetic mutations, that, generally, do not respond satisfactorily to drug treatments. The difficult control of dystonias makes its management complex, since they are progressive, and, as a consequence, surgical options are often necessary.

Objectives: To identify the impact of the use of DBS on the prognosis of children with primary dystonia.

Methods: The present work consists of an integrative literature review, in which a careful search was carried out from databases available on the internet, such as Google Scholar, MedScape, Scielo and PubMed, using the following keywords combined in pairs: deep brain stimulation, pediatrics and primary dystonia. The research was carried out in English and Portuguese and, at the end, 10 articles published between the years 2017 and 2021 were selected.

Results: Through analysis, it was observed that DBS proved to be an excellent therapy, with good results, especially for patients with primary dystonia, who were more susceptible to showing improvements in motor symptoms. Of these patients, those who have a mutation in the DYT1 gene seemed to respond better when it comes to disabling symptoms, as well as those who have known genetic etiologies.

Conclusions: Although there is a limited number of studies related to the pediatric population, the use of DBS for dystonias, especially primary ones, seems to be an excellent therapeutic option for patients refractory to drug

therapy. In any case, studies aimed at this group are still necessary in order to enrich and support the current evidence.

MeSH terms: Deep Brain Stimulation, Dystonia, Pediatrics
Key words: Genetic, Movement Disorder, Neurosurgery, Primary Dystonia

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Monoclonal antibodies in the treatment of Alzheimer's disease: a literature review

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Background: Alzheimer's disease (AD) is a neurodegenerative disorder, whose treatment is limited to drugs that offer comfort to the patient. Immunotherapy with monoclonal antibodies (mAbs) has been the subject of a study with the promise of reversing cognitive deficits. In this scenario, we conducted a systematic review to elucidate aspects about the effectiveness of such treatment.
Objectives: Analyze the prognostic of patients with AD through immunotherapy using anti-amilody mAbs.
Methods: It was used the PubMed database using the descriptors: "Amyloid beta-Peptides AND Alzheimer disease AND Immunotherapy". Filters: clinical trial, randomized controlled trial. 6 articles from 2015 to 2021 were selected. Inclusion criteria: (1) mAbs as treatment for AD; (2) Analyze the prognostic.
Results: The immunotherapy with bapineuzumab and solanezumab didn't showed no statistically significant difference between the groups of bapineuzumab 0,5 mg / kg ($p = 0,979$) and placebo ($p = 0,973$) and a change of 6.65 in the solanezumab group and 7.44 in the placebo group (difference, −0.80; P = 0 , 10). However, subcutaneous treatment of bapineuzumab exhibited fewer abnormalities of images related to amyloid with edema or effusion (AIRA), so, better tolerated compared to intravenous treatment. In the study with the ABvac40 vaccine, about 92% of the individuals in the test group developed specific anti-Aβ 40 antibodies.
Conclusion: Bapineuzumab and solanezumab didn't achieve significant results in the reduction of cognitive decline, however bapineuzumab enabled the prevention of Aβ aggregation. However, the use of mAbs can trigger collateral effects, requiring an individual analysis.

MeSH terms: Amyloid beta-Peptides, Alzheimer disease, Immunotherapy
Key words: Alzheimer, prognostic, amyloid-β peptide, traitaments.

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Epidemiological overview of hospitalization for multiple sclerosis in Brazil from 2015 to 2019

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Introduction: Multiple Sclerosis (MS) is a chronic, autoimmune and progressive pathology, is it the primary demyelinating disease of the nervous system and the most frequent in the world. Therefore, becomes relevant set the epidemiological profile of MS in Brazil aiming to understand hospitalization dynamics and evolution of disease.
Objective and Methods: To analyze epidemiological profile hospitalization for MS in Brazil, from 2015 to 2019. An epidemiological, retrospective, descriptive study was realized through the Hospital Information System (SIH/SUS/DATASUS), from 2015 to 2019. Categories used: sex, color/race and age group. It is not required appreciation by the Research Ethics Committee for using publics information, without identifying the participants.
Results: In Brazil, from 2015 to 2019, 18.536 hospitalizations happened for MS, having growth from 2015 (n=2.083) to 2018 (n=4.755), with a decrease in 2019 (n=4.021). Southeast had higher percentual (66,98%, n=12.416), South (13,95%, n=2.585), Midwest (10,65%, n=1.965), Northeast (6,42%, n=1.190) and North (2%, n=370). The most of hospitalization it is in the age of 20 to 49 years (75%, n=13.892), with prevalence in females (69,8%, n=12.941), over males (30,2%, n=5.595) and proportion 2,31W:1M. White color is majority (53,7%, n=9.951), grayish-brown (24,8%, n=4.597) and indigenous people (0.005%, n=1).
Conclusion: It was realized prevalence of hospitalization in women, of color white, age between 20-49 years, from Southeast. It urgent the importance of investigation, forward diagnostic and treatment of that pathology in country, to try decrease to the maximum injury affected population.

Meshterms: Multiple sclerosis; Chronic disease; Hospitalization.
Key words: Demyelinating disease; Central Nervous System; Epidemiological profile.

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Malnutrition associated with Wallenberg Syndrome: Case report

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Introduction: Wallenberg Syndrome (SW) is characterized by the condition of swallowing impairment, and nutritional assessment is essential to prevent weight loss.
Objective: To report a case of malnutrition associated with SW.
Methods: Report of malnutrition in a patient diagnosed with SW in a public hospital in Santa Catarina-Brazil.
Results: Elderly, 67 years old, male, retiring, systemic arterial hypertension story and ischemic stroke (without sequelae). He sought assistance on 03/17/2020 in a public hospital in Joinville/SC reporting dysphagia and vertigo, being admitted for investigation of a new vascular event. During hospitalization, he presented: constipation, vertigo, hoarseness, odynophagia, hiccups, regurgitation, emesis, heartburn and drooling. He underwent cranial magnetic resonance imaging confirming infarction in a left posterior-lateral bulb, with a vertebral lesion in the V4 portion, characterizing the SW. He underwent a videodeglutogram, showing a risk of silent bronchoaspiration and with prolonged rehabilitation time, making it necessary to choose an alternative feeding route, initially a nasoenteral tube. Initial anthropometric assessment (03/17/2020): BMI 27.47 kg/m^2 (height: 163 cm, weight: 73 kg). During hospitalization there was a reduction of -7.9 kg (final weight 65.1 kg; BMI 24.3 kg/m^2, totaling 10.82% loss (04/23/2020) in 1 month (considered severe). Brachial circumference decreased from 31 (03/24) to 28 cm (04/10). On physical examination: distended abdomen, loss of muscle mass at the temples and subcutaneous fat (biceps). This abrupt nutritional loss was associated with low diet tolerance gastrointestinal night infusion and volumes above 85 ml/h, making it impossible to reach a nutritional goal, he was discharged with gastrostomy, continued to undergo rehabilitation with a speech therapist at home and after 3 months he returned to exclusive oral feeding.
Conclusion: Patients diagnosed with SW should be monitored about diet tolerance and to avoid risk of complications associated with weight loss and risk of bronchoaspiration.

MeSH terms: Malnutrition; Deglutition Disorders; Gastrointestinal Tract; Wallenberg Syndrome.
Key words: nutritional risk; weight loss; dysphagia.

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Epidemiological profile and temporal trend of mortality from cerebrovascular diseases in Northeast of Brazil, 1996-2016

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Background: Cerebrovascular diseases represent the second leading cause of mortality in the world and Brazil occupies the leadership in the ranking of mortality in South America.
Objectives: This study sought to analyze the sociodemographic profile and the time trend of the mortality rate from cerebrovascular disease in the Northeast of Brazil, 1996-2016.
Methods: This is an ecological study of time series involving deaths from cerebrovascular diseases in the Northeastern of Brazil, 1996-2016. Sociodemographic variables (age, schooling, marital status, skin color, ICD category and federation units) were included and calculated crude and standardized mortality rates, according to gender and age group. A joinpoint regression model was applied for the temporal analysis, with a level of significance of 5%.
Results: There were 490.433 deaths from cerebrovascular diseases in the Northeast of Brazil, 1996-2016. Of these deaths, 50,03% (n = 245.354) were women, 79,72% (n = 390.957) elderly, 46,66% (n = 228.851) brown, 51,81% (n = 332.439) illiterate and 37,93% (n = 186.014) were married. Of the causes of death, 56,63% (n = 277.741) resulted from stroke, not specified as hemorrhagic or ischemic (I64). In the Northeast, there was a predominance of the elderly population, with growth of 1.2% (p <0.001), and four of the nine states showed a growth trend, with emphasis on Maranhão (AAPC: 4.2; IC95%: 1.5 a 7.1; p < 0.001).
Conclusions: Standardized mortality increased in four states, being higher in Maranhão and Piauí, with a predominance of females and age equal to or above 60 years.

Key words: Cerebrovascular disorders; Epidemiology; Stroke.

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Unilateral opercular lesion mimicking opercular syndrome

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Introduction: Foix-Chavany-Marie syndrome, also known as opercular syndrome, consists of voluntary orofacial muscle paralysis due to bilateral lesions in the anterior frontotemporal operculum. Classically, there is an automatic-voluntary dissociation, with impairment of speech and chewing. We present a case of a patient who had a similar presentation to opercular syndrome, secondary to unilateral ischemic lesion in the right frontal operculum.
Case report: A 55-year-old, right-handed, black woman with history of arterial hypertension was admitted to the emergency department presenting left-sided weakness and inability to speak, noticed upon waking. When approached, the patient was unable to produce sounds but managed to communicate through articulatory movements of lips and was able to write correctly without signs of aphasia. On examination, there was left central facial paralysis, marked reduction in mouth opening amplitude, inability to perform tongue protrusion without lateral deviation and bilateral reduction in palate elevation. There was also a mild left brachial- predominant hemiparesis (grade IV). A cranial computed tomography scan exhibited an acute ischemic lesion of the right frontal opercular region, without other lesions in the homologous contralateral area. The etiological investigation with electrocardiogram, echocardiogram and carotid doppler ultrasound had no significant abnormalities.
Conclusion: We reported a case of a patient presenting with aphonia and bulbar musculature paresis due to a right unilateral frontal opercular lesion, mimicking the opercular syndrome presentation.

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Actigraphy as a tool to evaluate the sleep rhythm vigilia during the Covid-19 pandemic

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Actimetry has been shown to be useful for non-parametric analysis of biological activity/rest rhythms. We verified the pattern of activity and rest of 5 women from the city of Maringá/Pr during 30 days. We applied a sociocultural questionnaire (CONEP: 4,032,221). A (31), B (46), C (54), D (55), E (61) years. Total sleep time for A was between 6:00 am and 2:02 pm, with an average of 11 awakenings. For B, 5:10 am and 9:14 am, with an average of 21 awakenings. Participant C, 5:23 am and 10:16 am, with an average of 10 awakenings. For D, 6:02 am and 11:38 am, with an average of 16 awakenings. Participant E, 5:16 am and 8:14 am, with an average of 10 awakenings. All of them presented circadian rhythm and irregularities in sleeping and waking up during the week, with an increase in the number of hours slept on the weekends. They reported worsening sleep quality during the pandemic. When asked about the state of anxiety in relation to the moment, on a scale from zero to ten, participants A, B, C and D answered 9 and E answered 8. In relation to fear of possible health and financial risks, A, C and D scored 8, B and E scored 6 for health. A, B and C scored 9, E scored 6 and D scored 8 for the financier. We can infer that sleep suffers environmental/social influences. Actions that lead to self-knowledge can contribute to the recognition of sleep changes, allowing control and monitoring of real situations of external conflict.

Key word: actigraphy; pandemic; coronavirus.

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Helminth-induced immune response: A new perspective for the treatment of Multiple Sclerosis

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Background: Multiple Sclerole (MS) is a progressive neurodegenerative disease that, in its most common form, evolves in outbreaks and compromises the patient's quality of life and functionality. In a long time, a way of attenuating symptoms and preventing the progression of this pathology has been studied, however, drug therapies, until now, have not shown good accuracy. In this context, the exogenous use of helminths as non-drug therapy for MS has been considered, therefore, this study aims to demonstrate the recent results of studies on such therapies and verify whether there is scientific evidence of a good clinical, immunological and exam response. image of patients with MS.
Methods: Bibliographic review in the PUBMED database
Results: The four large studies carried out on the topic demonstrated evidence that the immune response induced by helminths decreases the activity of the immunological factors that contribute to the progression of MS, however the small control groups and unfavorable environments impaired the conclusions of the studies .
Conclusions: Although the studies have no yet to demonstrate reliable clinical evidence about exogenous helminth therapy, it is undeniable that the good immune response induced by the parasites is a great hope that motivates the continuation of studies in the area.

MeSH terms: Neurodegenerative disorders, helminth antibodies, antibodies, protozoan

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The Efficacy of Omega-3 Supplementation in Cognitive Function Improvement: A Systematic Review

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Background: Omega-3, composed mainly of docosahexaenoic acid (DHA) and eicosapentaenoic acid (EPA), has aroused great interest due to its neuroprotective properties. Thus, it is believed that these acids can play a protective role against cognitive decline.
Objectives: Investigate the effectiveness of Omega-3 supplementation in cognitive function improvement in individuals with, or without, mild cognitive impairment (MCI).
Design and Setting: Systematic review performed at a medical school in Brazil.
Methods: A literature review in the MedLine database was conducted using the following descriptors: "Omega-3 Fatty Acids", "Cognitive Function" and its variations according to MeSH. Only randomized controlled trials conducted in humans, published in English in the last 10 years were included. The PRISMA statement was used to improve this review.
Results: Four randomized controlled trials with DHA and EPA supplementation were analyzed. Narendran R et al. (2012) suggested a significant improvement in the performance of working memory in the 3-back test ($p = 0.04$). Strike SC et al. (2016) found significant improvements in the VRM memory test ($p = 0.029$) and in the MOT task ($p = 0.038$). Stavrinou PS et al. (2020) found significant improvement in the ACE-R and MMSE cognitive tests ($p<0,001$; $p=0,011$) in elderly people with MCI. Bo Y et al. (2017) concluded that the intervention group had a significant improvement in the total BCAT test score ($p <0.0001$).
Conclusions: Omega-3 has shown potential effectiveness in cognitive function improvement, especially in elderly people with MCI. However, it is important to carry out further research in the area.

Key words: Omega-3 Fatty Acids; Docosahexaenoic Acids; Eicosapentaenoic Acid; Cognition.

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Early diagnosis of neural involvement in home contacts of leprosy patients: The experience of a national reference center between 2014- 2020

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Background: The long incubation period of leprosy, its insidious signs and symptoms produce difficulties in its diagnosis and correct clinical classification. The early recognition of neural impairment in leprosy, especially in household contacts with subclinical infection and in the primary neural form, in which the classic clinical and laboratory findings of the disease are, by definition, absent, represents a major challenge in clinical practice.

Objectives: Characterize the clinical, molecular, serological and neurophysiological aspects in the early diagnosis of leprosy neuropathy, in household contacts with subclinical infection (positive ELISA anti-PGL1 serology.

Design and setting: Longitudinal study carried out at the Clinics Hospital - Federal Univeristy of Uberlândia, a center specialized in Leprosy/Sanitary Dermatology.

Methods: 361 seropositive household contacts (CDSP), defined as subclinical infection, were recruited, followed up at a national referral center for leprosy in Brazil, from 2014 to 2016. All individuals underwent a clinical, laboratory and neurophysiological evaluation.

Results: 361 CDSP were evaluated. The qPCR analysis was positive in 35.5% (128/361) in the dermal shaving and in 25.8% (85/361) in the skin biopsy of the CDSP. In the electroneuromyographic evaluation, 23.5% (93/361) of the CDSP showed signs of neural involvement, with an average of 2.1 nerves compromised by CDSP. 62.3% (53/93) presented a pattern of mononeuropathy in ENMG.

Conclusions: Annual monitoring of CDSP, a prevalence of peripheral neural impairment assessed by ENMG, favoring early treatment.

MeSH terms: Leprosy, Peripheral Nervous System Diseases, Contact Tracing.
Key words: ELISA anti-PGL1, Nerve Biopsy, Primary Neural Leprosy, Electroneuromyography, Early diagnosis.

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Post - Spinal Anesthesia Headache Treatment: a literature review

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Background: Post-spinal anesthesia headache is a common complication of this procedure due to the loss of cerebrospinal fluid through the puncture orifice. Resolution may be spontaneous or require interventions such as presented in this study.

Objective: To address the most relevant and current aspects of post-spinal anesthesia headache treatment.

Methods: Literature review based on Pubmed, Scielo and Google Scholar databases, having as inclusion criteria articles of great published in English, Portuguese and Spanish in the period 2016 to 2021 and exclusion criteria articles published outside that period.

Results: Post-spinal anesthesia headache or post-dural puncture headache (DPC) is divided into disabling headache and non-disabling headache in order to guide its management. In non-disabling headache, analgesics, caffeine and hydration are used. In disabling headache, blood-patching can be performed from the injection of autologous blood in the epidural space in order to buffer the puncture hole. In addition to this technique, there is the blockade of the sphenuous- palatine ganglion, which is performed by applying 5% lidocaine with the aid of a swab, introduced perpendicularly to the nasopharynx, where the sphenuous ganglion is located – palatine ,inhibiting vasodilation from the blockage of parasympathetic transmission and thus decreasing the intensity of headache, considering the approachless invasive and with fewer complications, but that needs to be better studied for its application.

Conclusion: The treatment of mistraining cppd from conservative to more invasive procedures and with a higher risk of complications. Due to the above, studies should be encouraged to expand the therapeutic arsenal of this disabling headache.

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Amyotrophic lateral sclerosis associated with parkinsonism: an atypical manifestation

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Context: Amyotrophic lateral sclerosis (ALS) is a neurodegenerative disease, characterized by progressive muscle weakness. The diagnosis is not always easy, and may have atypical initial manifestations.

Case report: O.S.M, female, 62 years old, started in 2016 with bradykinesia and left lower limb tremor, associated with frequent falls. Iniciated research for parkinsonism in 2017, SPECT demonstrated decreased dopamine transporter binding potential density in both striatum. Levodopa was started, with partial improvement of symptoms. In 2018, she developed dysphagia, associated with slight alterations in phonation. In 2019, in addition to the left lower limb tremor and bradykinesia, the patient developed limb paresis, also affecting the right upper limb, with proximal atrophy and fasciculations. Added to the therapeutic regimen pramipexole, without improvement in symptoms. Over

the months the case progressed with axial weakness, the need for a wheelchair for walking. Patient hospitalized in April 2020, electroneuromyography performed which showed signs of active disinvervation in the bulbar, cervical, thoracic and lumbosacral segments and signs of chronic disinervation in the cervical and lumbosacral segments, with no signs of sensory or motor polyneuropathy. Such findings suggest impairment of the Lower motor neuron, and can be found in the Diseases of the Motor Neuron. With the diagnosis of ALS, Riluzole was started, with a reduction in the speed of disease progression. **Conclusions:** the reported case draws attention to the importance of always thinking about differential diagnoses in neurological diseases. We should always look for new symptoms, so that more rare diseases do not go unnoticed.

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Evaluation of spatio-temporal parameters of the non-paretic limb in the gait performance of post stroke patients

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The objective of this study is to evaluate the compensation of the non-paretic side in the gait of post-stroke hemiparetic patients submitted to computerized gait analysis in the Centro Hospitalar de Reabilitação Ana Carolina Moura Xavier, Curitiba - PR, in a study carried out in 2015. Spatio-temporal data were evaluated: speed, stride and step length, swing time and support of both members. The sample consisted of twenty individuals with a mean time after stroke of 6.9 months. The results showed that the median speed was equivalent to 16.17% of the normal standard value, stride length to 31.22%, step length of the non-paretic limb to 31.69%. The swing time on the non-paretic side corresponded to 35% of the total cycle and the support time corresponded to 86%. There is a favoring of the paretic limb over the non-paretic one, as a compensation mechanism for weakness and impaired balance. Thus, the non-paretic limb spends more time in the support phase to allow a longer step length of the paretic limb while in swing. In contrast, the paretic limb is unable to support the body in the support phase for a long time, reducing the step length of the non-paretic limb. The significant reduction in gait speed indicates the high level of functional dependence inthese patients. If there is an opportunity to act early in the rehabilitation of post-strokepatients, still in the acute phase, it is possible to quantify the improvement in the abilityto walk.

MeSH terms: Gait. Hemiparesis. Space. Stroke. Time.
Key words: Compensatory Mechanisms. Hemiparetic Gait. Non-Paretic Limb. Spatio- Temporal Data.
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Periorbital nociception in a progressive multiple sclerosis mouse model is dependent on TRPA1 channel activation

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Background: Headache is one of the main painful symptoms described by multiple sclerosis patients. Previously, it was described that neuropathic pain-like behaviors were dependent on transient receptor potential ankyrin 1 (TRPA1) activation in a progressive multiple sclerosis model induced by experimental autoimmune encephalomyelitis (PMS- EAE) in mice.
Objective: Here, we aimed to investigate if periorbital mechanical allodynia induced by PMS-EAE was also related to TRPA1 activation.
Design and setting: Federal University of Santa Maria, Santa Maria, RS, Brazil.
Methods: To induce a PMS-EAE we used female C57BL/6 wild-type and TRPA1-deficient (*Trpa1-/-*) mice. By the von Frey test, periorbital mechanical allodynia development was observed, and the nociception peak occurred 14 days after induction. At nociception peak day, the mice were treated with sumatriptan, TRPA1 antagonists (HC-030031, A-967079, metamizole, and propyphenazone.
Results: The development of mechanical allodynia was showed as well as the antinociceptive effects for all treatments in induced mice. A significant reduction of TRPA1 expression was detected.
Conclusion: Thus, these results suggest that headache-like symptoms induced by the PMS-EAE mouse model might occurring by TRPA1 activation.

Key words: multiple sclerosis, nociception, dipyrone, antioxidants, calcitonin gene-related peptide, sumatriptan.

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Pathogenesis and clinical aspects involved in stroke associated with COVID-19: A literature review

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Introduction: Currently, an increasing number of studies point to the prevalence of neurological manifestations associated with COVID-19, including stroke. Although the pathophysiology is not completely understood, the infection induces a prothrombotic state stimulate by high levels of factor VIII, fibrinogen and D-dimer. In this sense, high mortality (44,2%) is a challenging context and identify influences of clinical and morphological aspects the outcome of these patients.
Design and setting: Literature review conduced in Barão de Mauá University Center, Ribeirão Preto-SP.
Objective: Clarifying aspects involved in the pathogenesis and clinical manifestations in patients with COVID-19 and Stroke.
Methods: The primary databases utilized to retrieve the salient medical literature presented in this review were Scielo and Pubmed. The search terms, included "stroke", "SARS-CoV", "covid-19".
Discussion: Ischemic stroke was the most common subtype found associated with multiple infarctions and cryptogenic etiology. The mechanisms are multifactorial, including conventional pathways stimulated by the pathogen or direct action. Called "sepsis coagulopathy", activation of the coagulation pathway associated with viral invasion of endothelial cells and excessive release of cytokines causes a prothrombotic state. Hemorrhagic stroke is less common. It is believed that the affinity of SARS-coV- 2 for ACE2 (angiotensin-converting enzyme 2) receptors could directly damage intracranial arteries, causing rupture, associated with fibrinogen depletion and massive release of cytokines and proteases.
Conclusion: Individuals affected by COVID-19 that are affected by stroke face

more severe conditions and worse associated outcomes. Thus, understanding the pathophysiology and clinical aspects brings greater effectiveness in the care of these individuals and lower mortality.

MeSH terms: COVID-19, Stroke, SARS-CoV-1

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Post-spinal anesthesia headache: a literature review

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Background: Headache is the most common neurological symptom and is an important complication of cerebrospinal fluid access (CSF) techniques, reported by 1/3 of the patients after 48 hours of puncture.
Objective: Present the most relevant information about the clinic and influential factors of headache after spinal anesthesia.
Method: A literature review was conducted in pubmed, Scielo, Lilacs and Google academic databases, having as inclusion criteria articles of great relevance published in English, Portuguese and Spanish in the period 2016 to 2021 and exclusion criteria articles published outside that period.
Results: Post-spinal anesthesia headache or post-dural puncture headache (DPC) belongs to the group of secondary headaches resulting from non-vascular disorders. The condition is composed of headache in the occipital and frontal region, which worsens in orthostatic position and may be accompanied by other symptoms such as neck stiffness, hearing disorders, photophobia, and nausea. The incidence of headache after the procedure varies according to the technique used, which can be medial or para - medial; more frequent in females; with the use of calibrated needles and in young patients. Regarding the recovery time, according to the reviewed literature, 72% of the patients had resolved the case within 7 days.
Conclusion: Therefore, the correct performance of the procedure, with attention to modifiable factors, and the careful evaluation of clinical aspects for early diagnosis are essential to reduce the incidence and morbidity of this potentially disabling headache.

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Knowledge of Brazilian genral people on risk factors for stroke

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Background: Stroke is one of the main causes of death in the Brazil and worldwide. The level of lay people's knowledge on risk factors for stroke have yet to be fully described.
Objectives: To assess the level of information on risk factors for stroke among lay people
Design and setting: Cross-sectional study applying a survey to people in public spaces in cities of Brazil's Northeast, in 2020.
Methods: Individuals who were passing by in such places were invited in a quasi- random strategy, to be interviewed. We exposed the volunteers to a typical case of a stroke presentation and asked what risk factors for it. We did not provide alternatives for the question. Ethical principles were followed.
Results: We enrolled 1,477 individuals (52.5% female, 36.2±14.8yo). Stroke was identified for 1,226/1,477 (83.0%) individuals. From these, 423/1,226 (34.5%) did not mention any risk factors for stroke; and 393/1,226 (32.1%) reported two or more factors. The often-indicated risk factors were hypertension (418, 34.1%), stress (201, 16.4%), inappropriate diet (125, 10.2%), diabetes (124, 10.1%) and sedentary lifestyle (109, 8.9%). There was not differences on mention or not risk factors in relation to sex (p=.290) and age (p=.085), but those who known had more years of formal education (p<.001) and more frequently had health insurance (p=.010).
Conclusion: The knowledge of general population on risk factors for stroke is poor. It is necessary to provide public campaigns in order to improve knowledge on this theme and to encourage screening in individuals at risk.

MeSH terms: Stroke, health education, population surveillance, risk factors

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Case Report: Creutzfeld- Jakob disease, onset with ataxia and absence of dementia

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Context: Creutzfeld Jakob disease, a rare prion disease that leads to rapidly progressive dementia and movement disorders, through its pathophysiology will determine brain damage. Regardless of the cause, the course of the disease will be rapid and will invariably lead to death.
Objective: The reason why the case is described is due to the low incidence of this disease and its unusual course in the case described.
Case report: A 67-year-old male, had a personal history of smoking and obesity . Referred to our service due to sudden ataxia, in the presence of an unchanged MRI scan. The first sympton started when he woke up with a dizzying and inability to walk due to imbalance. In the initial assessment, the patient had appendicular ataxia in all 4 limbs, with an examination of his mental status without changes. New head MRI exam showing alterations compatible with CJD. Interned with hipotheses diagnoses of Wilson's disease, encephalitis or CJD, he developed abdominal distension with surgical need and immediately after the procedure he already presented a comatose, spastic, and myoclonic condition compatible with the final phase of CJD, later protein 14-3-3 was found in the CSF.
Conclusions: CJD, usually presents with rapidly progressive cognitive deficit associated with movement disorder. In the case presented, initially there was no change in cognition and after an urgent surgical procedure, there was an important advance in a shorter than expected period for the disease.

Key words: Creutzfeldt-Jakob Disease, Prion Protein, Creutzfeldt-Jakob Syndrome /pathology, Doença de Creutzfeldt, Rapidly progressive dementia, Prion disease, Rapid decline, Movement disorder, cognitive imparment

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Molecular and cellular mechanisms involved in learning and memory

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Introduction: The identification of where the different types of information are stored was one of the first questions asked about the memory neurobiology. The researchers wanted to know if there would be a large "memory center" or if there were multiple locations in the brain responsible for its storage. Therefore, a bibliographical research was carried out for the scientific knowledge of the theme.
Methodology: Is a bibliographic study, carried out through a literary survey in the Google Scholar and SciELO databases, in addition to neuroscience textbooks.
Results: The behavior observed in the learning process of the aplysya slug at the cellular and molecular level was developed from an experimental system made by Eric Kandel, austrian physician and neuroscientist. To try to explain these behavioral phenomena, Kandel sought to understand the functioning of the sinatic phenomena, studying the sinaptic transmission between neurons at the time the reflexes occur. Thus, it determined the molecular and cellular mechanisms of synaptic plasticity of aplysia, similar to vertebrate systems.
Conclusions: In view of the clarifications of the components involved in the neural circuits, two stages that participate in the learning and memory process are considered: the first would be the acquisition of a short-lived memory, resulting from a transient reinforcement of the synapses, due to the modification ofpreexisting proteins. And the second consolidation, characterized by a persistentreinforcement of synapses, due to changes in gene expression, followed by protein synthesis, resulting in new synaptic connections.

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Correlation between depressive and anxious symptoms and white matter changes in relatives of people with epilepsy

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Background: depression and anxiety are common symptoms observed in people with epilepsy and their relatives.
Objective: Investigate associations between white matter (WM) changes and psychiatric symptoms in relatives of TLE patients.
Methods: We analyzed brain MRI with DTI from 40 TLE relatives and applied the Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI). We extracted 6 WM tracts (fornix, cingulum, uncinate fasciculus (UF), inferior fronto-occipital fasciculus, corpus callosum, corticospinal tract) and analyzed fractional anisotropy (FA), medium diffusivity (MD), axial diffusivity (AD) and radial diffusivity (RD). We investigated correlations between scores and the DTI measures. Symptoms of depression were positive with BDI scores above 10, while symptoms of anxiety were positive with BAI scores above 11.
Results: we observed a prevalence of 37.5% of depressive symptoms and 27.5% of anxious symptoms. BDI correlated with FA in the left cingulum (p=0.0003;r=-0.547); and with MD in the right cingulum (p=0.015;r=0.401) and right and left UF (p=0.023;r=0.374 and p=0.021;r=0.363). BDI correlated also with RD in the left and right cingulum (p=0.0003;r=0.583 and p=0.015;r=0.401). BAI correlated with fornix`s FA (p=0.026;r=-0.352), and with MD in the left cingulum (p=0.01;r=0.415) and left UF (p=0.003;r=0.374) and with RD in the left cingulum (p=0.022;r=0.371) and left UF (p=0.01;r=0.440).
Discussion: The regions correlated with psychiatric symptoms here overlap with those affected in patients with epilepsy, however, they differ from areas mainly affected in patients with isolated depression. We hypothesize a possible genetic substrate involved in comorbidity between epilepsy and depression, distinct from psychiatric disease in people without epilepsy.

MeSH terms: Epilepsy, Neuroimaging, Depression, Anxiety
Key words: TLE, MRI, endophenotypes

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Effects of robotic therapy associated with non-invasive brain stimulation on upper limb rehabilitation after stroke: systematic review and meta-analysis of randomized clinical trials

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Background: Robot-assisted therapy and non-invasive brain stimulation (NIBS) are promising strategies for stroke rehabilitation.
Objective: This systematic review and meta-analysis aim to evaluate the evidence of NIBS as an add-on intervention to robotic therapy in order to improve outcomes of upper limb motor impairment or activity in subjects with stroke.
Methods: This study was performed according to the PRISMA Protocol and was previously registered on the PROSPERO Platform (CRD42017054563 - https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=54563). Seven databases and grey literature were systematically searched by two reviewers, and 1176 registers were accessed. Eight randomized clinical trials with outcome measures of upper limb body structure/ function or activity limitation were included. Subgroup analyses were performed according to: phase post- stroke; device characteristics (i.e. arm support, joints involved, unimanual or bimanual training); NIBS paradigm; timing of stimulation and number of sessions. The Grade-Pro Software was used to assess quality of the evidence.
Results: A nonsignificant homogeneous summary effect size was found both for body structure function domain (mean difference 0.15, 95% CI -3.10 to 3.40; P = 0.93, I^2 = 0%) and activity limitation domain (standard mean difference 0.03, 95% CI -0.28 to 0.33; P = 0.87, I^2 = 0%).

Conclusions: According to this systematic review and meta-analysis, there is a lack of evidence that NIBS, as an add-on intervention to RT, improves outcomes of upper limb motor impairments or activity in subjects with stroke.

MeSH terms: stroke, robotics, transcranial direct current stimulation, and transcranial magnetic stimulation.
Key words: upper extremity, rehabilitation, meta-analysis.

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Meningitis in Brazil and its regions: a reflection on vaccination coverage in the last decade

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Introduction: Meningitis is a potentially fatal disease. Vaccines play a fundamental role in its prevention, so it is important to reflect on the vaccination coverage (VC) performed in Brazil and in its regions.
Objectives: To analyze the VC of meningitis in Brazil and regions in the last decade.
Design and setting: Ecological study carried out in Brazil.
Methods: Data were collected in the Information System of the National Immunization Program from the Computer Department of the Unified Health System between 2011 and 2020. The variables analyzed were: region, capitals and immunizers, which are Meningococcus C, Pneumococcal, Haemophilus influenzae b and Tetravalente. Evaluation by the Research Ethics Committee was waived because it is public data.
Results: During this period, the national VC against meningitis was 86.8%, with 19.8% of reduction when comparing 2011 and 2020. The South had the highest VC (91.0%), followed by the MidWest (90.2%), Southeast (88.7%), Northeast (85.0%) and North (76.6%), while the Southeast suffered the greatest reduction (24.0%) and the North the smallest (9.6%). The capitals had a total VC of 83.7%. The vaccines meningococcus C and pneumococcal had higher levels of total VC (92.9% and 90.4%, respectively), while their booster doses had VC of 85.4% and 83.3%, respectively. The tetravalent vaccine had a rate of 77.0%.
Conclusions: Except for the North, Brazilian regions have obtained adequate VCs in the last decade, but these rates have been decreasing. It is urgent to strengthen the national vaccination plan in the country, especially in the North.

MeSH terms: Meningitis; Immunization Programs; Vaccination.
Key words: Infectious Disease; Infectious Diseases; Public Health; Preventive Medicine.

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Case report: Medullary cryptococcosis in a immunocompetent patient

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Context: Cryptococcosis is an important fungal infection that, after AIDS development globally, became more common, being an important cause of opportunistic infections. The pathogen normally gets in through the lungs, causes pulmonary infection and then spreads to another systems, particularly the nervous system in most cases. Along the clinical manifestation there was headache, fever, cranial neuropathies, altered mentation, lethargy, memory loss, and signals of meningeal irritation.
Case-Report: A 48-year-old male patient with a one-year story of paraparesis in both legs, associated with pain, paresthesia, and progressive worsening to complete walking incapability, seeks medical consultation. Cerebrospinal fluid was turbid appearance, yellow colored, presence of RBC (1.239 cel/mm^3) and leukocytes (149 cel/mm^3 - 5% neutrophils, 91% lymphocytes and 4% monocytes), glucose of 23 mg/dL, chlorine of 96 mmol/L, and Cryptococcus neoformans was isolated. Immunosuppressive disease wasn´t found. In MRI, there were nodular images in the intradural and extradural sites through T11-T12 levels, compressing the spinal cord. Local biopsy revealed chronic granulomatous inflammatory process, consistent with the cryptococcosis suspect.
Conclusions: The case represents an unusual manifestation of cryptococcosis, with an uncommon topography and profile, once it´s manifestation medullary and in a healthy individual is rare. The main differential diagnosis was spinal tuberculosis, an also rare disease yet with similar symptoms and relevant local epidemiology. To reach the diagnosis, laboratory study was necessary. The treatment was the same of cryptococcosis in general.

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Surgical versus conservative management of spinal cords injuries by firearm: a literature review

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Background: Spinal Cords Injuries (SCI) is an important cause of permanent physical disability and firearm injuries are one of its main etiologies.The treatment can be conservative or surgical, with controversies regarding the evaluation criteria and the choice of management.
Objectives: Understand the differences in surgical and conservative management, their indications, complications and associated clinical outcomes.
Design and setting: A literature review at the University of Pernambuco in Recife city.
Methods: A literature review of articles, indexed in the MEDLINE/Pubmed database in April 2021, in English and Portuguese and were published in the last ten years (2011-2021).
Results: A prevalence of complete injuries and a number of complications and injuries associated with SCI by firearms was observed. Conservative manage-

ment was the predominant treatment approach. Surgery was recommended only in the face of specific indications. Antibiotic therapy was recommended, while the use of corticosteroids was contraindicated. Debridement was controversial. Some studies have pointed out a higher incidence of complications in the surgical group, while others have shown similar rates between surgical and non-surgical patients. Many authors have not identified differences in the prognosis of patients treated surgically or conservatively.
Conclusions: Patients' prognosis is determined by the initial injury, regardless of whether the treatment choice is conservative or surgical, but surgical management is associated with a higher incidence of complications. Conservative treatment was shown to be preferable to surgical treatment, except in specific situations.

MeSH terms: Nervous System; Therapeutics; Wounds and Injuries
Key words: Spinal cords injury; gunshot wound; treatment.

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Painful ophthalmoplegia due to involvement of cavernous sinus region by malignant neoplasm: report of three cases

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Context: Intracranial tumor spread is an infrequent and late manifestation of head and neck cancers. We report three cases of painful ophthalmoplegia due to larynx and parotid neoplastic involvement. Data disclosure was authorized by the patients through an Informed Consent Form.
Case reports: A 47-year-old man presents right retro- orbital pain and progressive ophthalmoplegia 5 months after resection of laryngeal spinocellular carcinoma and local radiotherapy. A 44-year-old man, 9 months after excision of spinocellular carcinoma of the larynx and subsequent radiotherapy, presents severe pain and paralysis of the left CN VI. Imaging exams showed involvement of CS. A 67-year-old woman with a tumoral mass in the left preauricular region. Biopsy revealed adenocarcinoma of the parotid gland. After total parotidectomy, the supra-omohyoid cervical ganglion was removed. Patient received radiotherapy for 3 months. Then, she presented a frontal and right temporal headache, more intense in the retro-orbital region. After one month, she developed complete CS syndrome, with the right CN VI being the first to be affected. MRI revealed an irregular enhancement lesion in right CS after contrast administration. All patients died despite treatment.
Conclusions: In patients with painful ophthalmoplegia, the most common hypotheses are diabetic neuropathy and Tolosa-Hunt syndrome. CS involvement may be the first evidence of a distant head and neck disease. Despite the poor prognosis, palliative care should be considered.

Key words: Headache; Painful ophthalmoplegia; Cavernous Sinus Syndrome; Aneurysm;
MeSH terms: Ophthalmoplegia; Cavernous Sinus; Neoplasm Metastasis

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Elucidating the relationship between meningitis and SARS-CoV-2 infection: a literature review

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Background: The Covid-19 pandemic has become a major challenge for public health, once this disease can even affect the nervous system, causing severe conditions, such as meningitis. The association between meningitis and Covid- 19 is not yet well established, but it is believed that it can be caused both by a bacterial co-infection or by the involvement of meninges due to the action of the virus itself.
Objective: The aim of the present study is to elucidate the relationship between meningitis and SARS-CoV-2 infection.
Methods: In order to carry out a literature review, case reports were searched in the PUBMED database, in which only articles in English were considered, without year restriction, resulting in the following research formula: "((COVID-19) OR (SARS-CoV-2)) AND (meningitis)".
Results: 33 case reports were found, of which only 12 met the eligibility criteria. The reported cases provide evidence of meningeal and brain involvement by the SARS-CoV-2 virus, some with confirmation by CSF RT-PCR. Isolation of the SARS-CoV-2 virus in the CSF is challenging and has not been possible in other patients; however, the exclusion of bacterial involvement by culture and other viral agents in the CSF analysis points to infection by SARS-CoV-2 in a patient with positive RT-PCR by nasopharyngeal swab or bronchoalveolar lavage**.**
Conclusions: The possibility of SARS-CoV-2 meningitis reinforces the need to investigate this condition in patients with COVID-19 who have neurological symptoms.

MeSH terms: Meningitis, COVID-19, SARS-CoV-2.
Key words: meningitis; SARS-CoV-2; COVID-19.

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Unraveling the mysteries of the midbrain – A case report

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Context: The rostral midbrain and thalamomesencephalic junction are the supranuclear premotor control of vertical eye movements, and is supplied by the posterior thalamo-subthalamic paramedian artery originated from P1 segment of posterior cerebral artery.
Case report: A 51-year-old man presented with sudden speech difficulties, dizziness and dyplopia, associated with moderate intensity headache. Neuroophthalmological examination revealed incomplete ptosis of the right eye, with mydriatic pupil, poorly reactive to light. No eye movements were present on attempted upward gaze. On attempted downward gaze, depression of the left eye was observed but with absent saccades. Lateral gaze to the right was

intact, while attempted gaze deviation to the left revealed adduction deficit of the right eye with incomplete abduction of the left eye without nystagmus. Convergence was absent. He exhibited left hemiataxia with left hypoestesia. MRI showed acute right paramedian thalamic and mesencephalic stroke.
Conclusions: About the vertical one and a half syndrome, it was suggested damage in the pathway to contralateral downgaze neurons before its decussation with the unilateral interstitial nucleus of Cajal. As for the contralateral lateral rectus palsy we infer that this patient's abduction deficit was due to pseudo-abducens palsy, with several mechanisms that could explain abduction deficits associated with upgaze palsy. Claude's syndrome is usually explained by a lesion of oculomotor nerve fascicle and the superior cerebellar peduncle, affecting cerebellothalamic connections

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Acute viral myositis: case report

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Context: Benign Acute Childhood Myositis (BACM) is a self-limited syndrome of acute myalgia prevalent in calf with impaired walking after Upper Respiratory Tract Infection. This report analyze the clinical condition and investigation of BACM case, by medical record.
Case report: C.L.F.A., male, 12 years, in use of clobazam, sodium divalproate, topiramate and lamotrigine, started low back pain. One day after, presented headache, fever and nasal congestion. Reported convulsive febrile episodes. At following morning received Upper Respiratory Tract Infection diagnoses. Next day, maintained symptoms and developed thrombocytopenia. Discharged due to suspicion of *dengue*. After 24 hours, returned with improved thrombocytopenia, also with leukopenia. At 5th day, started pain in lower limbs and impaired walking. Due to muscle symptoms worsening and increased creatinophosphokinase, hospital admission were indicated. Laboratory tests found increased in creatinekinase (10,180 U/L), CKMB (129,6 U/L), leukopenia (2800/mm^3) and thrombocytopenia (174,000 / mm^3). Anti-HIV, anti- leptospirosis, dengue, Chikungunya and anti-HCV tests resulted negative. At the 6th hospitalization day, he was discharged virtue of muscle symptoms, leukocytosis and creatinekinase levels favorable progression.
Conclusions: BACM has excellent prognosis and self-limited course, so outpatient care is feasible. The diagnosis is clinical. If neurological deficits, modified urine tests and rash, or symptoms duration longer than one week, differential diagnoses must be researched. Measure creatinekinase is important if pain or walking disability after viral episode. Early intervention avoids complications.

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Brain stroke in patients with Covid-19 disease

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Background: Currently, the world is facing a pandemic caused by the SARS-CoV-2, which has already infected millions of people and has accumulated countless deaths. Association has been reported between severe conditions of this disease and the occurrence of neurological manifestations, including stroke. The mechanisms that trigger this cerebrovascular disease in infected people are not defined yet, but it's believed that they involve inflammatory reaction, vascular endothelial dysfunction and hypercoagulopathy present in SARS-CoV-2 infection.
Objectives: Verify the studies which relate the cerebrovascular disorders caused by the infection of SARS-CoV-2, in order to elucidate its performance and determine the patient's management as a way to avoid outcomes such as stroke and other neurological conditions losses.
Methods: The subject is approached through a narrative review of the literature without meta-analysis. A bibliographic survey was made out, from December 2019 to June 2020, in digital databases.
Results: The relation between ischemic and hemorrhagic strokes with coronavirus infection shows a possible mechanism of action of the virus related to ACE2, damaging tissues, including the brain. In addition, a huge relation has been identified between coagulopathy induced by the infectious condition and the occurrence of stroke, since the intense inflammatory storm produced raises the risks of occurrence of cerebrovascular events.
Conclusions: The activity of this coronavirus against ACE2 has been shown to increase the secretion of pro-inflammatory substances, causing brain damage. Although this is a new disease, it's possible to establish the stroke as a complication of COVID-19. It should be considered, especially in critically ill patients, and promptly assisted.

MeSH terms: Coronavirus infections; stroke; neurologic manifestations; COVID-19.
Key words: Severe Acute Respiratory Syndrome, Blood Coagulations Disorders, Virus Diseases.

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Predictors of unfavorable outcome and in-hospital mortality after ischemic stroke

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Background: stroke is the second leading cause of death and disability worldwide. The most significant factors for early mortality are age, severity of stroke (NIH stroke scale), atrial fibrillation (AF) and hypertension.
Objective: elucidate the factors correlated with unfavorable outcome and mortality after ischemic stroke.
Design/Setting: retrospective descriptive study conducted at the Botucatu Medical School Hospital.
Methods: this study included 515 stroke patients, aged at least 18, admitted to ICU and stroke-unit between January/2017-December/2018. Baseline data, comorbidities and risk factors were collected and relation to unfavorable outcome and in-hospital mortality were evaluated. Unfavorable outcome was defined as dependency (modified Rankin Scale mRs 4–5).
Results: overall, in-hospital mortality rate was 15% (77) and unfavorable outcome 36.7% (189). The patients average age was 69.18±13.08, and NIHSS at admission 9.27±8.41. NIHSS at admission and pre-morbid mRs were independently associated with unfavorable outcome, as each NIHSS point was responsible for 22% outcome increase. Both higher NIHSS and

AF were independently associated with in-hospital mortality, increasing the death risk 19% and 3.5 times respectively.
Conclusion: the main factor associated with overall in-hospital mortality and unfavorable outcome was stroke severity

MeSH terms: Stroke; ischemic stroke; national Institutes of Health (U.S.);
Key words: NIHSS; stroke severity; stroke outcome; grant 2020/09947-4, São Paulo Research Foundation (FAPESP).

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Demographic characteristics of subjective cognitive decline studies' samples. A systematic review

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Background: Subjective cognitive decline (SCD) consists on self-perception of cognition decline without an objective impairment. It has gotten attention from researchers because it may be an early stage of Alzheimer's disease, before dementia
Objectives: This research aimed to determine the characteristics of the SCD studies' samples across the countries.
Methods: It was searched for complete articles from 2014 to 2020 on MEDLINE, PubMed, EMBASE and others, using the keyword "Subjective Cognitive Decline" and its respective translations in both Spanish and Portuguese.
Results: Of 3,470 papers, 487 were eligible. The mean age of SCD participants was 71.98 in 2014 to 66.14 in 2020, (mean 66.81) as the number of participants, there were 104 in 2014 and 5233 in 2020 (mean: 1729), and 59% of the participants were women. The mean scholar years were 13.4, in 2014 there were 8 articles and 167 in 2020.
Conclusions: The increased number of publications and samples represents the crescent importance of the theme. The decrease in the mean age, possibly demonstrates efforts to an earlier detection of the condition. The majority of women, could represent a prevalence of this gender on the disease, or be related with the fact that woman participate more in scientific studies and also use the health services more than men. The high level of scholarly contrasts with the wrong conception of dementia being related only to poor education, showing that it also affects higher levels of schooling.

Systematic Review Registration: https://www.crd.york.ac.uk/prospero/ (ID: 255074)
MeSH terms: Cognitive Dysfunction; Dementia; Memory Disorders
Key words: subjective cognitive complaints; memory complaints; subjective memory impairment

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Association of pre-stroke hyperglycemia with hemorrhagic transformation in patients undergoing thrombolysis.

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Background: Hyperglycemia is a frequent finding in patients suffering from ischemic stroke. Hemorrhagic transformation is a complication associated with thrombolytic treatment, with poor prognosis. In addition, hyperglycemia and diabetes are related to worse outcomes in vascular events.
Objective: This study aims to analyze the association between hyperglycemia at admission and hemorrhagic transformation in patients undergoing thrombolysis after ischemic stroke.
Methods: A cross-sectional study was carried out with patients from the DISPASS cohort (DOI: 10.1161 / STROKEAHA.120.026425), admitted in a reference stroke unit in Salvador-BA. Those over 18 years of age who underwent thrombolysis with alteplase were included and patients without data on glycemic control or who did not meet the admission criteria in the cohort were excluded.
Results: Of the 173 patients within the therapeutic window for thrombolysis, 14 underwent hemorrhagic transformation evidenced in computed tomography of the skull and, among these, only 04 presented with hyperglycemia at admission and beginning of thrombolytic treatment, which represented a non-important association (p <0.485) between hyperglycemia and hemorrhagic transformation after thrombolysis.
Discussion and Conclusion: The findings are in line with what was reported by Olsen in 2009 and with what was expected, due to the known relationship between hyperglycemia and diabetes with hemorrhagic complications in patients who suffered a stroke. The present study found no association between the incidence of hemorrhagic transformations in patients with pre- thrombolysis hyperglycemia in a stroke context.

Mesh: Stroke, Hyperglycemia, Thrombolytic Therapy, Diabetes Mellitus.

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Correlation between Zika virus and microcephaly as a consequence of congenital infection

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Introduction: The Zika virus (ZIKV) is an arbovirus of RNA, whose transmission is mainly vector - by mosquitoes of the genus Aedes - but it also occurs through sexual, blood and transplacental transmission, with the last mentioned it was possible to verify serious neurological effects in the epidemic in South America, especially in Brazil, between 2015 and 2016.
Objectives: To analyze the relationship between Zika virus infection and microcephaly in recent scientific literature.

Methodology: Refers to a bibliographic review in the databases SciELO, LILACS and MEDLINE / Pubmed, with the terms "zika virus", "infection" and "microcephaly" correlated in Portuguese and in English; 78 articles were found, but only 7 followed for analysis. Articles published more than 5 years ago and out of the proposed theme were disregarded.
Results: The Zika virus, although similar to the dengue and chikungunya virus, it has a tendency to cause damage to the central nervous system such as Guillain-Barré Syndrome. However, the association between microcephaly and ZIKV started to be more observed through the increase of the disease among fetuses and newborns of mothers who had been infected during the gestational phase in the epidemic that happened in Brazil. It is known that the development of the nervous system is the product of processes of high proliferation and cellular differentiation, in which even small errors generate dangerous impacts, and it is during this period that ZIKV affects the CNS of the fetus. The disease is characterized by the reduction of the brain perimeter, in this context, is a consequence of abnormalities influenced by the virus.
Conclusions: Microcephaly is a complex disease; therefore, it is necessary to emphasize the importance of primary care and other spheres for monitoring Zika virus infections, prenatal care and constant psychosocial monitoring. Furthermore, it is necessary to understand the relevance of studies about ZIKV and microcephaly, and to encourage scientific production in this area.

MeSH terms: Zika Virus Infection; Microcephaly; Pregnancy.
Key words: Congenital Abnormalities, Epidemics, Diagnosis.

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Epidemiology of Pediatric Traumatic Brain Injury in Brazil

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Background: Pediatric traumatic brain injury (TBI) is a serious social and economic problem. Emerging countries have 89% of the cases worldwide and lack relevant epidemiological studies on the subject.
Objectives: Characterize the demographic, social and economic profiles of the pediatric population suffering TBI in Brazil.
Methods: Data on the cases of pediatric TBI in Brazil between 2008 and 2020 were collected through the computer department of the Unified Health System (DATASUS) maintained by the Brazilian Ministry of Health.
Results: There are about 28,836 hospital admissions due to pediatric TBI per year and an incidence of 45.11 admissions /100,000/year. The in-hospital mortality rate was 1.47/100,000/year, and the case fatality rate was 3.26%. The average annual cost of hospital expenses was US$ 12.311.759, with the average admission cost having a value of US $417. The 15–19 age group was the most frequently admitted to hospital for pediatric TBI and had the highest number of in- hospital deaths; in addition, more males were affected by this trauma compared to females at a rate of 2.31:1. Ethnic populations that are social minorities are more susceptible to a poor prognosis of TBI.
Conclusion: Pediatric TBI should be recognized as an important public health problem in Brazil, as it is responsible for considerable social and economic costs. Public policies that reduce the causes of this type of trauma in the pediatric population are urgently needed in Brazil and other emerging countries.

MeSH terms: Brain Injures, Traumatic; Pediatrics; Epidemiology
Key words: Emerging Country, Brain Trauma, Brazil

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Analytical study of the evolution's number of hospitalizations in patients with spina bífida in comparation with region, sex, age range and deaths in Brazil

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Background: Spina bifida is a congenital disease that occurs due to incomplete closure of the embryonic neural tube. It results in impacts of a wide variety of extensions, in different systems and levels of neurological changes, which define its prognosis.
Objectives: To report the number of hospitalizations of the disease in different social sectors to establish a link between etiology and health promotion.
Methods: Analytical epidemiological study carried out by research at DATASUS based on the number of hospitalizations of patients with spina bifida in Brazil, between January / 2012 to December / 2020, associated with the incidence of the age group, region, sex and deaths in the country.
Results: The total number of hospitalizations between the years 2012 to 2020 was 9566, with 2015 being the year with the most hospitalizations, 1205. The Northeast region had the highest percentage of hospitalizations with 45%. About the gender, there is little difference, with 49.05% female and 50.94% male. The age group, the most prevalent is the one younger than 1 year (63.28%). Regarding the number of deaths, the northeast region stood out with 47% of deaths, followed by the southeast region with 27%. In addition, the age group with a predominance of deaths 74.5% was that of less than 1 year.
Conclusion: This congenital malformation acts as an important cause of neonatal mortality and a risk factor for infant morbidity. Therefore, the need for public agencies to act is evident, since it is a change that can be prevented.

Key words: Spina Bífida, Abnormalities, Congenital, Nervous System; Congenital Diseases.

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Influence of Pain on Social Participation and life habits after stroke

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Background: One of the main symptom present in post-stroke subjects is chronic pain. Chronic pain and physical dependence can decrease the level of social participation of these population.
Objective: characterize the correlation between pain and the social partici-

pation of post-stroke individuals living in the region of Trairi Potiguar. This is a cross-sectional and observational study, approved by the institution's research ethics committee (#2.622.853).
Methods: Thirty-four participants were assessed by McGill Pain Questionnaire (MPQ), LIFE-H 3.1, Functional Independence Measure (FIM), Mini-Mental State Examination (MMSE), Fugl-Meyer Scale (FMS) and Nottingham Sensory Assessment (NSA). Spearman correlation test were performed in the statistical analyse.
Results: The following scores were reported in median (1ºQ/3ºQ): FIM (65: 0/116), MMSE (18: 0/23.75), FMS (21: 0/88), NSA (45,5: 0/238), LIFE-H total (338: 0/757) and MPQ (0: 0/0.75). A moderate positive correlation between the sensory domain of the MPQ (pain) with the subdomains of nutrition (rs=0.5913, p=0.0002) and mobility (rs=0.5083, p=0.0021) of LIFE -H were founded.
Conclusions: There are presence of pain in this population, but no correlation was found between pain and social participation in post-stroke individuals .

MeSH terms: Stroke, Pain, Social Participation
Key words: cerebrovascular diseases, presence of pain, participation in society

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Application of Principal Component Analysis in the estimation of potential factors associated with the prevalence of deaths in cases of spinal cord trauma

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Background: In Brazil, the mortality indicators for spinal cord trauma (SCT) are poorly known. Therefore, identifyng potential risk factors for death due to SCI is fundamental for preventive actions which suits each country region's specificities. Design and setting: Cross-sectional study (Parecer no. 1.451.493), with the analysis of 786 medical records of SCT cases hospitalized between 2010 and 2015 at a reference hospital in Belém, Pará, Brazil.
Methods: We used Principal Component Analysis (PCA) to estimate potential factors that contribute to the SCT, the following factors were analyzed: intervention (conservative/surgical), hospitalization period (<or> one week), vertebral segment affected (cervical or not), treatment cost (<or> 1 minimum wage), management (multiprofessional or not), distance to care, sequels, age and gender. Data analysis was performed using R.
Results: The type of management and intervention and patients' age were factors that most influenced (~20%) the outcome (death/survival). However, this indicates that ~ 80% of the outcome's variability is due to other factors.
Conclusions: PCA is useful to indicate potential factors to be considered as influencing the prevalence of death in SCT cases. The use of these data in discriminatory analyzes, hereafter, can help to clarify this topic.

Key words: spinal cord trauma, death, prevalence, principal component analysis

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Relationship between stroke etiologies and clinical manifestations/Oxfordshire

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Introduction: The classification of strokes subtypes is important, since they have different management and prognoses. This study aims to verify associations between the etiologies of the stroke according to the TOAST classification and the clinical presentation by the subtypes of the Oxfordshire scale.
Methods: A descriptive cross-sectional study, with patients admitted to a stroke unit of a reference hospital in Salvador-BA between 11/2017 and 03/2020. We included patients over 18 years of age and didn't include patients with inaccuracies in the filling of medical records or who didn't meet the criteria for admission to the cohort.
Results: 300 patients between 25 and 98 years old (mean: 64 years; SD: 13.34) were analyzed. Regarding cardioembolic etiology (CE), 34 patients (45.3%) had lacunar syndromes (LACS) and 25 (33.3%) Partial Anterior Circulation Syndrome (PACS). Patients with Large Artery Atherosclerosis (LAA) 24 (40.7%) had PACS while 21 (35.6%) of the LACS patients diagnosed with small vessel occlusion (SVO) 22 (62.9%) had LACS. Futhermore, patients with cryptogenic strokes (CS) had predominantly PACS and LACS, 27 (31%) and 40 (46%) respectively.
Conclusion: Based on the results of acute strokes of CE, SVO and CS origin are related to LACS. The events originated by LAA are more associated with PACS. Events caused by SVO were related to lacunar syndromes, corroborating with findings in the literature.

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Subacute combined degeneration of spinal cord vs Miller-Fisher syndrome: a diagnostic challenge

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Context: Ataxic syndromes in the emergency department have a vast differential diagnosis, including immune, nutritional, and other etiologies.
Case report: Man, 67yo, alcoholic, but previously healthy, came to ED due to complaints of falls and progressive dysesthesia in lower limbs which started 7 days from admission. He denied other toxic exposures or infectious history, except covid-19 one month before the current symptoms. Physical examination revealed

mild hoarseness, left hemipalate paresis, tactile and position sense hypoesthesia, no sensory level, absence of profound reflexes; right hypotonia, global ataxia, and he was unable to walk. Neuroaxis MRI was normal. CSF obtained at D10 had 2 lymphocytes/mm3, 96mg/dL of proteins and no other abnormalities. Hb=13g/dL, VCM=103fL, B12=424pg/mL, LDH and homocysteine were high. Negative anti-HTLV and -transglutaminase; covid-19 rapid test was positive, but rt-PCR was negative. ENMG revealed moderate sensory-motor axonal polyneuropathy. We hypothesized that the main differential diagnoses were subacute combined degeneration of spinal cord (although high level of protein in CSF) and Miller-Fisher syndrome (although ophthalmoparesis was absent). Considering that there was no motor nor respiratory symptoms, we did not offer pulse therapy and opted for B12 vitamin replacement. The patient had a favorable response to therapies and was able to walk at two weeks of treatment.

Conclusions: We did not define the etiology of this case, however, it is important to keep B12 deficiency in mind (even when it is into the lab reference range) and to pay attention to post-viral atypical manifestations, mostly in the context of the current covid-19 pandemic.

MeSH terms: Subacute combined degeneration; Miller Fisher Syndrome; Spinal Cord Diseases; Covid-19
Key words: Myelopathy; Guillain-Barre syndrome; Nutritional deficiency

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Progressive lacunar stroke presenting as cheiro-oral syndrome, dysarthria and hemiataxia

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Context: Lacunar infarcts are small infarcts caused by occlusion of a single penetrating vessel, affecting mostly the basal ganglia, subcortical white matter and pons1. Around 20-30% of patients may progress symptoms over hours to days, and this presentation is associated with disability and poor prognosis2.

Case report: A 70-year-old man with history of smoking, hypertension and a previous right occipital stroke reported right upper lip paresthesias since awakening. In 2-hours the right perioral region and his right hand were affected. After 3-hours he noted slurred speech. After 4-hours, imbalance was added to the previous symptoms. On admission, NIHSS was 4, mostly by previous left hemianopia, new right arm ataxia and cerebellar dysarthria. There were no weakness or sensory déficits. Brain MRI showed a subacute lacunar stroke in the left thalamus.

Discussion: Thalamic lacunar strokes can present in a wide range of symptoms depending on the affected nuclei. The ventral posterior lateral nucleus (VPLn) and the ventral posterior medial nucleus (VPMn) carries sensory input from the contralateral body and face, respectively3. Cheiro-oral syndrome (COS) is considered a pure sensory thalamic lacunar syndrome with symptoms that affect theface, hand and/or foot, but may be accompanied by ipsilateral ataxia if the ventral lateral nucleus is also affected[4]. Although classically associated with thalamic ischemic lesions, there are descriptions of hemorrhagic strokes[5] and multiple different affected regions presenting as COS, including brainstem[5], internal capsule[6],operculum[7], cortex[8], corona radiata[9] and thalamus[10]. Early recognition and diagnosisis essencial to institute adequate early treatment and secondary prophylaxis.

MeSH terms: Lacunar stroke; Lacunar syndromes; Cerebrovascular disorders
Key words: Lacunar stroke; Lacunar syndrome; Cheiro-oral syndrome; Cerebrovascular disorders

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Vogt-Koyanagi-Harada Syndrome: case report

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Context: Red eye complaints are common in medical practice. Trauma, infection and autoimmune disorders are possible causes. It is essential to diagnose early to avoid sequelae.

Case report: Female, 58 years old, 30 days of progression of bilateral frontal and retro-orbital headache associated with red eye and decreased visual acuity in both eyes, otalgia and tinnitus in the left ear. No trauma history. She started treatment in another hospital with acyclovir for suspected viral meningitis and was referred for evaluation after 10 days due to the lack of improvement. In our evaluation, the patient had severely impaired visual acuity (counted fingers in the RE and 20/400 in the LE), with uveitis, papilloedema andbilateral serous retinal detachment. Lumbar puncture showed aseptic meningitis(940 leukocytes with 100% lymphocytes, 66 mg/dL proteins, normal glucose and negative evaluation for CSF infections). Laboratory tests showed an increase in inflammatory markers (VSG 121) and positive anti-TPO, with other negative autoantibodies. Brain MRI with subacute retinal detachment, without intracraniallesions. Audiometry with mild to moderate bilateral sensorineural hearing loss. The patient was treated with IV methylprednisolone for 5 days with partial symptom improvement.

Conclusion: Among the bilateral uveitis causes, it is crucial to remember Vogt-Koyanagi-Harada Syndrome (VKH), which occursthrough bilateral uveitis, sometimes accompanied by retinal detachment, inassociation with hypochromic skin lesions, sensorineural hearing loss, headacheand aseptic meningitis[2]. VKH results from an autoimmune lesion in the melanocytes[3]. Treatment should be done with topical corticosteroid, associated with cycloplegics and systemic corticosteroid therapy with long-term immunosuppression[2].

MeSH terms: Uveomeningoencephalitic Syndrome, Uveitis, Hearing Loss, Sensorineural
Author key words: Vogt-Koyanagi-Harada, Autoimmunity, Hearing loss, Hypoacusus, Uveitis

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Probiome: knowing our second genome, the gut microbiota

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The gut microbiota a plays an important role in the physiology and pathology of the human body. In recent years, studies are unraveling how the gut microbiota influences not only health and gastrointesPnal disorders, but also other distal organs and systems. Recently, studies are been showing that gut's bacteria can affect central nervous system physiology and inflammaPon. The gastrointesPnal tract and the nervous system communicate each other through a bidirecPonal signaling network known as brain-intesPne axis. This network is made up of mulPple connecPons that include vagus nerve, immune system and metabolisms, such as metabolites and products derived from intesPnal bacteria. Depression, MulPple Sclerosis, Alzheimer's, Parkinson's Disease and AuPsPc Spectrum Disorders are among the most studied neurological condiPons in the gut microbiota field. BiomeHub is a biotechnology StartUP that pioneered the development and performance of analyzes based on cuXng-edge genomics and bioinformaPcs technologies applied to microbiology. The company developed the first validated Brazilian intesPnal microbiome test, which all steps are performed in Brazil, in its own infrastructure, using the state of the art in DNA sequencing technologies and analysis of biological data. Probiome is a molecular test capable of detecPng the complex bacteria community that make up the IntesPnal Microbiota, by sequencing the DNA of these bacteria. The growing knowledge accumulaPon about human microbiome allowed rapid advances and it has been building a solid foundaPon for the development of prognoses, diagnoses and clinical intervenPons, while it creates a new paradigm in personalized medicine. Probiome enables a targeted medical and nutriPonal approach through cross-checking between the profile data of the gut microbiota and the paPent clinical condiPons, assisPng in the elaboraPon of more accurate diets and therapies, selecPon of probioPcs and prebioPcs, among other approaches to gut microbiota intervenPons.

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Gait speed and self-efficacy in falls in individuals with normal pressure hydrocephalus

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Background: Normal pressure hydrocephalus (PNH) is manifested by the triad apraxia of gait, dementia and urinary incontinence. The fear of falling and the loss of a sense of self-efficacy in body balance and mobility results in the restriction of social participation.
Objective: to verify the relationship between gait speed and self-efficacy for falls in individuals with PNH.
Methodology: This is an observational and cross-sectional study, carried out at the Clinical School of Physiotherapy at UNIFRAN, with CEP approval (CAAE 83164918.2.0000.5495). The convenience sample consisted of 3 individuals with PNH, with DVP, age 72.5 (± 3.6), who presented independent gait without using a walking aid device and MMSE 23.6 (± 1.2) and a history of more than 2 falls in the past year. They were assessed for the sense of self-efficacy for falls using the Falls Efficacy Scale - International (FES-I) questionnaire. The speed of normal and fast gait was calculated by the time taken to cover 10 meters. To verify the relationship between FES-I and gait speed, association and correlation tests were applied. Descriptive analysis was performed and the paired t test and the Pearson correlation test were used.
Results: The FEI-S average was 31.3 ± 4.8 points. The average normal walking speed was 0.62 ± 0.24m / s and the average fast speed was 0.77 ± 0.32m / s. The participants were not able to significantly modify the gait speed ($p = 0.073$). There was a positive correlation between FES-I and gait speed ($r = 0.68$; $p = 0.027$).
Conclusion: The low self-efficacy for falls interferes with the ability to change the gait pattern through speed. Understanding the fear of falling and walking speed can help in the mapping of cases that deserve, in addition to conventional rehabilitation, a behavioral intervention to increase the sense of self-efficacy, and thereby improve walking independence.

MeSH terms: Hydrocephalus, Normal Pressure, Gait Analysis, Falls.

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Chronic Inflammatory Demyelinating Polyradiculoneuropathy (CIDP) as a presentation of Familial Amyloid Polyneuropathy (FAP): diagnostic error or overlap?

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Case report: Male, 72 years old, with progressive tetraparesis, paraesthesia and burning pain with distal predominance. Electroneuromyography (ENMG) showed findings suggestive of sensory-motor axonal polyneuropathy and signs

of active and chronic denervation in the L5 and S1 territory. Underwent lumbar arthrodesis and during surgery, presented symptomatic bradycardia requiring a pacemaker. He reported partial pain improvement, but had bilateral foot drop and bladder retention. New ENMG demonstrated findings, now suggestive of CIDP. Underwent intravenous corticosteroid therapy without improvement. In 2019, he presented dysphagia for solids, weight loss, erectile dysfunction, postural hypotension and sensory-motor worsening. Underwent Human Immunoglobulin for 6 months. As there was no improvement, he was referred to our service. Best analysis in history revealed heart disease in 3 siblings. Genetic sequencing was performed for FAP that demonstrated a VAL50MET mutation.
Context: FAP is an autosomal dominant inherited disease, caused by mutations in the transthyretin (TTR) gene that determine the accumulation of abnormal protein aggregates. Peripheral neuropathy differs from classic CIDP pattern by the distribution of weakness, important impairment of fine fibers and refractoriness to immunosuppressive treatment.
Conclusions: FAP is a serious and treatable condition. Early diagnosis has a huge impact on life quality. Although confusion with CIDP is frequent, it is possible through history to differentiate these conditions.

Key Words: Neuromuscular, Familial Amyloid Polyneuropathy, Chronic Inflammatory Demyelinating Polyradiculoneuropathy, Transthyretin.

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The importance of cephaliatric anamnesis in the diagnosis and early treatment of spontaneous intracranial hypotension: an experience told in a case report

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Introduction: Spontaneous intracranial hypotension (SIH) is a rare syndrome, still underdiagnosed. It manifests with orthostatic headache and improves with decubitus, and may present nausea, vomiting, diplopia, vestibular and auditory symptoms. The main cause of SIH is spontaneous CSF leaks usually in the cervicothoracic transition.
Case report: RSA, male, 36 years, he presented holocranial headache triggered in the orthostatic position and decubitus improvement associated with nausea. He denied visual complaints, fever, trauma or invasive procedures. Neurological examination: discrete neck stiffness, fundoscopy and others exams without abnormalities. Brain and cervical spine MRI, also venous AngioMRI were normal. Dorsal spine MRI with extradural collection. Arterial AngioMRI with 2,50x2,0mm aneurysmatic dilation in the right supraclinoid internal carotid artery. Opening pressure of CSF 6cmH_2O. Analgesia, decubitus rest and parsimonious hydration were performed. In cisternoscintigraphy, CSF leakage into the extradural space at the level of D3/D4 and D4/D5 on the left, delay in the rise of the tracer for brain convexities in 24 hours images, suggestive of CSF hypotension. Blood patch guided by radioscopy was performed, with improvement after 2 weeks of the 3rd procedure.
Conclusion: Knowing the types of headache and its etiologies is essential to orientate diagnosis and treatment, avoiding unnecessary exams. In this case report, the microaneurysm found did not justify the complaint of orthostatic headache. The rapid diagnosis of spontaneous CSF leaks provided early treatment avoiding complications such as subdural hematomas, cerebral venous thrombosis, pituitary dysfunction.

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Consequences of isolation in elderly with and without dementia during the COVID-19 pandemic: a literature review

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Background: Elderly patients with and without dementia are especially vulnerable to COVID-19 infection due to their disease status, age and comorbidities, needing to face measures of social restrictions. However, it is known that social isolation is a risk factor for decline of cognitive functions.
Objectives: Gather information about consequences of isolation in elderly patients with and without dementia during the COVID-19 pandemic.
Methods: Narrative literature review through active search for publications on the topic on the PubMed platform, resulting in 17 articles for evaluation.
Results: Apathy has shown to be the most common neuropsychiatric symptom of social isolation in the elderly, followed by irritability, agitation, aggression and depression. In institutionalized patients with dementia, there was an increased burden of neuropsychiatric symptoms by 60%, the main symptoms being anxiety, depression, sleep disorder, behavior aberrant motor and changes in appetite. In addition, limitation of outdoor activity and absence of direct social contact required an increased dosage of antipsychotic drugs and mood stabilizers. In a sample of individuals with mild cognitive decline, ⅓ had decreased physical activity, ⅓ reduced adherence to Mediterranean diet, and more than 35% had weight gain.
Conclusions: Isolation has mental, physical and social consequences for the elderly with and without dementia, enhancing their fragility and vulnerability. Hence, it is necessary a follow up by the health system and family members, aswell as the development of strategies to minimize such losses.

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Digital device use and primary headache in college students in the pandemic context

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Introduction: The increased use of devices during the SARS-CoV-2 pandemic is noteworthy. The democratization of technological products caused a significant increase an its use by the population across the globe. This has caused a consistent increase in the appearance of some diseases among users of those devices. Thus, a concern arises about the student context and its high workload online during the pandemic.
Objective: Analyze the association between the use of digital devices and the incidence of headache among students during the pandemic.
Design and setting: A literature review was conducted on the topic.
Methods: We included 15 original articles in English and Portuguese from MEDLINE, Pubmed, and Google Academic databases, selected from 2011 to 2021.
Results: In cross-sectional studies, reports of headache were higher in individu-

als who use digital devices frequently compared to those who do not use them, and migraine attacks with aura and use of analgesics were more recurrent in the first group. Several causal mechanisms between headache and the use of digital devices have already been proposed, such as exposure to electromagnetic fields, neck posture, stress and sleep alterations without, however, having any evidence.
Conclusion: We conclude that the excessive use of electronic devices can increase the incidence and duration of headache. However, the literature on the subject is still limited. Therefore, there is an urgent need for research that controls exposure to digital devices in order to analyze the causal relationship between electronic devices and headache.

MeSH terms: technology, migraine, analgesics.
Key words: Headache, Covid-19, electronic.

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Pisa syndrome in Parkinson's disease: case description

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Context: Pisa Syndrome (PS) is a rare postural disorder, characterized by dystonia of the trunk muscles, lateral deviation as well as rotation of the axial axis. There is a strong association with Parkinson's disease (PD) due to the possible imbalance between neurotransmitters. It happens either due to a decrease in dopaminergic stimuli, either because of an excess of cholinergic stimuli or drugs (an example of antidopaminergics). The diagnosis is clinical, showing at least a 10-degree trunk flexion with improvement of pharmacological and non- pharmacological measures.
Case report: A 60-year-old man was diagnosed with PD five years ago due to tipical clinical complaints and physical examination. The treatment recquired an increase of Pramipexole as well as the use of Levodopa and Benserazide. After two years, he complained about neck pain, low back pain, hip pain and a slight trunk twisting. After six months, his pain was worse and he reported right hemidystonia. Thus, he was diagnosed with PS associated with PD. It was decided to optimize the therapy with Pregabalin, muscle relaxants and rehabilitation. However, it did not show any good result. In 2020, the application of botulinum toxin (BTX) evidenced excellent results, improving both the pain and the spasticity of the patient.
Conclusions: Early recognition is necessary to introduce the right treatment as soon as possible, especially BTX and rehabilitation, ensuring functionality and avoiding negative outcomes.

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Phonoaudiological profile of patients in post-operative research of intracranial tumor

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Introduction: Primary intracranial tumors have increased the incidence and mortality rate in recent years. The speech-language disorders found in patients with intracranial tumor vary according to the histological type and anatomical location.
Objective: To characterize the population of post-surgical patients with resection of intracranial tumors treated by the Speech-Language Pathology Service from January 2015 to January 2018.
Methods: This is a cross-sectional retrospective study, carried out at the University Hospital of the Maranhão Federal Unit-Presidente Dutra Unit, with a sample by convenience, based on the data collected in the medical records and speech therapy protocols. The data were treated using the Stata software, version 14.0. The normality of continuous variables was verified by the Shapiro Wilk test. Student's t-tests were used for continuous variables and Fisher's exact or Chi-square tests for categorical ones.
Results: 22 speech therapy protocols were analyzed. Gender equality was observed (50% men and 50% women). Average age of 48.77. Meningioma was the most prevalent type of tumor (41.0%). As for location, most tumors were located in the left frontal region (22.7%), but it was observed that tumors in the posterior fossa were more severe. Changes in speech articulation (p=0.002), vocal quality (p=0.007), mobility (p=0.001), sensitivity (p=0.020), tonicity (p=0.003), altered oropharyngeal dynamics (p=0.048) and wet vocal quality (p=0.034) were associated with a worse speech-language profile.
Conclusion: The speech-language disorders found and the degree of dysphagia were directly associated with the location of the tumor in the posterior fossa.

Key words: Speech therapy. Brain Tumors. Central Nervous System.

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Epidemiologic profile of patients with dementia on the Brazilian public health system in the last decade

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Background: In Brazil, 55.000 dementia's new cases are registered per year, the illness is distinguished by cognition decline. However, this disease's prevalence is scarce.
Objectives: Identify the epidemiologic profile of patients with dementia per region in Brazil during the years 2010 to 2020.
Methods: In this ecologic descriptive study, secondary data was obtained in the DATASUS platform. The data gathered referred to hospitalizations by dementia per region of Brazil during 2010 to 2020. Furthermore, we collected data on sex, age, and ethnicity. Statistical analysis was conducted using measures of central tendency and dispersion.
Results: The greatest frequency of hospitalizations occurred in 2010 (Mean= 729,8; SD= 662,4;95% CI= 149,1-1310,4), and the lowest in 2020 (Mean= 449,4; SD= 471,7;95% CI= 35,9-862,9). Southeast had the major frequency (Mean= 1.649; SD= 160,2;95% CI= 1.554-1.744) and the least frequent was the North. The female gender prevailed only in 2016 and 2019 (Mean= 297,6; SD= 345,1;95% CI= -4,9 - 600,1). Furthermore, in 2010, patients amid the age of 20-59 years old established the highest fraction of hospitalizations (Mean= 410; SD= 300,5;95% CI= 146,5-673,4). However, during 2011 and 2020, individuals ≥60 years old predominated. The white patient's number was larger (Mean= 621; SD= 65,1;95% CI= 582-659).
Conclusion: The most prevalent epidemiologic profile was white males older than 60 years old residents of the Southeast which is consonant with the comprehended epidemiology.

Key Words: Dementia, Unified Health System Epidemiology

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Screening for post-stroke depression in a Brazilian stroke center

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Background: Depression is the most common psychiatric complication in stroke patients. Its impact is relevant and implies greater functional impairment, delays in the rehabilitation process and recurrence of cardiovascular events.
Objectives: To investigate the prevalence of depression and its association with other comorbidities in post-stroke patients.
Design and setting: A cross-sectional, observational study conducted at a specialized outpatient clinic in Sao Paulo, Brazil.
Methods: The Patient Health Questionnaire-9 (PHQ-9), a 9-item summed scale, with scores ranging from 0 (no depressive symptoms) to 27 (all symptoms occurring daily), was applied to 134 stroke survivors between September 2019 and February 2020. Demographic and clinical data were obtained using the same structured questionnaire by neurologists.
Results: Moderate to severe depression (PHQ-9 ≥10) was present in 40 (29.9%) patients, of whom 55% were female, 70% were overweight or obese (BMI ≥25) and only 27.5% were over 60 years. 80% of patients had some comorbidity: systemic arterial hypertension in 57.5%, diabetes in 32.5%, cardiac arrhythmias in 22.5% and history of heart attack in 5%. Current and past tobacco smoking was found in 67.5% of patients and half of them were current smokers.
Conclusions: The prevalence of depression among stroke patients was high in our study and mostly associated with other comorbidities. Our datashow the need to actively search for symptoms related to this condition, aiming for earlydiagnosis and appropriate treatment.

MeSH terms: Depression. Stroke. Diagnosis.
Key Words: Post-stroke depression. Screening. Depressive Disorder. Mood Disorders.

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Relationship between sodium disturbances on admission, stroke severity (NIHSS) and functional outcome (mRs)

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Background: Hyponatremia is the most common electrolyte disturbance in hospitalized patients and is associated with several unfavorable outcomes, as it promotes cerebral edema and consequent intracranial hypertension. As isn't clear if there is a causal relationship or if it is only a marker of severity, we described and analyzed the association between sodium disorders, especially hyponatremia, with the severity level of the stroke and the functional condition of discharge of these patients.
Methods: We did a cross-sectional study with patients admitted to a stroke unit of a reference hospital in Salvador-Ba between 11/2017 and 03/2020 included in the DISPASS cohort. We classify hyponatremia as serum sodium <135mEq / L and hypernatremia as serum sodium> 145mEq / L. To analyze the association between the variables, Fisher's exact test was performed.
Results: We analyzed 399 patients whose mean age was 62. The mean sodium on admission was 138.2 mEq / L, with 56 patients (14%) with hyponatremia and 11 (3%) with hypernatremia. Among those who had sodium disorders at admission (67), 32 had moderate NIHSS, 24 severe / very severe NIHSS and 11 had mild NIHSS. $X^2 = 2.48$, $p = 0.443$. In addition, of these 67 patients, 13 were discharged and still needed help in daily activities and to walk (mRs 4), 15 were discharged restricted to bed (mRs 5) and 6 died during hospitalization (mRs 6). Therefore, of the 17% who had sodium disorder at admission, more than half had a poor functional outcome. Among those who had hyponatremia (56), 35.7% (20) had severe / very severe stroke, 46.4% (26) had a moderate degree, while only 10 had a mild degree. $X^2 = 1.91$, $p = 0.53$.
Conclusions: Although the Fisher Test did not show a significant association (p> 0.05), the frequencies of patients with sodium disorders at admission and classified as having high stroke severity were presented with relevant values, so it is important to carry out further studies to investigate the relationship of these variables.

Key words: *stroke; NIHSS; hyponatremia; sodium.*
MeSH terms: *cerebral infarction; salt depletion; metabolic disorders.*

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"EMtenda" University Extension Project: A Health Education Experience on the Experiences of Patients with Multiple Sclerosis

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Introduction: Multiple sclerosis (MS) is a chronic demyelinating disease of the Central Nervous System (CNS). The clinical manifestations of the disease have a negative impact on the patients' quality of life, and may affect its functionality due to physical and psychosocial losses. From there, it is understood the need to seek ways to guide health professionals, as well as raise awareness among the general population about the experiences of patients with MS.
Objective: this work reports the experience of a tent set up in public spaces in the city of Divinópolis-MG, through the "EMtenda" Extension Project. The project discusses the importance of health education as an active learning tool for participants, through the dissemination of information about the limitations experienced by people with the diagnosis of MS.
Experience report: The project took place from 2019 to 2020 and had the support of a multidisciplinary team formed by doctors, physiotherapists, nurses and psychologists. Actions were taken in public spaces in Divinópolis-MG, in which a tent was installed and divided into three stations. Each station simulates neurological symptoms such as paresthesia, diplopia, spasticity, loss of strength in the limbs and ataxia. The simulation

is performed through the interaction of the participant with various objects, in which simple activities are tested, such as walking with weight on the lower limbs, palpating objects of different textures with closed eyes, wearing glasses that distort the vision, among others. Each station lasts two to three minutes, allowing the visitor to enter subsequent stations or leave the tent. At the end, the participant receives a brief verbal explanation of the disease by the facilitator and/or through banners installed next to the tent.

Conclusion: The project enabled health education for students, professionals and for the general population of Divinópolis-MG, in order to improve the empathy of the participants towards the experiences and limitations of patients with MS regarding the neurological symptoms they experience in their daily life .

Key words: Multiple Sclerosis; Autoimmune Demyelinating Diseases of the Central Nervous System; Health Education.

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CD8 encephalitis in an HIV-infected patient undergoing regular antiretroviral therapy: a case report

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CD8 + encephalitis, and a destructive complication of HIV, that produces severe brain damage, described in patients regularly using antiretroviral therapy. It arises by viral propagation in mononuclear phagocytes leads to persistent activation of CD8 + lymphocytes. It produces demyelinating lesions, brain infiltration by CD8 + lymphocytes, and vessel hyalinization. Magnetic resonance imaging is characterized by a large area of demyelination with a mass effect and enhancement of the ring in the image. In spite of being a potentially fatal picture, it has treatment.

Case report: female patient, 43 years old, with decreased strength in MSD. HIV + for 14 years on regular use of ART (Atazanavir, Tenofovir + Lamivudine and Ritonavir), CD4 +> 400 and undetectable viral load for 3 years, Alcoholist (1-2 cans beer / day). It evolved rapidly with weakness of the right hemibody, tonic-clonic seizure, inattention, and decreased level of consciousness. Liquor- cells 21 (lymphomonocyte), analysis for viruses, bacteria, mycobacteria, and negative fungus. SARS-CoV-2 detection, Blood cultures: HTLV-I and II Antibodies screening, Serology for B and C viruses - negative. WBC: 11,600 lymphocytes 27.9%. Treated with pulse therapy with 1g for 5 days. He evolved with an improvement in the level of attention, managing to walk again without help, and remission of seizures. Discharged from hospital with oral prednisone

Conclusions: CD8 + encephalitis is associated with HIV despite satisfactory control rates. With an exacerbated brain immune response, there is bilateral hypersignal in the FLAIR, punctiform or linear foci of perivascular enhancements are very suggestive. At the beginning it can manifest itself as acute or subacute neurological decline, the response to corticosteroids is dramatic.

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Renin-Angiotensin System 24 hours after mild traumatic brain injury: a case- control study

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Background: The Renin-Angiotensin System (RAS) has been associated with several neuropathologies, including traumatic brain injury (TBI).

Objectives: Assess the relationship between RAS and mild TBI within 24 hours after trauma.

Design and setting: A case-control study developed by the Federal University of Minas Gerais and conducted at the Hospital João XXIII, Belo Horizonte, Minas Gerais, Brazil.

Methods: Sociodemographic data and blood samples were collected from 52 individuals, of whom 28 suffered mild TBI in the 24 hours prior to collection and 24 healthy individuals made up the control group. The serum was used to measure the components of the RAS.

Results: There were no significant sociodemographic differences between groups regarding to sex and age (p=0.782; p=0.077). Of the experimental group, 15 individuals reported loss of consciousness and 11 reported previous TBI. The experimental group showed significantly higher concentrations of angiotensin II (p=0.0234) and angiotensin-(1-7) (p=0.0225) and significantly lower concentrations of angiotensin converting enzyme (ACE) (p=0.0004) and ACE2 (p=0.0047).

Conclusion: RAS seems to be involved in the pathophysiology of the hyperacute phase of mild TBI and the study of its components may contribute to identify prognostic biomarkers and new therapeutic targets for patients victims of TBI.

MeSH terms: Renin-Angiotensin System; Brain Injuries, Traumatic; Biomarkers.
Key words: Angiotensin; Neurology; Trauma.

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Evolution of hospitalizations due to TBI according to the etiology of trauma in SUS Brazil 2010 – 2019

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Introduction: Traumatic brain injury (TBI) is the main determinant of morbidity, mortality and disability for trauma victims, being considered a serious public health problem because it mainly affects individuals of productive age. The etiology of trauma differs according to the age group affected: falls in age extremes and external causes – especially traffic accidents – in young people and adults, constituting the main mechanism of trauma as a whole. Recent studies show that the epidemiology of TBI in the United States is changing: falls have been ahead of traffic accidents as the main mechanism of trauma, especially in

the age group above 85 years of age, accompanied by the general reduction in TBI due to traffic accidents.

Objective: To describe the evolution of the incidence of hospitalizations due to TBI and trauma mechanisms in the SUS between 2010 and 2019.

Methods: Descriptive, cross-sectional study that analyzed hospital morbidity due to TBI in Brazil and the mechanism of trauma, from 2010 to 2019. General hospitalization data were obtained from SIH/ SUS. The ICD-10 codes used were those referring to TBI: "Fracture of the skull and bones of the face" and "Intracranial trauma". Descriptive statistics were used for data analysis. Data were collected in February 2021.

Results: There was an increase in the incidence of TBI in all age groups in the period studied. Traffic accidents, despite all prevention actions, remain an important etiology in young people, adults and the elderly. There is a significant increase in the incidence of TBI and falls in the elderly and very elderly population.

Conclusion: When compared to the evolution of the TBI profile in the United States, there was also an increase in incidence and etiology "falls" in the elderly and very elderly in Brazil. However, traffic accidents still represent an expressive mechanism of trauma related to TBI.

MeSH terms: Traumatic brain injury, epidemiology, hospitalization
Key words: Etiologia do trauma, traumatismo cranioencefálico, trauma cerebral, trauma craniano, perfil epidemiológico, evolução epidemiológica

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Secondary parkinsonism and normal pressure hydrocephaly because of cranioencephalic trauma: a case report

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Context: Normal Pressure Hydrocephalus (NPH) occurs due to the quantitative imbalance of cerebrospinal fluid (CSF), changes in absorption or drainage. It shows idiopathic or secondary etiology. Head trauma (TBI) — which causes brain and/or arachnoid granulations fibrosis and inflammation — impairs CSF reabsorption and induces accumulation in the ventricular system. The diagnosis of sNPH was based on a conjunction of symptoms (e.g.: urinary incontinence, dementia, and gait impairment) and imaging studies. Among the treatments with significant clinical improvement, there are ventriculoperitoneal shunt (VP) and tap test.

Case report: FAR, a 74-year old man who was diagnosed with parkinsonian syndrome after 6 months of TBI, showed stiffness, bradykinesia and tremor at rest. In addition, he had CT and Skull MRI. Previous studies suggested PNH. Drug therapy with an optimized dose of Levodopa + Benserazide was established. However, it has shown an unsatisfactory response to antiparkinsonian drugs. Hence, he was submitted to the tap test, obtaining functionality and gait reversion as well as cognitive deficits regression. Those results still remained four weeks after the medical procedure.

Conclusions: The work aims to emphasize the importance of a positive tap test response as well as early diagnosis and treatment in the outcome of the morbidity.

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The impact of epigenetics on the development of neurodegenerative diseases

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Introduction: Neurodegenerative diseases affect thousands of people in Brazil and have been increasing in frequency with the aging population. However, little is known about the molecular mechanisms and biomarkers of these diseases, which leads to a medical approach based on symptomatic and unresolving characteristics. Epigenetics, including DNA methylation, histone modifications, and changes in regulatory RNAs, emerges as a tool for prevention of neurodegenerative diseases.

Objectives: To review studies that discuss the role of epigenetics in the development of neurodegenerative diseases.

Methodology: This study involved an integrative review of papers published from 2016 to 2021 by searching PubMed and Scopus.

Results: The studies showed that there is evidence that epigenetic mechanisms interfere with the development of major neurodegenerative diseases. Huntington's disease presents an altered gene from birth, but transcriptional dysregulation is characteristic of the pathology that may be correlated to the age of disease onset in the cortex. In Parkinson's disease dysregulation of expression of a specific protein is believed to play a central role in the disease and occurs through aberrant methylation that controls activation or suppression. In relation to Alzheimer's disease, it has been found that deregulated DNA methylation and demethylation is linked to the onset and progression of the disease. In addition, these epigenetic factors are interfered with by diet, aging, and exercise.

Conclusions: Investment in epigenetic studies is needed to understand possible markers of neurodegenerative diseases, for early diagnosis and the formation of epidrugs with the ability to treat.

MeSH terms: Neurodegenerative Diseases; Epigenetic process; DNA Methylation
Key words: Neurology; Senescence; DNA; Genetics.

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The Non-motor Effects of Deep Brain Stimulation of the Subthalamic Nucleus in Patients with Motor Disorders Caused by Parkinson's Disease

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Introduction: Parkinson's disease is a disease caused by the degeneration of dopaminergic neurons in the substantia nigra, and is characterized by a triad of symptoms: bradykinesia, muscle rigidity and rest tremors; which worsen

progressively, leading the patient to resort to surgical treatment to ensure a better drug response. However, surgical intervention has proven to be efficient not only to alleviate Movement Disorders, but also to control the non-motor symptoms of the disease.

Objective: To evaluate the non-motor effects of Deep Brain Stimulation (DBS) in patients who do not respond adequately to drug treatment.

Methods: This is a literature review conducted by searching the electronic databases Lilacs, Scielo, Medline and Pubmed from 2011 to 2021, using the descriptors "parkinsonism", "deep brain stimulation", "non-motor" and "depression". Articles and specimens from the American and Brazilian literature on the topic were considered relevant.

Results: The studies showed that patients who underwent the surgical procedure showed evolution of neurophysiological and psychosocial aspects, such as improved sleep quality, reduced risk of dementia, improved mood and minimized anxiety. In this sense, it is necessary to pay attention to the stage of Parkinson's Disease evolution that the patient is in, in order to start the surgical treatment before it no longer has the expected expressive effects.

Conclusion: It is expected, therefore, a significant improvement in the quality of life of patients undergoing PCT, which is not restricted to motor gains.

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Chronic traumatic encephalopathy in practitioners of high- impact sports: a systematic literature review

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Background: The chronic traumatic encephalopathy (CTE) is a neurodegenerative disease, in the class of the tauopathies, related to a repetitive exposure to minor head traumas. Manifests severe behavioural changes and cognitive decline, however it is diagnosed posthumously. Researches demonstrate the frequent occurence of the disease in practitioners of high-impact sports such as boxing and american football.

Objectives: The review aims to relate the incidence of CTE in practitioners of high-impact sports.

Design and setting: Systematic literature review based on neuropathological findings of sports practitioners in the USA.

Methods: Systematic literature review based on quantitative and qualitative data from articles found in the Scielo and PubMed plataforms.

Results: In boxing 66% of serious injuries are caused by cranioencephalic impacts and the manifestation of symptoms of CTE often appears in retired professionals with more than 50 years. Furthermore, there is na important correlation between the number of matches and tomographic findings from neuropsychological evaluations. As for the american football, a study published in 2017, with a sample of 93 participants, inferred that the risk of neurodeterioration increases with every 1000 impacts (a game season is equivalent to 545 impacts).

Conclusion: The studies demonstrated a direct association between CTE and regular concussions in boxing and american football athlets. Considering the relevance of the theme, it is necessary to expand the studies to support care and preventive measures of this disease or even delay the neurodegeneration, ensuring a better life quality for the athletes.

MeSH terms: Chronic Traumatic Encephalopathy; Sports injuries; Cognition disorders; Risck Factor.

Key words: Chronic traumatic encephalopathy; High impact sports; Boxing; Football.

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Cognitive impairment and mood disorder in the subacute phase of Ischemic Stroke

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Background: Ischemic strokes (IS) patients usually present cognitive deficits and psychiatric disorders. Studies describe this coexistence in the chronic phase, although alterations may relate with acute damage to emotion and cognition circuits

Objectives: Assess cognitive and psychiatric symptoms during the subacute phase of IS.

Design and setting: A prospective study, screening patients admitted in the Stroke Unit of Hospital Municipal Odilon Behrens, in Belo Horizonte, Minas Gerais, Brazil.

Methods: Adults with acute IS and healthy controls were submitted to neuropsychological tests between 30 and 60 days after the event. Incidental, immediate and working memory, learning, late recall, recognition, phonemic verbal fluency, attention and facial emotion recognition were evaluated.

Results: Eighteen patients were evaluated in the subacute phase, and twenty-one participants composed the control group, showing no socioeconomic differences between them. There was significant difference in immediate memory ($p<0,01$), late recall ($p<0,05$) and recognition ($p<0,03$) tests from the Brief Cognitive Screening Battery, and in the depression subscale from Hospital Anxiety and Depression Scale ($p<0,04$). Although there was no significant difference in Facial Emotion Recognition Test ($p=0,745$), the expression of sadness positively correlated with levels of anxiety ($rho=0,587$, $p<0,05$) and depression ($rho=0,598$, $p<0,01$), while the expression of fear negatively correlated with depressive symptoms ($rho=0,481$, $p<0,05$).

Conclusion: Cognitive deficits and psychiatric symptoms in the subacute phase of IS are probably associated with memory impairments. Furthermore, depression and anxiety symptoms may influence the emotion recognition.

MeSH terms: Stroke, Cognitive Dysfunction, Mood Disorders, Cerebrovascular Disorder

Key Words: Ischemic Stroke, Subacute phase, Neuropsychiatric symptoms, Memory deficits.

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Hemorrhagic transformation after thrombolysis in acute ischemic stroke: a single-center cross-sectional study

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Background: Intravenous thrombolysis is the standard medical treatment for acute ischemic stroke (AIS) within 4.5 hours of symptom onset, and symp-

tomatic hemorrhagic transformation (sHT) is the most feared complication of this treatment.
Objective: To describe the prevalence, risk factors, treatment and outcome of sHT.
Design and setting: This is a retrospective cross-sectional study in a quaternary care hospital in Sao Paulo, Brazil.
Methods: We reviewed 90 records of patients with AIS submitted to thrombolysis from March 2018 to February 2020. Evaluation of brain imaging after thrombolysis and the treatment initiated after detection of hemorrhage were made.
Results: The overall prevalence of HT was 18.9% (n = 17, mean age 69.4±14.6 years, 58.8% males) and 8.9% (n = 8) of sHT. The most prevalent comorbidities were renal impairment (82%), hypertension (76.4%), diabetes mellitus (35.2%), atrial fibrillation (35.2%) and smoking (35.2%). The median baseline NIHSS score was 17. The most prevalent radiological classification of post-thrombolysis HT was class 2 (41.1%) from the Heidelberg Bleeding Classification. Cryoprecipitate and tranexamic acid were administered in 11.8% (n = 2). The mortality rate for HT was 35.3% (n = 6). Antiplatelet or anticoagulant therapy was initiated after a mean of 24.6 days from HT diagnosis and there was no stroke recurrence at 90 days.
Conclusion: We showed a prevalence of sHT and related risk factors aligned with other studies, but with high mortality rates, despite being a stroke service. The late initiation of antiplatelets or anticoagulants did not lead to stroke recurrence at 90 days.

MeSH terms: Stroke. Therapeutics. Thrombolytic Therapy. Tissue Plasminogen Activator.
Key Words: Hemorrhagic Transformation. Treatment Outcome. Neurological Complication.

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Hemorrhagic transformation predictors in ischemic stroke patients from a Stroke Unit

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Background: Hemorrhagic transformation (HT) is an aggravating factor to patients with ischemic stroke. For patients' best care, it's essential to know its predictors. **Objective:** To describe HT in patients with ischemic stroke.
Design and setting: Prospective cohort with ischemic stroke patients from a Stroke Unit, admitted between 2017 to 2019.
Methods: All patients performed a brain computer tomography (CT) scan on arrival and 24-hours later. Patients with or without HT were compared for predictors.
Results: 363 patients were included, with a mean age of 63,14 (±13,92), 53,1% were male and 9,9% (n= 38) had HT. Thrombolysis didn't increase the risk of HT [(55,3% vs 42,5%); p= 0,132]. Patients with atrial fibrillation [(31,6% vs 12,6%); p= 0,002], and cardioembolic etiology according with TOAST classification [(57,6% vs 21,7%); p< 0,001] had higher risk of HT. Patients with HT had lower ASPECTS scores on their initial CT [8 (6-9) vs 9 (8-10); p< 0,001] and higher NIHSS scores [12 (9-15) vs 8 (5-12); p< 0,001]. Cardioembolic strokes [OR= 4,67; (IC95% 2,01-10,84)] and higher NIHSS [OR= 1,11; (IC95% 1,01-1,22)] were independently associated with HT after multivariate adjustments, considering ASPECTS and thrombolysis.
Conclusion: Cardioembolic etiology and higher NIHSS score were independently associated with HT. It's essential to know HT predictors due to worse outcomes associated with its occurrence.

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Relationship between cognitive performance and physical activity in community-dwelling older adults

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Introduction: The aging process can result in the decline of cognitive function. Some factors may be beneficial for cognitive functioning in aging, such as physical activity.
Objective: To analyze the relationship between physical activity and cognitive performance in community-dwelling older adults.
Methods: Cross-sectional and quantitative study, carried out in 2018/2019, with 491 older adults (≥60 years), registered in Primary Healthcare Units in Três Lagoas-MS. The older adults were divided into two groups: physically active (>150 minutes of moderate physical activity or >75 minutes of vigorous activity/week - n=320) and inactive (n=171), according to the International Physical Activity Questionnaire. The Mini-Mental State Examination (MMSE) was also applied. T and chi-square tests were used to analyze the relationship between variables.
Results: The physically active group were mostly women (60.8%), with an average of 69.7±6.9 years of age and 4.2±3.5 years of schooling. In the inactive group, the majority were women (59.7%), with 71.4±8.2 years of age and 4.0±4.2 of schooling. The groups were similar in terms of sex and education, but the inactive group was older (p=0.029). The active older adults had a mean of 23.7±3.8 points in the MMSE, and the inactive group, 21.9±4.6, with a significant difference (p<0.000), indicating that the active group had a better cognitive performance.
Conclusion: There is a relationship between being physically active and having a better cognitive performance. Physical activity in old age is related to benefits in several areas and must be incorporated into public health promotion and disease prevention policies.

Key words: Cognition, Mental State and Dementia Tests, Physical Exercise, Aged

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Vasculitis of the central nervous system secondary to amiopathic dermatomyositis: A case report

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Context: Dermatomyositis (DM) is an idiopathic inflammatory myopathy, characterized by proximal skeletal muscle weakness, associated with a variety of characteristic skin manifestations. A form called Amiopathic Dermatomyositis (AD) is a condition that patients have cutaneous findings characteristic of DM without weakness and/or normal muscle enzymes. In turn, central nervous system (CNS) vasculitis refers to a wide spectrum of diseases that result in inflammation and destruction of the blood vessels of the brain, spinal cord and meninges.

Case report: Female, 54 years old, reports for 3 months a progressive myalgia, paraparesis and edema in the proximal region of the lower limbs, evolving in the last weeks with erythematous and itchy lesions on the trunk (in shawl), feet and hands, with subsequent peeling of these (mechanic's hands). During diagnostic investigation she presented epileptic seizures with behavioral arrest, right hemiparesis and motor aphasia. It evolved with a new stroke in the left frontoparietal region. Bilateral angiography showed points of constriction of segments of the middle cerebral artery bilaterally, compatible with CNS vasculitis. Therefore, with the exclusion of other secondary causes of arteritis, associated with the marker of positive inflammatory myopathy (Anti-Jo1) and CPK within the serum levels of normality, the diagnosis of the stroke secondary to AD was closed.
Conclusions: Both CNS vasculitis and AD are rare conditions, characteristically diagnoses of exclusion, deserving to be remembered in clinical cases with singular manifestations, as reported in this case.

Key words: stroke; myopathy; vasculitis.

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myoMIR and gene expression in myofibrillar myopathy

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Background: Myofibrillar myopathies (MFM) represent a heterogeneous group of muscle disorders caused by mutations in different genes. It has been identified a group of microRNAs present in muscles named myoMIR.
Objective: Evaluate the diagnostic value of these myoMIRs and mRNA expression in skeletal tissue from muscle biopsy of patients with MFM.
Design and Setting: Muscle biopsies from 16 MFM patients with mutations in Desmin (DES), Myotilin (MYOT), ZASP, or Filamin C (FLNC) genes, and 18 donors (patients with minimal non- specific changes in muscle biopsy) were included. Study were conducted at FMABC.
Methods: mRNA and myoMIR expression from both groups were assessed. The target myoMIRs were MIR1, MIR133a, MIR133b, MIR206, MIR208a, MIR208b, MIR486, and MIR499. Anova and
Student's t-test were performed.
Results: Six patients presented mutations in DES, five in ZASP, three in FLNC, and two in MYOT. MIR133b (p=0.05), MIR499 (p=0.027), and mRNA expression was up-regulated in patients with MFM. MIR208a (p=0.042) was higher in the control group. We found an association between MIR133a and the presence of mutations in all genes studied (p=0.006). A relation between MIR486 and mutations in ZASP and DES (p=0.035) was also noted.
Conclusions:
• MIR208a seems to have a protective function in the muscle fiber;
• Heterogeneity could be related to the concentration of gene expression in each patient;
• Expression of myoMIRs influences several aspects in the muscle function through genes modulation which are important to myogenesis control;

MeSH terms: filamin c related myofibrillar myopathy, MicroRNAs, Muscular Dystrophies
Key words: myoMIR, ZASP, MYOT, DESMIN, FLNC

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Impact of pharmacogenetics on aspirin resistance: a systematic review

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Background: Pharmacogenetics promises better control of diseases, such as Cardiovascular disease (CVD). Acetylsalicylic acid, aspirin, prevents the formation of an activating agent of platelet aggregation and vasoconstriction, and it is used to prevent CVD. Nevertheless, patients may have treatment failure, causing recurrence and increased mortality, due to medication adherence, drug- drug interactions, aspirin-independent thromboxane A2 synthesis or genetic variants. In this sense, genetic variants have been related with aspirin resistance (AR).
Objective: To evaluate the evidence of impact of genetic variants on AR through systematic literature review.
Design and setting: Systematic review.
Methods: Articles published since 2009 in MEDLINE/PubMed, Cochrane, Scopus, LILACS and SCIELO were systematically screened.
Results: The genetic variants rs1126643 (ITGA2), rs3842787 (PTGS1), rs20417 (PTGS2) and rs5918 (ITGB3) were the most studied. As for the relevance of the genetic variants studied, of the 64 evaluated, 14 had statistical significance (p <0.05, 95% CI) in at least one article. Among them, the following have had unanimous.
Results: rs1371097 (P2RY1), rs1045642 (MDR1), rs1051931 and rs7756935 (PLA2G7), rs2071746 (HO1), rs1131882 and rs4523 (TBXA2R), rs434473 (ALOX12), rs9315042 (ALOX5AP) and rs662 (PON1). While these differ in real interference in AR: rs5918 (ITGB3), rs2243093 (GP1BA), rs1330344 (PTGS1) and rs20417 (PTGS2).
Conclusion: As limitations of our study, we highlight the non-uniform methodologies of the analyzed articles, as well as population differences. It is also noteworthy that pharmacogenetics is an expanding area. Therefore, further studies are needed to better understand the association between genetic variants and AR, as well as the practical application.

MeSH terms: Pharmacogenetics; Genetic Variation; Aspirin; Drug resistance.
Key words: Doenças cardiovasculares; Ativação plaquetária; Genética

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Gait disorders in the Autism Spectrum Disorder (ASD): an integrative review

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Introduction: Human gait is defined by the sequence of repetitive movements of the lower limbs that leads the body forward, providing postural stability. In Austist Spectrum Disorder (ASD), in addition to social and linguistic impairment, this movement dynamic may be altered.
Objectives: To characterize gait changes in individuals with ASD. Design and

setting: Integrative review of the literature, University of Pernambuco, Recife.
Methods: We reviewed articles indexed in the databases: MEDLINE/Pubmed, SciELO and Google Scholar. The descriptors "Autism Spectrum Disorder" and "Gait Disorders, Neurologic" were used, according to DeCS / MeSH. Articles in Portuguese and English that contemplated the objectives of the review, published between 2011-2021 were selected.
Results: 13 articles were included. It was shown that children with ASD, compared to neurotypical (NT), showed atypical gait, using different strategies to load the body and mitigate the impact of movement. Alterations included: toe walking; increased hip flexion and stance phase; greater pelvic anteversion; reduced gait speed; shorter steps; greater asymmetry; difficulties walking in a straight line; less distribution of plantar pressure and wide-based gait. They alsohave greater variability in joint movement. Finally, we noticed that there is a scarcity of clinical studies that analyze biomechanical and neurophysiological data together, and a lack of uniformity in the methodological criteria.

MeSH terms: Autism Spectrum Disorder; Autistic Disorder; Gait Disorders, Neurologic.
Key words: Neurodevelopmental Disorders; Toe Walking; Pediatric Neurology.

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Deep brain stimulation for treatment of Parkinson's disease

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Introduction: Parkinson's disease (PD) is a degenerative and chronic disorder that affects the central nervous system. It occurs due to the degeneration of neurons in the ventral layer of the compact part of the substance nigra and the locus ceruleus, for reasons still unknown. As a result, there is a decrease in dopamine, causing the classic manifestations of the disease, mainly motor. Deep Cerebral Stimulation (ECP) is a therapeutic modality that emerged in the 1980s and has achieved quite satisfactory results in the treatment of PD, especially in more advanced cases and / or refractory to drug treatment.
Objectives: To analyze the effectiveness of ECP for the treatment of PD.
Methodology: This study consists of an integrative review through the selection of eight articles published randomly between 2017 and 2021 on the platforms PubMed and Google Scholar, using the descriptors "Parkinson's Disease" and "Deep Brain Stimulation" in the English and Portuguese languages.
Results: It is seen that the symptoms of PD are related to the reduction of activation of areas such as motor cortex, substance nigra and globe palidum. In this sense, ECP uses the application of constant or intermittent electrical current, of low intensity and high frequency. Such a stimulus is capable of inhibiting the activity of the subthalamic nucleus or pale globe, among other regions, resulting in significant improvement of symptoms. On the other hand, some recent studies have identified a risk, albeit low, of post-procedure movement limitations, deaths from infections and increased suicides.
Conclusion: There was an improvement in physical symptoms, as well as a significant decrease in the frequency of dementia, depression and psychological problems, with the ECP being a safe and effective procedure for the treatment of PD.

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Relationship between hearing loss and cognitive memory decline in an elderly population

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Background: The major complaints of the elderly are hearing and memory loss, which have a devastating impact on the communication process. Previous studies have shown that hearing loss is associated with the acceleration of this cognitive decline.
Objectives: To analyze the relationship between moderate to moderately-severe hearing loss and memory deficit in elderly individuals.
Design and setting: This is an observational, cross-sectional study realized in seniors of Hearing Care Program at the Taubaté University Hospital, Taubaté - SP/ Brazil.
Methods: Data was collected using audiometry, anamnesis, and the cognition test Mini Mental State Examination (MMSE) in 60-75 years old individuals, without knowledge of previous cognitive memory deficit and without the use of hearing aids.
Results: Between the 61 seniors interviewed, 68% had moderate degree of deafness and 32% moderately severe degree. Among the normal results in the MMSE, 24% had moderately severe deafness; of those with cognitive impairment without indication of investigation of dementia, 35.7% had moderately severe deafness, and of those with indication of investigation of dementia, 50% had moderately severe deafness. In addition, 23% of the total sample had results in the normal cutoff range, showing the tendency for cognitive decline in this population.
Conclusions: these data indicate a progression in the proportion of individuals with a higher degree of hearing loss, the higher the cognitive deficit.

MeSH terms: Cognitive Dysfunction, Dementia, Memory, Deafness.

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Association between religious practices impact on cerebral neurophysiology and radiological expression: a systematic review

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Introduction: Debates around the correlation between neurophysiological processes and religious habits have gained ground in the research in neuroscience.
Objective: To evaluate the impact of religious practices on brain physiology and correlate such behaviors and neuroimaging.
Design and setting: It's a systematic review without metanalysis in PUBMED database.
Method: Data carried out in the period 2009 and 2020. Descriptors used: "neural correlates of religious, mystical experience" and "religious belief and neuroimaging", combined with the Boolean operator "and".
Results: It was noted that the belief is associated with a greater signal in the

ventromedial prefrontal cortex, important place for self-representation, emotional associations, reward and goal-directed behavior. Neuroimaging indicated regions associated with these behaviors: pre-cuneiform, anterior insula, ventral striatum, anterior cingulate cortex and posterior medial cortex; non-religious belief,conversely, registers more signs of memory in the left cerebral hemisphere. Additionally, there is an association between absence of religious practices and depression, anxiety, psychosis, pain disorders; it may have a beneficial impact on the pathogenesis and treatment of these conditions.
Conclusion: Although it can be said that the impact exists, more research on the topic is necessary for interventions to have scientific plausibility. The results suggest brain regions involved in religious experience and the phenomenon must be perceived from a multidimensional perspective.

Key words: Religious practices; Radiological aspects; Cerebral neurophysiology.

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Association between Human Development Index and Delay on Arrival to Stroke Unit

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Background: Stroke outcomes depend somehow on the time taken from the symptoms onset until arrival to the specialized service. However, as it lacks literature exploring the impact of socio-demographics factors on this time, we investigated the association between Human Development Index and delay on arrival to specialized service. Design and setting: Cross-sectional study from a prospective cohort (PMID=33719516) at Hospital Geral Roberto Santos.
Methods: From a total of 454 stroke patients, 156 were included in this study because they had registered address, time of admission and of symptoms onset. Patients had HDI defined by their address and were grouped into HDI categories.
Results: In our sample, 57 (36,5%) individuals had medium HDI, 70 (44,9%) high HDI and 29 (18,6%) very high HDI. Very high HDI patients' delay (2:01; 1:22-2:57) was lower than high HDI (3:05; 2:05-5:26) and medium HDI (2:25;1:45-4:04) patients. There was statistical significance comparing these groups (X^2=11,41;p<0,05), but a post-hoc test revealed statistical difference just between the very high HDI and high HDI groups (p<0.05).
Conclusions: We expected to find a direct relation between delay on arrival to the stroke service and HDI categories. However, this was not observed.
*Authors contributed equally.

MeSH terms: Stroke, Epidemiology, Public health
Key words: AVC, Epidemiologia, Saúde pública

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Machiafava-Bigmami and Wernicke's Encephalopathy: Association of two rare conditions

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Introduction: Both Machiafava-Bigmami disease (MBD) and Wernicke's encephalopathy (WE) result from hypovitaminosis mainly associated with chronic alcoholism. The former affects the corpus callosum while the latter affects mostly the mammillary bodies. There are two main clinical subtypes for MBD in Heinrich's classification. In type A the entire corpus callosum is affected and is characterized by acute or subacute lowering of consciousness and pyramidal deficits. A poor outcome is expected even with initial, prompt therapy.
Methods: Case study with medical record review.
Case report: Female patient, 53 years old, with subacute monoparesis in the right lower limb, progressing to generalized paresis, altered mental status and communication impairment. She reported smoking and chronic alcohol addiction for 30 years. She was emaciated, dehydrated, drowsy, sometimes agitated; she had eye opening to speech, dysarthric, bradypsychic, hypoactive pupils, bilateral evoked horizontal nystagmus, proximal paresis with dystonic posture. Impaired coordination and gait, with no other positive findings. Head-CT showed hypodensity in the corpus callosum, more pronounced in the splenium. Head- MRI indicated signs of abnormal impregnation in the mammillary bodies, cerebellar atrophy in the anterior vermis, diffuse cytotoxic lesion in the corpus callosum compatible with toxic demyelination.
Conclusion: Although rare, such conditions must be recognized and treated promptly in order to delay progress and improve prognosis.

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Biomarkers in Alzheimer's disease

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Background: Alzheimer's disease (AD) is the most common cause of dementia and cognitive dysfunction in old ages. AD is characterised by beta- amyloid (Aβ) plaques and neurofibrillary tangles of the hyper-phosphorylated Tau protein. It has an extensive preclinical stage, which emphasizes the importance of the biological components related to an early diagnostic: biomarkers.
Objectives: After critical analysis of the selected literature, this review has the goal of describing the main biomarkers in AD and discussing different ways of detecting it.
Methods: This review was elaborated after a literature review in the PubMed database, with 15 articles published between 2016 and 2021. The keywords were used with the boolean operator "AND". Articles of meta-analysis, review and systematic review were selected.
Results: It was found central biomarkers for the AD diagnostic, such as Tau and Aβ. The following tests were used: CSF puncture; blood tests; neuroimaging; saliva and mucosa samples. Aβ and Tau can be collected by CSF or PET-TC.
Conclusions: Biomarkers play an important role in early AD diagnostic, even with limitations in the tests. The CSF and PET-TC are expensive methods, only used in atypical cases of AD. Reliable blood tests remain in development.
In conclusion, there's the need for more studies about alternative diagnostic tests, that are non-invasive and have low cost. Those developments can be beneficial for health plans, helping early diagnosis of AD.

MeSH terms: Alzheimer Disease; Biomarkers; Early Diagnosis.

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Phytocannabinoids use in Alzheimer's disease

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Background: Alzheimer's disease (AD) is the most common cause of dementia among older adults impacting quality of life. Nowadays, four drugs are indicated to manage AD symptoms, however, none of them have shown effectiveness to prevent the disease's progress, and they are associated with adverse effects. In this scenario, the endocannabinoid system has the attention of researchers and physicians, because of its relation with processes involved in the AD physiopathology. Therefore, in the last decade, studies that evaluate the use of Cannabidiol (CBD) and other phytocannabinoids, like tetrahydrocannabinol (THC) and cannabinol (CBN), as an alternative treatment to this illness, have multiplied.
Objectives: To bring updated information about this new and promising therapeutic.
Methods: A bibliographic research in PubMed with the terms "Cannabidiol and Alzheimer" was made, with the filters "Free full text" and "Publication Date 5 years". The research obtained 31 results, from which were chosen 10.
Results: *In vivo* studies with CBD, THC and CBN have shown their properties: anti-inflammatory, antioxidant, attenuation of toxic accumulation of β-amyloid protein and to reverse cognitive deficits, all AD physiopathological processes. It was also demonstrated that the combination between THC and CBD shows better efficiency and fewer adverse effects than CBD isolated use.
Conclusions: Despite needing deeper and stronger studies with better conducted clinical trials, the researches about phytocannabinoids use in AD seem promising, and they might become the biggest ally in the treatment of this and other neurodegenerative conditions.

Mesh-terms: Alzheimer, cannabinoid, cannabidiol, delta9-tetrahydrocannabinol, neurodegenerative
Key words: doença de Alzheimer, fitocanabinoides, canabidiol, tetrahidrocanabinol, endocanabinoide, neurodegenerativas

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Pelizaeus-Merzbacher Disease with Novel Variant: Case Report

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Context: Pelizaeus-Merzbacher Disease (PMD) is a rare X-linked recessive hypomyelinating leukodystrophy caused by mutations in the proteolipid protein 1 (PLP1) gene, associated with myelin sheath development and stability. The result is a broad spectrum of clinical phenotypes. Diagnosis is confirmed by genetic testing. Clinical features include hypotonia followed by progressive spasticity, nystagmus, ataxia and cognitive impairment. Males are more affected. Females are asymptomatic or present milder symptoms. Most cases arise from duplications, point and null mutations. Null mutations are associated with milder phenotypes. Brain Magnetic Resonance Imaging (MRI) may reveal hypomyelination. There is no disease modifying treatment for PMD. We aim to present the case of a woman with a novel variant of the PLP1 gene.
Case report: A 38-year-old female presented with 23 years of progression of upper limb tremor, speech impairment, lower limb rigidity and urinary incontinence. She reported abnormal development of reading and writing skills. She had a brother with cognitive impairment, delayed motor development, gait disorder and generalized tonic-clonic seizures; and a sister with upper limb tremor, dysarthria and behavioral disorder. Hypomyelination was detected on brain MRI. Complete exome sequencing detected a novel likely pathogenic variant of PLP1 gene: ChrX(GRCh37):NC_000023.10:g.103041651del:NM_000533.3:c449del, p.Asp150AlafsTer10, heterozygous.
Conclusions: The patient's case resembles a milder form of PMD. This is supported by literature linking deletions and female sex to milder phenotypes. In 20 to 40% of cases with suggestive clinical findings, no PLP1 mutation is found. New studies are needed to identify other variants associated with PMD.

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Predictors of functional dependence at hospital discharge in a stroke unit

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Introduction: Functional dependence is a common condition poststroke. The specialized care offered at the stroke unit can provide patients with better rehabilitation. We designed a study to evaluate risk factors for functional dependence at hospital discharge in a stroke unit.
Design and setting: Prospective cohort study at Hospital Geral Roberto Santos.
Methods: Patients were admitted within 72h of ictus. Functional dependence was defined as scores 3-5 on the modified Rankin Scale (mRS).
Results: 389 patients were enrolled, with a mean age of 59.3 (±17.9) years, of whom 55.8% were men. The frequency of functional dependence at discharge was 57.1%, 50.3% at 30 days, and 38.8% at 90 days of the ictus. Higher risk of dependence at hospital discharge were associated with stroke recurrence [RR 1.2 (1.0 - 1.5)], polypharmacy [RR 1.3 (1.1 - 1.6)], female sex [RR 1.3 (1.1 - 1.6)], hemorrhagic stroke [RR 1.4 (1.2 - 1.7)], large artery atherosclerosis by TOAST [RR 1.6 (1.2 - 2.0)], hemorrhagic transformation [RR 1.57 (1.3 - 1.9)], infection [RR 1.7 (1.5 - 2.0)] and delirium [RR 1.8 (1.5 - 2.0)] during hospitalization.
Conclusions: We have demonstrated a high frequency of functional dependence at hospital discharge from the stroke unit. Understanding which patients may have a worse functional outcome can be a good strategy to articulate access to the rehabilitation.

Key words: stroke, functional dependence, stroke unit.
MeSH terms: Stroke, Patient Outcome Assessment, intensive care unit

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Effects of using cannabidiol on a patient with difficult- tocontrol epilepsy

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Introduction: Epilepsies are chronic neurological syndromes, characterized by spontaneous and recurrent crises. It is estimated that there is a worldwide prevalence of 1.0% and that around 30% of patients remain refractory to drug treatment. The active Cannabis plant has been used for medicinal purposes. Extracts with a high CBD content have been shown to be effective in reducing the frequency and severity of epileptic seizures.
Objective: To expose the therapeutic effects of CBD and its consequences in a patient with crises that are difficult to control.
Methodology: Case study.
Results: Male patient, 18 years old, has epileptic seizures that are difficult to control since he was 7 months old. Progressively, he presented loss of motor functions, social and environmental interaction, and even with the combination of antiepileptic drugs, the crises remained uncontrolled. Magnetic resonance examinations indicate hypogenesis of the corpus callosum, volumetric reduction of the cerebellar vermis, increase of the cerebrospinal fluid space, posteriorly displaced brain stem, with volumetric loss. The diagnosis suggests Dandy-Walker and West syndrome. In 2017, it started using CBD and currently has an 85% reduction in crises. There was an increase in personal and environmental interaction, improved levels of concentration and bimanual skills, and began to express emotions and feelings more clearly.
Conclusion: CBD represents a promising alternative for epileptic refractory patients to drug treatment, which can prevent the occurrence of brain damage and modify the natural history of the disease and the quality of life.

Key words: Epilepsy; Cannabidiol; Cannabis.

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Simultaneous anterior and posterior circulation stroke secondary to large-vessel atherosclerotic disease associated with persistent trigeminal artery: a case report

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Context: Cardioembolic events are the main cause of simultaneous anterior and posterior circulation stroke. Anatomical variants of the circle of Willis represent another rare mecanism. Persistent trigeminal artery is a carotid–vertebrobasilar anastomosis related to an increased risk of aneurysms, vascular malformations and stroke.
Case report: A 67-year-old diabetic man was brought to the emergency department with a history of sudden onset of left hemiparesis. Neurologic finginds showed a hemiparesis, hemianesthesia and hemineglígence (all left sided), right hemiataxia and a dysarthria. Brain Magnetic Resonance study revealed a isquemic stroke in right middle cerebral artery, right posterior cerebral artery (PCA) and bilateral superior cerebellar arteries (SUCA). Computed tomography angiography showed a right internal carotid artery oclusion and a persistent trigeminal artery. Causitive Classification System (CCS) revealed a large-vessel atherosclerotic stroke. A non-habitual simultaneous affection of PCA and SUCA resulted from a carotid artery embolization associated with anterior and posterior territories anostomosis by the persistent trigeminal artery. Secondary prevention consisted of aspirin 100mg/day and cardiovascular risk factor control. The patient remained free from others cardiovascular events, in rehabilitation, at the moment, in category 3 from the Ranking Modified Scale.
Conclusions: The presence of a persistent trigeminal artery, in the context of a internal carotid oclusion, can chance our stroke-mecanism interpretation. Simultaneous anterior and posterior circulation stroke are compatible with large-vessel aterosclerotic disease.

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Neuropsychiatric sequelae of COVID - 19 and factors related to its neurotropic mechanism: an integrative review

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Background: Due to the lack of clarification on the pathophysiological mechanism of COVID - 19 in the neurological system, psychological consequences of SARS - CoV-2 infection are questioned.
Objective: To describe the neuropsychiatric sequelae of COVID-19, concomitant with flu syndrome or after, and factors related to its neurotropic mechanism.
Design and setting: Integrative review based on the Pubmed database.
Methods: A reading of titles and abstracts was done by 2 reviewers of 260 articles, in a blind and independent way, followed by a complete reading, resulting in choice of 16 articles. Using following exclusion criteria: complete articles, publication time 2020-2021 and in English language.
Results: From articles read, the following are manifested: acute psychotic episode (68.7%), anxiety (56.2%), disorders related to schizophrenia (43.7%), insomnia (43.7%) and depression (37.5%). The mechanism is multifactorial and may include direct factors of infection, corticosteroid therapy, length of stay in the ICU, female gender and stress due to social isolation. There're reports of association of psychotic symptoms with previous coronaviruses such as SARS-CoV and MERS - CoV contributing to neurotrophic hypothesis. Health professionals have an increased risk of developing psychiatric outcomes and also a high probability of having transient psychosis related to environmental stress, including the socio-environmental element to the risk factors.
Conclusion: Despite few analytical studies on the topic, there's a strong relationship between COVID-19 and neuropsychiatric manifestations, of multifactorial cause, but mainly due to the period of social confinement. Long-term follow-up of patients may provide further evidence of correlation and causality.

MeSH terms: "post acute COVID-19 syndrome", "depression", "anxiety", "mental disorders", "psychotic disorders"
Key words: Consequências neuropsiquiátricas; SARS-CoV-2; fatores; mecanismo neurotrófico.

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Lethality rate in children with meningitis in 2019 and associated risk factors

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Background: Early diagnosis, identification of the pathogen and time until the start of adequate antibiotic therapy are important variables that improve the clinical outcomes of meningitis in children. However, even with an early approach and adequate treatment with effective antibiotics, death and neurological sequelae may occur as a result of the infection.
Objectives: Determine the lethality rate of meningitis among children aged 0 to 9 years and define the factors associated with mortality.
Design and setting: Case-control study based on secondary data from the Notifiable Diseases Information System (SINAN).
Methods: It covers the notifications registered in 2019 and includes the variables: deaths, age group, sex, residence in the Legal Amazon or in the Semi-Arid. Statistical analysis - Odds-Ratio (OR) - was performed using Microsoft Excel for Windows®.
Results: The deaths of children due to meningitis, in the studied period, totaled 316, which corresponds to a lethality rate of 4.2%. The associated risk factors were: residence in the Legal Amazon (OR = 3.7) and in the Semi-Arid (OR = 2.2). The age group (OR = 1.6) and sex (OR = 1.0) were not associated with death from meningitis.
Conclusions: Reside in the Legal Amazon and the Semi-Arid are risk factors justified by the scarcity of resources and the isolation of these regions, resulting in precarious and more delayed health care. This factor culminates in deaths due to the need for early intervention and treatment of meningitis. The low educational rates found in these areas, culminates in poor access to information regarding the importance of vaccination.

MeSH terms: CHILDREN, BACTERIAL MENINGITIS, COMPLICATIONS
Key words: Lethality, Pediatrics, Risk Factors

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Hirayama Disease: Case report of a rare case in Brazil

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Context: Hiravama's disease (HD) is a rare neurological condition described by keizo Hirayama in 1959, in which growth of the content of the spinal canal displaces the posterior dural sac previously when flexing the neck at the level of C7 and T1. Thus, it generates ischemic damage in the cells of the anterior spine. In this context, we present a case report about the disease.
Case report: Male, 13 years old, complaining of difficulty in grasping his right hand for 5 months and atrophy in his right upper limb for 1 month. On physical examination, the neurological changes found were: Decreased strength of the right upper limb distally, the deep hypoactive reflexes in both upper limbs. Magnetic resonance imaging of the flexed cervical spine showed stenosis of the C5 to T1 spinal canal, flow-voids prominence in the posterior epidural space (suggestive of venous engorgement), tapering and alteration of T2 signal in the C5-C6 medulla. These findings and along with the clinical history confirmed the diagnosis of HD.
Conclusion: HD is a rare disease that needs to be known. Thus, the present study expands the database about the disease, which if diagnosed early, improves the patient's prognosis.

MeSH terms: Motor Neuron Disease, Muscular Atrophy Spinal, Distal Spinal Muscular Atrophy, Magnetic Resonance Imaging, Spinal Amyotrophy, Progressive Muscular Atrophies.

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Does hemorrhagic transformation in patients with ischemic stroke predict worse functional outcomes?

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Background: Hemorrhagic transformation (HT) is a complication of stroke described as cause of early neurologic deterioration. Previous studies are discordant about the real impact of HT on stroke prognosis.
Objectives: to describe the impact of HT in patient prognosis.
Design and setting: Prospective cohort with acute ischemic stroke patients from a Stroke Unit, admitted between 2017 to 2020.
Methods: All patients performed a brain computer tomography (CT) scan on their arrival and 24 hours later. Patients with or without HT were compared regarding functional 90-day outcome using the modified rankin scale (mRS). Functional disability was considered as mRS < 2.
Results: 383 patients were included, mean age was 62,2 (±13,8), which 54,3% were male, 80,9% hypertensive, 33,1% diabetics and 27,2% were dyslipidemic. HT occurred in 11,5% patients (n= 44) increasing the risk of poorer functional outcome in discharge [RR= 1,47; (IC95% 1,25–1,72), in 30 days [RR = 1,54; (IC95% 1,01-1,92)], and in 90 days [RR= 1,39; (IC95% 1,01-1,92)]. Multivariate analysis HT was not associated with worse outcome in 90 days (mRS>2) [OR= 1,01; (IC95% 0,44–2,33) p= 0,987], when adjusted to age, sex, NIHSS, ASPECTS, trombolysis and other relevant variables.
Conclusion: Although the occurrency of HT had been associated with worse short-term outcomes, patients seems to recover from disability over time.

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Studies across subspecialties of neurology (SON) report noninferiority of telemedicine (TM) compared with face-to-face intervention (FTF-I)

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Background: Studies across subspecialties of neurology (SON) report noninferiority of telemedicine (TM) compared with face-to-face intervention (FTF-I).

Clinical scales (CS) are important tools for outcome measures in clinical care. However, which CS in FTF-I can be used in teleneurology is unclear.
Objectives: Define the most used CS in studies comparing TM with FTF-I in different SON.
Design and Setting/Methods: We searched PubMed and Embase for randomized controlled trials, published from 2011 to April 2021, with Key words "telemedicine" cross-referenced with "neurology" or neurological diseases, considering the synonyms.
Results: 43 eligible studies in 400 records, from 12 countries, with 5600 patients and 8 SON: stroke (10), headache (4), epilepsy (6),
cognitive disorders (7), demyelinating diseases (8), movement disorders (3), neuromuscular diseases (3), and vestibular diseases (2). The most used CS: National Institute of Health Stroke Scale (NIHSS) and Modified Rankin Scale (MRS) for stroke impairment and limitation; Headache Impact Test (HIT-6) and Migraine Disability Assessment Scale (MIDAS) for headache disability; Quality Of Life in Epilepsy Inventory (QOL-31) for seizure burden; Mini-Mental State Exam (MMSE) and Zarit Burden Interview (ZBI) for cognitive function and caregiver burden in dementia care; Expanded Disability Status Scale (EDSS) and Fatigue Impact Scale (FIS) for disability and fatigue in Multiple Sclerosis; Parkinson's disease Questionnaire (PDQ-39) and Unified Parkinson's Disease Rating Scale (UPDRS) for QOL and disability in PD; Amyotrophic Lateral Sclerosis Functional Rating Scale Revised (ALSFRS-R) for severity in ALS; and Vertigo Symptom Scale Short form (VSS-SF) for vertigo.
Conclusions: We present feasible CS usually applied in teleneurology that can be used as important tools for future findings in TM research and practice.

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"Brain fog" in the post-acute phase of Covid-19

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Introduction: Covid-19 infection can affect not only the airways but also other organs such as the brain. Individuals that tested positive for SARS-CoV-2 may be asymptomatic, but can also have symptoms - such as "brain fog" - during the acute phase and/or the post-acute phase (being the last ones defined as long haulers). "Brain fog" is a set of symptoms characterized by cognitive dysfunction that includes the inability to concentrate, executive function deficits, anterograde and retrograde amnesia.
Objective: Review the pathophysiology of individuals with Covid-19 post-acute phase brain fog.
Design and setting: A literature review was conducted on the topic.
Methods: 12 original selected articles in English and Portuguese from PubMed and Google Academic databases dated from 2017 to 2021.
Results: Research evidenced that 18-36% of the patients hospitalized for Covid-19 that had neurological symptoms also experienced brain fog in the post-acute phase. Although not completely elucidated, there are hypothesized mechanisms to clarify the neurological symptoms in the "long haulers" patients, such as the release of pro-inflammatory substances that reduce synaptic fidelity due to dysregulation in the levels of neurotransmitters which are fundamental for brain function. In addition, SARS-CoV-2 provides microthrombus formation and possible small cerebral ischemia.
Conclusion: The pathophysiology of brain fog is not yet fully proven, since the literature on the subject is limited. Therefore, more robust research in patients who developed neurological symptoms after infection by the new coronavirus is needed to clarify the pathophysiology, clinical management and most appropriate treatment for individuals with brain fog.

MeSH terms: long hauler COVID, SARS-CoV-2 Cognitive Dysfunction/physiopathology,
Key words: Covid-19, Cognitive Dysfunction, long-COVID, post-acute COVID syndrome

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Cognitive repercussions of social isolation in children

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Background: In view of the pandemic of COVID-19, sedentary behavior was increased, especially in the pediatric public, with an increase in the use of digital technology in addition to a reduced practice of physical activities. Recent studies confirm the relationship between sedentary and structural damage to brain mass, with a direct association with an increased time spent in front of a screen. Several regions of the brain were shown to be affected, which can cause functional visual lags, interfere in the patient's state of attention and verbal memory.
Objectives: Review the current aspects of the literature regarding the cognitive repercussions of social isolation in pediatric patients.
Methodology: Was performed an integrative bibliographic review in March 2021, in English and Portuguese, using the Scielo and PubMed databases.
Results: The brain structure and its functionalism are the result of synchronized genetic and environmental factors. Thus, sedentary behavior can interfere with neuronal function, which, in children, can have irreversible repercussions. This way, the increase in screen time is directly associated with the decrease in the volume of gray matter of the brain in children. The main affected areas are the frontal, parietal, occipital, temporal and cerebellum regions. The use of the internet also showed a relationship with brain atrophy in subcortical regions. In addition, sedentarism reduces cerebral blood flow and synaptic plasticity, culminating in cognitive deficits.
Conclusions: Social isolation, aggravated by the COVID-19 pandemic, has the potential to generate serious cognitive repercussions for the sedentary population, especially for children, where injuries can be definitive.

MeSH terms: Covid 19; Sedentary Lifestyle, Brain Injuries
Key Words: Social isolation; Nervous system, Children, Screen time, Cerebral damage

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Cognitive impairment associated with COVID-19: a literature review

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Background: SARS-CoV-2 is capable of causing neurological symptoms of the CNS in addition to respiratory and gastrointestinal symptoms. Early knowledge

of the possible cognitive functions compromised by the infection will allow the health system to anticipate and create measures to minimize irreversible damage.
Objectives: to analyze the cognitive impairment associated with COVID-19, taking into account its pathophysiological mechanisms and their short and long-term consequences.
Methods: Narrative review of 62 articles, based on an active search on the PubMed, Google Scholar, Jama and American Academy of Neurology research platforms.
Results: Cognitive impairment can be present both during and after infection. The main risk factors for cognitive impairments in the short term are: other neurological symptoms (headache, anosmia, dysgeusia); diarrhea and oxygen therapy. The main cognitive functions affected were memory, attention, executive functions (mental flexibility) and language (semantic and phonetic fluency) associated with anxiety and depression. The factors that contribute to long-term cognitive decline are: previous cognitive weakness (comorbidities); the inflammatory process of COVID-19 with pulmonary (hypoxia), vascular (ischemia), neurological (neuronal damage) and hospitalization (sedation, isolation, delirium). The hippocampus appears to be particularly vulnerable to coronavirus infections.
Conclusion: Short-term and long-term cognitive impairment associated with COVID-19 may be related to the increased likelihood of cognitive impairment, as well as the acceleration of neurodegenerative diseases, such as Alzheimer's disease. Follow-up with neuropsychological assessments of these patients and epidemiological studies are necessary to analyze this impact and to create prevention and treatment programs.

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Modulation of gene transcription promoted by mesenchymal stem cells on cation-chloride cotransporter NKCC1 in experimental epilepsy

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Introduction: temporal lobe epilepsy is a disorder in which synchronized and rhythmic neural firing causes spontaneous recurrent seizures [1]. Refractoriness due to this condition reaches 30% of its carriers [2,3]. The search for therapeutic alternatives to help cope with this disease are extremely important. Mesenchymal stem cells (MSCs) appear as a plausible treatment option, as they present a less invasive approach and due to their niche modulating character [4,5].
Objectives: this study aimed to quantify the gene expression of cation-chloride cotransporter NKCC1 encoded by the SLC12A2 gene in the encephalic tissue of pilocarpine-induced epileptic rats [6,7].
Design: experimental study, brain institute of Rio Grande do Sul.
Methods: MSCs wereobtained from the bone marrow of Wistar rats, cultured, and transplanted through intravenous injection into control and epileptic Wistar rats. The rats were divided between control group, MSCs treated group, and pilocarpine group, containing 8 individuals each [8]. Expression analysis was performed using real-time polymerase chain reaction.
Results: for both 1 day and 7 days post-transplantation, an increase in the NKCC1 expression in both control and epileptic treated groups as compared to itsexpression in untreated epileptic and control groups with special attention to the amygdala, the hippocampus and the prefrontal cortex.
Conclusion: MSCs stimulated expression of NKCC1 in brain structures of rats induced by pilocarpine to epilepsy. This corroborates the hypothesis of neuroprotective effects and modulating propertiesof stem cells and may point to more mechanisms for investigating the functioning andcollaboration of these cells as a treatment for epilepsy.

MeSH terms: epilepsy, stem cell transplantation, nkcc1 protein
Author Key words: Epilepsy, Stem cell therapy, Nkcc1 protein

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Frequency of arboviruses antibodies in patients with autoimmune encephalitis: data from the BrAIN network (Brazilian Autoimmune Encephalitis Network) Bruna de Freitas Dias, Fábio Fieni Toso, Rene de Araújo Gleizer, Maria Eduarda

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Background: Autoimmune encephalitis (AIE) is the main cause of non-infectious encephalitis and results from the peripheral immune response against cell surface antigens in the central nervous system. The clinical presentations

are varied and known triggers are tumors and herpetic infections. Arboviruses Zika (ZIKV), Dengue (DENGV) and Chikungunya (CHIKV) are neurotropic infections that present neurological manifestations whose mechanism is unknown.
Objective: Verify the frequency of arboviruses antibodies in patients with autoimmune encephalitis in a Brazilian cohort
Design and setting: It is a transversal study performed by Hospital Israelita Albert Einstein in Brazil
Methods: Patients who met the criteria for probable AIE (Graus 2016) evaluated at the 18 centers of the BrAIN network were included. Clinical, epidemiological and laboratory data were compiled. Antineuronal antibodies were detected using TBA, CBA and immunoblot in serum and CSF; antibodies against ZIKV, DENGV and CHIKV were detected by ELISA. The cohort was divided into two groups: seropositive encephalitic (SPE) and non-encephalitic (NE) and the frequencies of viral serologies were compared.
Results: Among 619 patients included in the BrAIN cohort, serology for arboviruses was performed in 482 patients, being 79 SPE and 99 NE. The SPEgroup showed the following frequency of antibodies: 58.2% anti-NMDA, 7.6% anti-LGI1, 6.3% anti-Caspr2, 2.5% anti-GABA B, 1.3% anti-GABA A, 3.8% anti-AMPAr, 1.3% anti-AQ4, 8.9% anti-MOG, 1.3% anti-IgLON5, 7.6% anti-GlyR and 5.1% others. The frequency of serology was IgG DENG (SPE 42.3% X NP 43.4%, p = 0.82); IgG CHIK (SPE 16.5% X 3.1% NP, p = 0.001); IgG ZIKV (SPE31.6% X NP 28.3%, p = 0.62). The frequency of triple positive serology (IgG DENG, ZIKV, CHIK) was 11.39% (SPE X 2.02% NP, p = 0.009).
Conclusions: Patients with SPE have IgG CHIKV antibodies most commonly. In addition, they present a higher frequency of positivity for IgG CHIKV, ZIKV, DENGV simultaneously. Future studies should assess the association between arboviruses as a trigger for AIE or as a marker of susceptibility to immunological alteration.

MeSH terms: arboviruses, encephalitis, antibodies, precipitating factors
Key words: Zika, Dengue, Chikungunya, autoimmune encephalitis

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Wernicke-Korsakoff syndrome and other chronic neurological syndromes related to alcohol abuse: prevention in people without home

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Introduction: The homeless population has a high prevalence of alcoholism and consumption of other drugs, which also means that they are at greater risk of developing all complications resulting from alcohol abuse. (MILER et al, 2021). The medical attention for homeless population is a device of the Unified Health System that claims social, health policies and the guarantee of fundamental rights (BRASIL, 2009).
Methods: Evaluation of protocols and referral flows for the treatment of patients with 'mental disorders and due to alcohol use', of the medical attention for homeless population in the city of Petrópolis (Rio de Janeiro), between April / 2020 and April 2021, data from e-SUS, and literature review.
Results: The city of Petrópolis (Rio de Janeiro) registered 259 people without home, 84.8% are men, all people are adults between 20-74 years old, 98% are born Brazilians, 92% reported alcohol consumption, and alcohol with other drugs 61% (cocaine, crack, marijuana, solvent, tobacco). There was 3 patients with diagnose of Wernicke-Korsakoff syndrome: 2 men and 1 woman (aged 60-65 years) in the period from April 2020 - April 2021 (BRAZIL, 2021 The medical attention for homeless population approach to alcoholism includes the CAGE and AUDIT tests, symptomatic treatment and brief psychological interventions. aimed at weaning, and the Clinical Institute Withdrawal Assessment of Alcohol Scale Revised scale to quantify the degree of abstinence. However, the majority of users do not want total cessation, generally they choose to reduce consumption (secondary prevention), and later recovery and reintegration into society, highlighting that self-help groups and social assistance have a prominent role (tertiary prevention) (MARSCHARLL; GREGANTI, 2002; LONGO, et al., 2013).
Conclusion: Despite confounding / aggravating factors such as social determinants in health, and the difficulties of the health network, the medical attention for homeless population is fundamental in the secondary and tertiary prevention of neurological diseases due to chronic alcohol consumption; complex cases require complex interventions, that is, individualization, adaptation and flexibility.

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Does hemorrhagic transformation in patients with ischemic stroke predict worse functional outcomes?

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Background: Hemorrhagic transformation (HT) is a complication of stroke described as cause of early neurologic deterioration. Previous studies are discordant about the real impact of HT on stroke prognosis.
Objectives: to describe the impact of HT in patient prognosis. Design and setting: Prospective cohort with acute ischemic stroke patients from a Stroke Unit, admitted between 2017 to 2020.
Methods: All patients performed a brain computer tomography (CT) scan on their arrival and 24 hours later. Patients with or without HT were compared regarding functional 90-day outcome using the modified rankin scale (mRS). Functional disability was considered as mRS < 2.
Results: 383 patients were included, mean age was 62,2 (±13,8), which 54,3% were male, 80,9% hypertensive, 33,1% diabetics and 27,2% were dyslipidemic. HT occurred in 11,5% patients (n= 44) increasing the risk of poorer functional outcome in discharge [RR= 1,47; (IC95% 1,25–1,72), in 30 days [RR = 1,54; (IC95% 1,01-1,92)], and in 90 days [RR= 1,39; (IC95% 1,01-1,92)]. Multivariate analysis HT was not associated with worse outcome in 90 days (mRS>2) [OR= 1,01; (IC95% 0,44–2,33) p= 0,987], when adjusted to age, sex, NIHSS, ASPECTS, trombolysis and other relevant variables.
Conclusion: Although the occurrency of HT had been associated with worse short-term outcomes, patients seems to recover from disability over time.

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Progressive myoclonic epilepsy: case report

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Context: Progressive myoclonic epilepsy (PMS) begins in childhood or during adolescence, being a heterogeneous group of symptomatic progressive progressive generalized epilepsy. Composed of cortical myoclonus, multiple epileptic seizures, delayed or regressed neuropsychomotor development and cerebellar manifestations. Genetics is heterogeneous with a similar clinical presentation, which makes etiological definition difficult. Report a clinical case of generalized epilepsy, myoclonus, cerebellar condition and severe mental impairment. Analysis of medical records of a patient at Santa Casa de Belo Horizonte.

Case report: MVPP, 17 years old, previously healthy, adopted son, normal neuropsychomotor development, first generalized tonic-clonic seizure at 8 years old, recurrence at 12 years old, being initiated by Valproato and Clobazam. In 2018 there was a worsening of the crises, perceived myoclonus, added Lamotrigine and Oxcarbazepine. EEG with continuous diffuse epileptic activity of subclinical epilepticus status and unchanged skull MRI. In 2019 he started with gait ataxia, balance changes, dysarthria, dysmetria, cognitive decline, loss of functionality and refractoriness to treatment. Valproate reduced and oxcarbazepine suspended. Video- EEG with ictal pattern of generalized wave polyspicle. Deteriorated cerebellar condition with extensive propaedeutic without alterations. There was no feasibility of genetic testing at the time. Methylprednisolone pulse therapy with partial improvement. Unsuccessful attempt to levetiracetam due to psychotic symptom. He presented lowering of the sensorium, bronchoaspiration and orotracheal intubation. He evolved with myoclonic status, adjusted for anti-crisis drugs, midazolam, thiopental, tracheostomy and gastrostomy. He maintained super- refractory status, being opted for callosotomy. He died within weeks of the procedure.

Conclusion: The early diagnosis of PMS is a challenge, and its evolution is usually debilitating, with a poor prognosis and scarce specific treatment. Whenever possible, a genetic study is needed to define an etiological diagnosis.

Key words: myoclonus, epileptic syndrome, cerebellar syndrome

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Modulation of the expression of the SLC12A2 gene that encodes the cationic co- transporter NKCC1 in epileptic animals treated with mesenchymal stem cells

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Introduction: Temporal Lobe Epilepsy (TLE) can be identified by synchronized and rhythmic firing of neuronal populations that results in spontaneous and recurrent seizures in individuals affected by it[1]. This type of epilepsy is clinically relevant because of its high incidence and refractoriness rate[2,3]. Thus, the search for therapeutic alternatives becomes important. Due to its benefits and less invasive administration, the mesenchymal stem cells (MSCs)[4] appears as a possible therapeutic alternative, because can stimulate and provide a favorable niche for recovery based on their paracrine activities[5].

Objectives: The present work aim to highlight the effect promoted by MSCs on the transcription of mRNA of the *NKCC1* gene in the TLE induced by pilocarpine model in rats. NKCC1 plays a role in controlling the potential reversal of current and voltage signals executed by Gamma-aminobutyric acid receptors, contributing to inhibitory GABAergic efficacy[6].

Design and setting: Experimental design was held at the Pontifical Catholic University of Rio Grande do Sul.

Methods: Bone marrow cells were extracted from donor rats, then cultured and transplanted intranasally in animals induced to *status epilepticus* by pilocarpine[7,11].

Results: It was observed the ability of the MSCs to alter the amount of transcripts in the brain of the animals. When analyzing the stratified areas of the brain, an increase in NKCC1 expression[12] was observed directly to the amygdalas and hippocampi, which are limbic lobe structures affected in epilepsy.

Conclusion: MSCs had a modulatory function in the levels of gene expression of cation- chloride co-transporter NKCC1 during acute phase of epilepsy.

MeSH terms: Epilepsy,; gene expression; mesenchymal stem cells
Key words: NKCC1; cell therapy; Temporal Lobe

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Punctate pattern and Milky Way appearance caused by PML in a patient with AIDS

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Introduction: Progressive multifocal leukoencephalopathy (PML) is an opportunistic infection caused by reactivation of JC virus in the central nervous system and is an important differential diagnosis in patients with subacute focal neurologic deficits.

Magnetic resonance imaging (MRI) is the most sensitive tool for detection of early manifestations of the disease[1].

Case Report: A 42-year-old woman with a previous diagnosis of HIV infection, without treatment for the last two years, presented with progressive headache, left hemiparesis, hypoesthesia and homonymous hemianopia in the last two months. CD4 cell count was 16 cel/mm^3 and viral load of 99.364 copies/mL. Brain MRI revealed multifocal, subcortical and confluent hyperintense T2/FLAIR lesions in the right parietooccipital lobe, crossing the midline by the corpus callosum, with hyperintense peripheral rim on DWI-image and a central hypointense core, without mass effect. On T2-weighted image, typical multiple punctiform hyperintensities formed the Punctate Pattern, which is known as the Milky Way appearance when nearby a larger PML lesion. The final diagnosis was confirmed by the detection of JC virus on cerebrospinal fluid by PCR.

Discussion: The punctate pattern is characterized by at least three punctiform (<5mm) hyperintense lesions on T2/FLAIR images, with or without contrast enhancement. It has already been described in PML, neurosarcoidosis, hematologic diseases, CLIPPERS and CNS vasculitis. Recently it was described as a highly specific feature of PML related to natalizumab, even in pre-symptomatic stages.

Further studies are required stablish its incidence in patients with PML from other causes[2].

MeSH terms: Progressive multifocal leukoencephalopathy; Punctate pattern; Milky Way appearance

Key words: Progressive multifocal leukoencephalopathy; Punctate pattern; Milky Way appearance; Neuroimaging

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Miller Fisher syndrome after hiv infection (case report and literature review)

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Context: Guillain-Barré syndrome is a polyradiculoneuropathy of heterogeneous manifestations, necessarily presenting progressive appendicular weakness of variable intensity associated with reduction or abolition of deep reflexes. One of its variants is known as Miller Fisher Syndrome (MFS), characterized by ophthalmoparesis, ataxy and areflexia. It usually has, by etiology, immunomediated reactions induced by acute infections, including HIV.

Objectives: This report aims to describe a case of MFS with concomitants HIV infection, attended in a tertiary hospital in northern Paraná and compared it with the literature. [1,7]

Case report: A 27-year-old white male patient who presented binocular diplopia, dysarthria, dysphagia, generalized hypotonia, myasfasciculations, sensory ataxia and arreflexia, with a score on the Medical Research Council (MRC) muscle strength scale of 54 points. Treatment with empirical intravenous human immunoglobulina (IVIG) was performed pending the result of serologies for etiological screening. He was discharged after eleven days of hospitalization with partial symptomatic improvement and results indicative of acute HIV infection. We compared this case with those described in the published literature

Discussion: We compared this case with those described in the published literature and given the low incidence found in the literature of patients with the stage of HIV viremia and the opening of the picture of SMF, the concrete pathophysiology itself is still unknown. The mechanism, however, in which the literature proposes in two theories: (1) an autoimmune action against myelin due to abnormal immunoregulation by HIV; (2) direct action of neurotropic strains of HIV-1. [2.3] Our literature review shows that since 1995, cases of associated guillain barré syndrome have already been reported in the course of HIV viremia. Treatment with immunoglobulin at a dose of 400mg / kg / day for 5 days was done and the symptoms improved. [1,4,6,7]

Conclusion: It is exposed, then, a case of HIV-induced MFS whose relationship has consistency, temporality, biological plausibility, coherence and analogy compatible with current literature.

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Clinical and Epidemiological Description of Headache Attributed to Stroke

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Background: The post-stroke persistent headache syndrome is poorly characterized in the literature and recognized in clinical practice. The objective of this study is to describe the clinical and epidemiological profile of patients with persistent post-stroke headache and its pattern. Design and setting: Cross-sectional study at a reference stroke outpatient clinic from Federal University of Bahia.
Methods: Patients were actively approached during the usual consultation.
Results: From a total of 52 stroke patients, 11 (21.2%) were diagnosed with persistent post-stroke headache, 19 (36.5%) with acute post-stroke headache and 22 (42.3%) without headache. Systemic arterial hypertension was more frequent in the group without headache (95.5%) than in the group with persistent headache (63.6%). On the other hand, the second group presented a greater proportion of sedentary lifestyle (90.9% vs 54.5%) and smoking (45.5% vs 27.3%) than the first group. In patients with persistent headache, the median frequency of pain in the last 3 months was 40.5 days (IIQ 14.25 - 90.0) and the most frequent locations were strictly unilateral (45.5%) and holocranial (36 , 4%), with no individual reporting an alternating unilateral pattern.
Conclusions: Corroborating the results of previous studies, our data demonstrated a relevant prevalence of persistent post-stroke headache, and it is possible that previously hypertensive patients are more protected for the development of persistent headache than individuals without hypertension.

MeSH terms: headache, stroke, public health

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Mesenchymal stem cells modulate the gene expression of cation-chloride co-transporter KCC2 in epileptogenesis

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Background: Temporal Lobe Epilepsy (TLE), by firing of neuronal populations, leads to spontaneous and recurrent seizures[1]. As 30% of TLE patients do not respond to pharmacotherapy[2,3], it is necessary to search for alternatives. Mesenchymal stem cells (MSCs) are an attractive approach in this context, due to their less invasive character and its ability to modulate diseased niches.
Objective: Analyze the gene expression related to the cation-chloride cotransporter KCC2 in TLE induced by pilocarpine model in rats.
Design and Setting: Experimental study, Brain Institute of Rio Grande do Sul.
Methods: MSCs were extracted from the bone marrow of Wistar rats, cultured and transplanted intravenously and intranasally into healthy and epileptic Wistar rats.
Results: It was observed a decrease in the expression of KCC2 in the brain of the animals at 1-day post-transplant, which refers to a down-regulation, and an increase at 7 days post-transplant, representing an up-regulation. The loss of function of KCC2 decreases the release of chloride with difficulty in inhibiting GABAergic inhibition, resulting in hyperexcitability of neuronal circuits. In this case, MSCs can promote rearrangement in gamma-aminobutyric acid-mediated inhibition, reducing hyperexcitability and hypersynchronicity. Hence, KCC2 down-regulation is associated with epileptiform activity, while up-regulation can be related to the MSCs effects. Also, KCC2 expression showed a kind of pattern at 1-day post- transplant in both routes of administration, providing the possibility that KCC2 can be explored as a biomarker for epilepsy.
Conclusion: KCC2 is an important target for epilepsy, as well MSCs have a modulatory function on the levels of the expression of this gene in animals induced to *status epilepticus* by pilocarpine.

MeSH terms: Epilepsy, Steam cell therapy, Cation-chloride cotransporter
Kew-words: Mesenchymal stem cells, Temporal lobe epilepsy, Gene expression

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Neural factors that define religiosity: neurophysiological distinction between the individual with religious and non-religious beliefs

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Introduction: Religiosity and mystical experiences accompany society throughout history, integrating its identity formation. Neuroscience unveils

neural correlations, maps the areas involved and activity patterns, and functional magnetic resonance imaging (fMRI) is applied to detect variations in activation of neural activity.
Objectives: Thus, the objective is to understand the neurophysiological differences between individuals who experience religiosity and the mystical experiences of those without, through the fMRI.
Methods: This literature review, collected data in April/2021 on Medline, Pubmed and Science Direct. The descriptors used, after consulting the MeSH, consisted of "neural correlates of religious", "mystical experience" and "functional magnetic resonance imaging (fMRI)". Were found 227 articles, after applying the exclusion criteria and fully reading of the abstract, the sample included 6 articles in English, from the last 10 years, available in full text, 2 Medline, 3 Pubmed and 1 Science Direct.
Results: The consensus was reached that religiosity can be grounded by neural factors, by applying fMRI to identify patterns of activation of brain regions during mystical experience, although one of the articles refutes these relationships. Correlations are cited by regions: frontal and temporal - emphasis on the dorsolateral and medial/superior prefrontal cortex and bilateral lower parietal lobes, as promoters or impeders of the religious profile in individuals, due to the negative regulation due to lack of excitement, injuries or structural changes.
Conclusions: It is concluded that the neurophysiological findings were able to detect patterns that can serve as eligibility criteria between believing and non- believing individuals, which makes their subsequent application feasible for better clarification and neural distinction.

Key words: "neural correlates of religious", "mystical experience", "functional magnetic resonance imaging (fMRI)"

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Descriptive analysis and georeferencing of post-stroke outcomes in Salvador, Bahia

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Background: The literature is scarce in descriptions of post-stroke outcomes related to socioeconomic status. Our objective is to describe the association between stroke outcomes and Human Development Index and to evaluate this relation's geographical distribution in the city of Salvador, Brazil.
Design and Settings: Cross-sectional study at Hospital Geral Roberto Santos.
Methods: Georeferencing was made using the 2010 Brazil Census. Mortality, post discharge improvement and functional independence at 90 days after stroke were the outcomes obtained with the modified Rankin Scale.
Results: From 382 patients with ischemic stroke, 193 were included because they lived in Salvador and had available address information. Only 01 patient was from a low HDI, 74 (38,3%) medium HDI, 90 (46,6%) high HDI and 28 (14,5%) very high HDI region. These groups had, respectively, 4,3%, 12,1% and 10,8% mortality rate, 56,5%, 53% and 56,9% functional independence rate and 45,4%, 40,3% and 35,7% post discharge improvement rate. Only 87 patients had complete address information to be included in the geographical distribution of these results. The results were proportional to the number of individuals in each HDI region.
Conclusion: The only outcome that had a direct relation with HDI is post discharge improvement. Likely, it is the outcome that better reflects the recovery assistance available to the patient with stroke.
*Authors contributed equally.

MeSH terms: Stroke, Epidemiology, Public Health **Key words:** AVC, Epidemiologia, Saúde Pública

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Dermatomyositis from cutaneous changes to chronicity, a case report

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Context: Dermatomyositis is an inflammatory myopathy, which results from loss of tolerance to a select group of autoantigens, with an incidence of approximately 0.8 to 1.2 per 100,000, of bimodal distribution, more frequent in women, with important relationship with paraneoplasia, usually responsive to treatment.
Case report: female, 65 years old, black, rural worker, with history of increased skin pigmentation in early 2019. After two months, she was bedridden, with dysphagia. Physical examination revealed paresis, poikiloderma on the face, alopecia, remnants of uper back shawl sign, Heliotrope and Gotron sign. Complementary investigation showed: aldolase 20.4 / 31; CPK: 521/220/207. Anatomopathological examination of skin biopsy reveald superficial and discrete lymphocytic dermatitis with focal pigmentary incontinence; electroneuromyography presented myopathic pattern in the four limbs. Paraneoplastic investigation was negative. There was a response to corticosteroids and metotrexato.
Conclusions: The case shows a rapid progression from cutaneous symptoms to chronic symptoms and highlights the importance of recognizing skin lesions in view of the possible differential diagnoses in the neurology specialty, prior to the onset of the classic clinical picture and the appearance of chronic symptoms.

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Primary central nervous system angeitis (APSNC) is a vasculitis

Gabriel Paulo Mantovani, Rodrigo Fellipe Rodrigues, Wyllians Vendramini Borelli

Context: Primary central nervous system angeitis (APSNC) is a vasculitis confined to the central nervous system (CNS). Its incidence rate is 2.4 cases per 1,000,000 person-years. It affects predominantly small and medium sized arteries of the cerebral parenchyma, spinal cord and leptomeninges. The most common manifestations are headache, cognitive impairment, stroke and transient ischemic attack. The fact that it results in multifocal inflammation of the arteries and veins can lead to ischemic or hemorrhagic infarctions in multiple vascular territories, more common in the subcortical white matter.
Case report: A woman with a past of epilepsy and headache present to us with acute intraparenchymal hemorrhagic stroke, after extensive investigation, arrived at the presumed diagnosis of APSNC.
Conclusion: Tests such as MRI and arteriography have low sensitivity and specificity for APSNC and brain biopsy is still the gold standard method for

diagnosis, but in practice it is performed in less than half of the cases in clinical practice, this is due to several factors. Next, it is important to note that the biopsy efficiency is around 53-74% in unselected areas, reaching 80% if the site is selected affected by non-invasive exams. The literature specifies brain biopsy as a procedure with relatively low morbidity and mortality, however, it was not performedin more than a half of cases.

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Access to Rehabilitation After stroke in Brazil (AReA study): an observational multicenter protocol.

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Background: Preliminary evidence suggests that access to multidisciplinary rehabilitation is insufficient after hospital discharge of individuals with stroke.
Objective: The AReA study intends to collect data about access to rehabilitation in different Brazilian regions.
Methods: Seventeen public health centers will participate in the study. Each center will include 36 participants (n = 612). Patients with 6 months and less than one-year post-ictus, age ≥18 years-old, stroke confirmed by CT or MRI and with any neurological impairment after stroke will be included. In each center, researchers will train the team on the application of the Brazilian versions of the Rankin Modified Scale and the NIH Stroke Scale. The survey consists of the following questions: 1. In the first 6 months after discharge from stroke, were you treated by a Physiatrist /Physiotherapist / Speech / Neurologist / Psychologist / Occupational Therapist?; 2. Has a treatment program been established?; 3. Has this program been or is it being carried out?; 4. On discharge, have you been referred to any rehabilitation service?; 5. Did you look for any service on your own?; 6. Did you receive any guidance about stroke?; 7. Considering that rehabilitation would be indicated for its improvement, how would you like it to be carried out (hospitals, centers, home)?
Results: At the moment, 13 centers obtained ethical approval, and three of them started data collection (n=55).
Conclusion: The results of this project will be relevant to plan strategies for effective rehabilitation within the Unified Health System in Brazil.

MeSH terms: stroke, patient discharge, access to health care.
Key words: cerebrovascular disease, rehabilitation, medical referral.

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Predictors of delirium in post-stroke patients

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Introduction: Delirium is a common disorder in patients after stroke. We designed a study to evaluate the incidence of delirium and risk factors for its occurrence after stroke.
Design and setting: Prospective cohort study at Hospital Geral Roberto Santos.
Methods: Patients were admitted within 72h of ictus. Delirium was assessed using the Confusion Assessment Method in an Intensive Care Unit scale.
Results: 279 patients were enrolled, with a mean age of 61.08 (± 13.05) years, 54.0% of whom were men. The incidence of delirium was 28% (n = 78). Delirium patients were older (68.9 ± 12.6 vs 58.8 ± 12.5; p <0.001) and had a higher NIHSS on admission [11 (7-15) vs 8 (5-12); p <0.001]. The occurrence of delirium was associated with a previous diagnosis of hypertension [RR = 2.62 (1.13-6.09)], hemorrhagic stroke [RR 1.94 (1.13-2.86)], cardioembolic etiology [RR 2.21 (1.22-3.97)] and infection during hospitalization [RR 5.27 (3.54-7.84)]. Independent predictors of delirium: age ≥ 65 years [OR 1.06 (1.02 -1.10)], epileptic seizures in ictus [OR 6.28 (1.65 - 23.91)], infection [OR 14.17 (6.39 - 31.43)] and hemorrhagic stroke [OR 4.04 (1.51-10.78)].
Conclusion: Delirium is a common complication after acute stroke, affecting 28%of patients. In view of the importance of identifying risk factors in the acute settingof stroke, further studies are needed to elucidate the association of the findings with the occurrence of delirium.

Keywords - stroke, delirium e intensive care unit
Mesh Terms - stroke, delirium e intensive care unit

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Rates of hospitalizations for migraines and other cephalic algias syndromes is children between 2014 and 2020

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Introduction: Migraine is the most common chronic headache in childhood, however, it is still little diagnosed in the pediatric group. Early crises can be very early, at 6 months of age. It may present in different ways according to the age group of the child and may or may not resemble the clinical picture of the associated manifestations that may aid in diagnosis.
Methods and Objectives: The study used data available on the DataSus, in the category of hospitalization by the CID-10, in the group of less than 1 year, between 1 and 4 years, 5 and 9 years and 10 and 14 years, in the period from 2014 to 2020, to discuss the diagnosis of migraines and compare the prevalence of hospitalizations among children .
Results: Between 2014 and 2020, the age group with the highest rate of hospitalization for migraine and other cephalic pain syndromes was 10-14 years, with an average of 57,13%, followed by 5-9 years (32,75%), 1-4 years (8,95%) and below 1 year (1,57%).
Conclusion: Migraine has a semiological aspect that makes it difficult to identify in the pediatric group: symptoms. How diagnosis depends on a subjective report, children, especially the younger ones, become underdiagnosed. This can justify the higher incidence of hospitalizations among older children, with greater communication skills and a better description. Another factor is the absence of skilled professionals. Adaptation is necessary to assist in diagnosis,

such as: associated clinical manifestations; Note; use of semi-structured interrogation and playful scales to spread the pain.

MeSH terms: Children; Classic Migraine; Common Migraine; Hospitalization
Key words: Headache; Diagnosis; Pediatrics

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Clinical-epidemiological profile of the hospitalized patient with Alzheimer in the State of São Paulo

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Background: Alzheimer's Disease (AD) is the most common form of dementia and its prevalence practically doubles every five years from the age of 60. The progression of the disease determines cognitive deterioration, impairment of basic daily activities and the need for multiple hospitalizations.
Objectives: Characterize the clinical-epidemiological profile of hospitalizations for Alzheimer's in the state of São Paulo, in the period from 2015 to 2019.
Design and Setting: Epidemiological, descriptive and retrospective study with quantitative analysis.
Methods: Data provided from the Hospital Morbidity System (SIH-SUS) of the Ministry of Health.
Results: A total of 2270 hospitalizations were identified, with a decrease in the number of hospitalizations over the five years (590 in 2015 and 435 in 2019). There was a predominance in people over 80 years old. About 68% of hospitalizations were on an urgent basis. The mortality rate increased 286.23% between 2015 and 2019, and the region with the highest number of hospitalizations was the greater São Paulo (n=1318).
Conclusion: The increase in the mortality rate, associated with the reduction in the number of hospitalizations over the years and the predominance of hospitalizations on an urgent basis, may indicate that hospitalizations occur in the presence of a more severe disease, whether due to better management of moderate disease or late diagnosis of its complications. The predominance of hospitalizations in the greater São Paulo region indicates a centralization of health services and technological resources.

MeSH terms: alzheimer, nervous system, hospitalizations, dementia, public health.
Key words: cognition, mortality, health, disease, morbidity

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Miller-Fisher syndrome after COVID-19 (Case report and literature review)

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Background: Infection with SARS-CoV-2 can cause COVID-19, which mainly affects the respiratory system. However, neurological complications are frequent, including the group of acquired immune-mediated demyelinating neuropathies (NDAI), including Miller-Fisher syndrome (SMF), characterized by the triad of ophthalmoparesis, ataxia and areflexia. Infection with C. jejuni is the main precipitant of NDAI, but viruses are also related.
Objectives: This report aims to describe a case of SMF with concomitant SARS-CoV-2 infection, seen at a tertiary hospital in Northern Paraná and to compare it with the literature.
Design and setting: case report of a patient at the hospital neurology service of the Evangelical Hospital, Londrina, Paraná, Brazil.
Methods: Report a case of SMF right after confirmation of COVID-19 seen at a tertiary hospital in Northern Paraná and compare it with the literature.
Results: Male, 70 years old, white, evolved with progressive and symmetrical crural paraparesis 17 days after confirmation of COVID-19. Upon admission, he presented ataxia, paraesthesia, and crural myotactic areflexia with no signs of pyramidal release, and a score on the Medical Research Council (MRC) muscle strength scale of 58 points. Analysis of CSF with albumin-cytological dissociation. Treatment was performed with intravenous human immunoglobulin (IVIG) and discharged after six days of hospitalization with partial symptomatic improvement. We compared this case with those described in the published literature. Not found Brazilian case published to date.
Conclusion: Rare case report of SMF by SARS-CoV-2. The relationship has consistency, temporality, biological plausibility, coherence and analogy compatible with the current literature. Studies with a higher level of evidence are needed to determine the strength of such an association.

MeSH terms: Miller-Fisher Syndrome; Guillain Barre Syndrome; COVID-19; SARS- CoV-2 Infection

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Effects of multiple sclerosis in pregnant and post-birth: particularities of the disease activity

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Introduction: Demyelinating diseases are a heterogeneous group of neurological diseases related to autoimmunity whose representative is Multiple Sclerosis (MS). It is characterized by an immune-mediated demyelination of the central nervous system, with a typical outbreak and remission clinic. During pregnancy, a reduction in disease activity was noted due to immunomodulatory effects, and an increase in outbreaks in the puerperium. Thus, our goal is to demonstrate the relationship between pregnancy and MS.
Methods: This is a systematic bibliographic review based on searching the SCIELO, PUBMED and UPTODATE databases using the words "Multiple Sclerosis", "Pregnancy", "Demyelinating diseases" and "Neurological Disorders".
Discussion: Pregnancy is responsible for numerous changes in the maternal body resulting from hormonal changes with an immunological and neuroprotective effect. Until the beginning of the 20th century, it was considered a risk factor or precipitator of outbreaks in these patients. In 1950, Tillmann et al. questioned him and concluded that pregnancy reduces the risk of outbreaks of the disease and that relapses were more associated with postpartum. The question is still raised by several authors, due to their interest in the search for intricate protective factors in the genesis and cure of the disease. It is believed that immunological changes in pregnancy tend to suppress the maternal immune system preventing fetal rejection, and together with gestational hormones, they are able to make neuronal tissue more resistant to inflammatory aggression and greater capacity for cell repair. In the puerperium, there was an increase in outbreaks of the disease, probably associated with a reduction in hormone levels, the effects of which are lost after the elimination of the fetus. Breastfeeding is not associated with the prevention or risk of new MS outbreaks. The frequency of outbreaks before conception is the only independent predictor of new post-term episodes. There is no consensus regarding the therapeutic approach in these pregnant women.
Conclusion: Evidence supports the association between pregnancy, reduced activity of MS and increased activity in the 3 months postpartum, due to the probable loss of neuroprotective effects associated with hormones. Recommendations regarding the use of immunomodulator are suspended before conception ("washout") until term. New evidence did not associate the use of interferon-β with abortion, cesarean section or low birth weight. There was a benefit of long-term parity with a cumulative effect on the patient's immunohumor modulation.

Key words: Demyelination, pregnant women, multiple sclerosis.

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Effectiveness of Music Therapy for the Treatment of Movement Disorders in Parkinson's Disease

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Introduction: Body movement is synchronized by external rhythmic stimuli in conjunction with physiological control, based on an internal timing process. In this perspective, music therapy can be a potential therapeutic tool for the treatment of individuals with movement disorders as it bypasses an internal rhythm motor deficit.
Objective: To evaluate the benefit of music therapy in the treatment of movement disorders in patients with Parkinson's disease (PD).
Methods: This study is a literary review, which used the PubMed platform, in April 2021, with the formula: (MOVEMENT DISORDERS) AND (MUSIC THERAPY). As search criteria, articles were selected from meta-analyzes, reviews and randomized clinical trials, published in the last 10 years, in English and studies carried out in humans.
Results: 21 articles were found, 6 articles were selected according to the eligibility criteria. Most studies show an improvement in movement disorders when rhythmic musical stimuli are associated with motor interventions, such as the use of treadmills. A randomized clinical trial with 50 patients with idiopathic PD was divided into two groups, one with a treadmill and with rhythmic auditory stimuli and another with a treadmill and without auditory stimuli. Among the outcomes analyzed, the improvement in movement speed was the most beneficial aspect, with an improvement in quality of life and cognitive functions.
Conclusion: It is evident that the use of music therapy in the treatment of movement disorders in patients with PD improves motor symptoms. However, the studies have a small sample size and differ in terms of the method of music therapy, the period of intervention and the scales used to assess improvement. Therefore, it is important that randomized, multicenter clinical trials with a larger sample size

are carried out to prove the benefits of music therapy in a patient with Parkinson's disease.

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Nursing diagnoses of patients with Ischemic Stroke: a bibliographic search

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Introduction: Stroke causes cell injury and neurological damage that induce paralysis of a particular brain zone from which it has been left without proper circulation owing to thrombus, embolus or hemorrhage.
Objective: Identify, through scientific articles, the nursing diagnoses of Stroke patients.
Methods: Bibliographic and descriptive research held at Virtual Health Library, using the specific descriptors: Stroke and Brain Ischemia that were crossed with the general descriptor: Nursing Diagnosis, written in Portuguese and published from 2008 to 2018.
Results: Eight articles were selected between 2008 and 2018 we found two publications in the following years: 2010, 2012, 2013 and 2015. The first publication was in 2010 and the last one in 2015, there is no evidence of research on nursing diagnoses in patients with stroke in the last four years. All studies were performed cross-sectionally, with data collected in the state of Ceará and with a sample ranging from 24 to 156 patients. The Nursing Diagnoses cited by the articles were: urinary incontinence; risk for aspiration; impaired verbal communication; intolerance and risk for activity intolerance; risk for disuse syndrome; risk for falls; fatigue; impaired physical mobility, impaired bed mobility, impaired wheelchair mobility; impaired transfer ability; impaired walking; sedentary lifestyle.
Conclusion: Stroke results in disabilities that compromise the quality of life. The importance of preventing risk factors for stroke is clear, as well as the need for quick and effective care, emphasizing the individually, systematic and qualifies nursing care in order to decrease stroke sequels and guarantee quality of life.

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Rates of hospitalizations for epilepsy in children between 2014 and 2020 in Bahia

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Background: Epilepsy is a neurological disease characterized by abnormal and excessive electrical discharges in the brain, with the occurrence of two or more seizures during 12 months, without causing fever, traumatic brain injury, hydroelectrolytic alteration or concomitant disease. Knowing the panorama of hospitalizations makes it possible to manage and direct resources in order to adapt to the needs of the age group.
Objectives: Compare the age groups in relation to the number of hospitalizations for Epilepsy in Bahia between 2014 and 2020.
Methods: Work carried out based on secondary data through public consultation to the DataSUS platform, through the Hospital Production System of the Unified Health System (SIH- SUS). All cases of hospitalization for epilepsy in children between January 2014 and December 2020, in the state of Bahia, were included.
Results: The age group that presented the highest rate of hospitalization was 1-4 years old with an average of 39.49%, followed by the age group between 5-9 years old with 20.16%, in addition to those younger than 1 year old with 16, 70%, with the age groups between 10-14 years old and 15-19 being the last with 13.65% and 10% respectively.
Conclusions: It is observed that there is a higher incidence rate of hospitalizations in children under 9 years of age, explained by the high rate of epilepsy that evolve, most of the time, with the disappearance in adolescence, elucidating the lowest rates in the age group over 10 years.
MeSH terms: Epilepsy. Hospitalization. Child. Adolescent.
Key Words: Pediatrics. Analysis. Neurology. Incidence.

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The impact of genetic polymorphism in pain mechanisms

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Background: Variations in genes codifying target structures in the nociceptive pathway can result in pain attenuation or increase.**Objective:**Investigate the genetic polymorphism influence in the individual pain threshold.
Methods: Search on PubMed with the terms "genetic","pain" and its synonyms published in the last 10 years.
Results: The subjective and individual mechanisms of pain aren't completely understood, but genetic susceptibility is one of the hypothesis to explain these differences.The KCNK18 gene influences the synaptic transmission by producing potassium channel protein that equalizes resting membrane potential, calcineurin activated and inhibited by arachidonic acid. This gene was found more frequently in migraine individuals. The COMT gene increase the sensibility to pain by met-enkephalins reduction and/or catecholamine elevation. Its activity's reduced in fibromyalgia patients. However, the OPRM1 gene, an opioid receptor, was found in individuals with a higher pain threshold.Furthermore, studies with human cell culture shows the analgesic role of the gene A118G, by its greater binding affinity for β-endorphin.It is associated with more effective endorphinergic endogenous pain inhibition.
Conclusion: Researches indicates a striking participation of genetic polymorphism in pain mechanisms. The knowledge about genetic variables on pain perception can contribute to the development of individualized analgesic protocols and therapeutic strategies, accordantly to the patient genetic profile. This evolution becomes fundamental in a population that tend to the indiscriminate use of analgesics.

MeSH terms: Pain Threshold;Genetic Polymorphism;Gene Polymorphisms
Key words: Aches;Pain Thresholds;Gene Polymorphism

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Mesenchymal stem cells modulate the gene expression of T- type Calcium Channel Subunit Alpha 1G (Cav3.1) in acute phase of epilepsy

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Introduction: Temporal Lobe Epilepsy (TLE) is a disorder caused by neuronal electrical imbalance, clinically manifested by spontaneous and recurrent seizures[1,2]. Its pathogenesis involves channelopathies of calcium channels, which contributes to hyperexcitability and hypersynchrony in TLE[3]. About 30% ofpatients do not respond to drug treatment[4], making it necessary to develop new therapeutic alternatives, such as cell therapy. This work aimed to evaluate the modulation of mesenchymal stem cells (MSCs) in the calcium channel CACNA1G(Cav3.1) gene expression.
Methods: MSCs were extracted from Wistar rats bone marrow and then culturedand transplanted intravenously and intranasally in the control and epilepticgroups. The brain was collected 1 and 7 days after transplantation to analyze gene expression.
Results: The analysis showed that treated animals had greater gene expression,compared to animals not treated in the epileptic and control group, in both days and administration routes. Furthermore, epileptic animals that were not treated had a low or negative expression of the gene. The epileptic rats that weretreated, on the other hand, had a marked increase in gene expression e in the prefrontal cortex.
Conclusion: This up-regulation noted on the treated groups raises the hypothesisthat MSCs would be using these channels to modify the microenvironment[5], intensifying Cav.3.1 transcription and contributing to tissue regeneration by neurodifferentiation[6,7]. This is supported by the increase in the calcium influx present in the early stages of neuronal maturation[8,9]. Thus, MSCs can modulategene expression in the pilocarpine-induced animal's brain, making Cav3.1 a target to be explored in epilepsy.

MeSH terms: epilepsy, mesenchymal stem cells, calcium channels T-type
Author Key words: temporal lobe epilepsy, cell therapy, gene expression, CACNA1G

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Neurotuberculosis with intracerebral tuberculoma and PCR for detectable Mycobacterium in CSF

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Introduction: Neurotuberculosis is the most serious form of extrapulmonary tuberculosis. The main clinical presentation is meningoencephalitis, which may be associated with tuberculomas. The detection of Mycobacterium tuberculosis by CSF in CSF is still a diagnostic challenge.
Objectives: To report a clinical case of neurotuberculosis associated with intracranial tuberculoma with detection of Mycobacterium tuberculosis by CSF in CSF.
Methods: Neurotuberculosis is the most serious form of extrapulmonary tuberculosis. The main clinical presentation is meningoencephalitis, which may be associated with tuberculomas. The detection of Mycobacterium tuberculosis by CSF in CSF is still a diagnostic challenge.
Results: C. A. G., 45 years old, female, admitted to the hospital in January 2020, presenting holocranial, pulsatile headache, which had worsened for 5 days, with little response to analgesics, associated with an episode of tonic-clonic seizure crisis, without other clinical signs. Previous diagnosis of asthma, using continuously salbutamol and beclomethasone. Examinations were requested - BAAR search for positive sputum, rapid molecular sputum test revealing Mycobacterium tuberculosis, clear-looking CSF, detectable CRP for Mycobacterium tuberculosis, glucose 63, protein 56.3, total cytology 74 (35% neutrophils, 19% lymphocytes , 46% macrophages). The cranial tomography showed a nodular lesion in the corticosubcortical region of the left frontal lobe, with annular enhancement by means of contrast, measuring 3.9 x 3.9 cm, in addition to accentuated meningeal enhancement. Chest tomography showed hollowed-out lesions with thickened walls, with the appearance of a sprouting tree, predominating in the lower lobe of the right lung. The diagnoses of neurotuberculosis (cerebral tuberculoma and meningitis) and pulmonary tuberculosis were then established. Referred to the infectious disease referral hospital using RHZE associated with dexamethasone and phenytoin. After 48 hours of hospitalization, the patient evolved with confusion and mental disorientation, suspecting complex subentrant partial seizures with a confused post-ictal state. A new skull tomography was requested, which showed an expansive lesion with an ovoid aspect 4.5 x 3.3 cm with liquefied content and ring impregnation by means of contrast in the upper left frontal region with mass effect and significant perilesional edema. Electroencephalogram showed disorganized base activity, periodically, sometimes with three-phase morphology, sometimes acute, in both hemispheres, with greater projection to the left and epileptiform activity also in the frontal- temporal region, bilaterally and independently. After therapeutic adjustment, the patient remained

clinically stable and was discharged from the hospital with outpatient follow-up due to infectious diseases and neurology.
Conclusion: The case addressed draws attention to the different neurological manifestations observed in neurotuberculosis, such as headache, seizures, confusion and disorientation. Early diagnosis and treatment is important to achieve a favorable outcome.

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Systematic review with meta-analysis on the use of antihyperglycemic agents as a preventive factor for cognitive losses in diabetic patients

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Background: Blood glucose variations are generally associated with predisposition to the development of dementia in diabetes patients. And there is a controversy in the literature about whether the use of antihyperglycemic agents can(not) promote protective effects on cognition.
Design and setting: we used a systematic review with meta-analysis to evaluate whether the evidence in the literature points to a protective or harmful effect of antihyperglycemic agents on cognition.
Methods: PubMed, Science Direct and Scielo databases were used to collect articles in English, published between 2005 and 2020. Articles of reflection/opinion, monographs/theses/dissertations, and animal research were excluded. The blinding of authors during the searches contributed to search independence. Of 1,329 articles selected, 30 were adequate, but only 3 of these provided quantitative data from 53 cognitive tests, which were used for meta-analysis (random effect model), performed using R.
Results: Funnel plot shows no publication bias. Forest plot, on the other hand, shows that literature points to the use of antihyperglycemic agents by patients as preventive of cognitive losses (standard mean difference equal to -0.18 [95% confidence interval between -0.29 and -0.06]).
Conclusion: Evidence of the preventive effect of cognitive losses through the use of antihyperglycemic agents such as metformin should be further investigated, in order to better clarify this therapeutic potential.

Key words: diabetes, dementia, cognition, biguanides

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Corticobasal syndrome with Balint syndrome: a clue for Alzheimer disease pathology

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Context: Balint syndrome (BS), first described in 1909, has three core features: optic ataxia, oculomotor apraxia and simultanagnosia, and has been described after various conditions amongst vascular, infectious, demyelinating and degenerative diseases[1]. It has already been reported concomitant with corticobasal syndrome (CBS)[2].
Case report: 59 year-old male without history of previous diseases presented with behavior changes in the last two years. He had a previous diagnosis of "stroke" because frequent falls to the left side and difficulty in using his left hand for simple daily activities. After that, he gradually evolved with visual problems (bumped into objects inside his house), fear of walking or sitting, and required constant assistance for basic activities of daily living. On physical examination he presented with clear visuospatial dysfunction, characterized by simultanagnosia, oculomotor apraxia and optic ataxia. Bilateral asymmetric upper limb apraxia (worse on left side), dystonic posturing and stimulus-sensitive myoclonus in the left arm were also present. No signs of parkinsonism or language/speech disturbances were identified. Brain MRI showed severe asymmetric biparietal lobe atrophy (right more than left).
DISCUSSION: The pathologic findings underlying CBS are variable, including Corticobasal Degeneration, Progressive Supranuclear Palsy, Frontotemporal Lobar Degeneration and Alzheimer Disease (AD). The association of BS and CBS favors the possibility of AD pathologic findings[3]. Imaging methods like FDG-PET have recently been shown to be capable of distinguishing AD-related CBS from those associated with other pathologies[4]. FDG-PET is not widely available in our country; than the presence of BS in CBS patients may individualize their treatment.

MeSH terms: Corticobasal syndrome; Alzheimer disease; Dementia
Key words: Corticobasal syndrome; Balint syndrome; Alzheimer disease

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One-dimensional uncertainty analysis in two-dimensional space pattern detection task: computational and human vision

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Background: It is important to have a critical view of the support provided by Artificial Intelligence (AI) in medical context, in order to trust this support.
Design and setting: Cross-sectional study (CAAE: 39292420.2.0000.5169) to measure/compare unidimensional uncertainty of an AI and a human performing the same task.

Methods: to a simple algorithm written in Python (blob detection, OpenCV) and to an ophthalmologist were given the task of detecting a two-dimensional pattern (center of the optical disc) in 1,000 digital images of normal/abnormal fundoscopies. Algorithm performed the task 1x, human performed the task 2x, both using digital register of spatial coordinates. Machine's unidimensional level of uncertainty was measured by the respective comparison of the x and y coordinates recorded by machine and human. Human's unidimensional level of uncertainty was measured by comparing the coordinates recorded by human itself. Data analysis was performed using R.
Results: AI failed to detect the target pattern onlyin two images. On average, man and machine showed a higher level of uncertainty in the y- coordinates, which was greater (~100 units) in machine's performance. The level of uncertainty was higher in altered fundoscopy images.
Conclusion: the measure of uncertainty of AI and humans in the same task can help understand AI limitations and therefore define its usefulness as a medical support tool.

Key words: computer vision system, ophthalmoscopies, pattern recognition, ophthalmology

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Application of the Bland-Altman analysis for quantitative assessment of the degree of agreement between drug prescriptions based or not on bioanthropometric data from neurological patients

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Background: The ability to metabolize, absorb, distribute and eliminate drugs is dependent on the genetic profile of each patient, expressed in their functional, metabolic and bioanthropometric phenotypes. Thus, it is relevant to clarify how much these factors impact (or not) the effectiveness of neurological treatment, since its prescription.
Design and setting: cross-sectional study (CAAE: 55048816.3.0000.5169).
Methods: To assess the degree of agreement between routinely prescribed drug dose values (standard) and drug dose values calculated based on bioanthropometric data (height and mass) of neurological patients, we performed random data collection from 75 patients, both sexes ,>18 yrs, with prescriptions for the use of: carbamazepine, clonazepam, gabapentin, hydantal, rivotril, topiramate, amitriptyline, bupropion, citalopram, duloxetine, donaren, escitalopram, fluoxetine, imipramine, nortriptyline, paroxetine, venabaletine, venabaletine, sertraline, venabaletine, sertraline, venabaletine, serabaletine, pramipexole, prolopa BD, vertix and zolpidem. Data analysis was performed in R.
Results: The application of the Bland-Altman analysis revealed that, on average, the prescribed standard drug dose is~10 units higher or lower than the dose calculated based on bioanthropometric data. That is, there is a ~20% disagreement between these different doses.
Conclusions: These results should support new investigations on the impact of these differences on the effectiveness of the adopted neurological treatment.

Key words: neurology, drug prescriptions, body weights and measures

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Impact Brazil Covid-19 Survey: a cross-sectional study on the mental health status of Brazilians

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Background: Citizens' mental health has been challenged by the advent of a new reality during the COVID-19 pandemic, which has imposed a new pattern of behavior on everyone. In this context, it is important to clarify how this new reality is impacting the mental health of Brazilian citizens.
Design and setting: Cross-sectional study, Brazil.
Methods: This work is part of the "IMPACT RESEARCH COVID19 BRAZIL: EVALUATING THE PANDEMIC BY COVID-19 THROUGH 24 QUESTIONS". The implementation of the survey was carried out by distributing a questionnaire through social networks. Data collected was used to measure how much the experience of citizens in the pandemic period has impacted on their mental heath. All data analysis was performed using R.
Results: Self-reported experience of negative symptoms and behaviors (sadness, loneliness, stress, anxiety, impatience), as well as exaggerated consumption of substances (alcohol, drugs) and use of electronic recreation (games), differs with age, with the youngest being the ones who most reported such experience, regardless of gender. However, no relevant statistical correlations were found between the variables mentioned above and others that could explain them, such as use of public transport, number of cohabitants, etc.
Conclusions: other factors, related to distancing/social isolation, may be contributing to these negative manifestations.

Key words: Covid-19, anxiety, pandemic, depression.

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Bilateral internuclear ophthalmoplegia in multiple sclerosis of very late onset

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Context: Multiple sclerosis (MS) is the most common demyelinating disease of the central nervous system. The average age of onset is in the range of 28 to 31 years, but it can occur from the first year of life or after the seventh decade. If diagnosed over 60 years of age, it is called very late onset, with low preva-

lence. Bilateral internuclear ophthalmoplegia is a rare syndrome characterized by bilateral restriction of the adduction of the eyes in the conjugated horizontal gaze, which is generally secondary to demyelinating and vascular diseases.
Case report: A 64-year-old man, brown, with a history of alcoholism, gout, hypothyroidism, arterial hypertension and generalized osteoarthritis with a right hip prosthesis with difficulty walking, presented a five-day subacute bilateral visual turbidity and binocular horizontal diplopia. On physical examination, he presented bilateral internuclear ophthalmoplegia, with a reduction in bilateral visual acuity worse on the right, in addition to lower limb pain pseudoparesis, with bilateral Babinski sign. Investigation with visual evoked potential demonstrated bilateral demyelinating optic neuropathy on the right, cerebrospinal fluid with more than two oligoclonal bands present, neuroaxis magnetic resonance imaging showing a change in the signal of the right optic nerve and multiple demyelinating lesions, fulfilling the criteria for dissemination in space and time. Therapy with Methylprednisolone 1g / day for 5 days was performed, with improvement of the condition, maintaining only visual sequelae with decreased visual acuity, and disease-modifying therapy was also started with stabilization of the condition.
Conclusions: Despite being more rare, very late-onset MS should be considered as a diagnosis, even with singular presentations as in the case reported.

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Brain vascular accident treatment procedures: an analysis of the perspective of the state of São Paulo

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Background: Brain stroke is the second leading cause of death worldwide, especially in countries that suffer a marked change in the population profile due to an accelerated process of demographic and epidemiological transition.
Objectives: To analyze the current panorama of hemorrhagic or ischemic brain stroke treatment procedures performed in the State of São Paulo for 13 years and correlate the current epidemiology with the results obtained.
Methods: A literature review and observational, descriptive and transversal data collect on hemorrhagic or ischemic brain stroke treatment, available from January 2008 to December 2020, and articles available in Scielo and PubMed, were carried out.
Results: There were 480,470 hospitalizations, representing a total expenditure of R$ 652,087,158.23. 11,517 procedures were performed on an elective basis and 468,922 urgently, with 134,893 occurring in the public sector and 144,502 in the private sector. All 480,470 considered to be of medium complexity. The total mortality rate was 17.34, corresponding to 83,324 deaths. The mortality rate for elective procedures was 17.36 compared to 17.34 for urgent procedures, whereas in the public sector it was 18.54 compared to 16.72 for the private sector. The average total hospital stay was 8.2 days, with an average cost of R$ 1,357.19.
Conclusion: It is an urgent procedure, with a decreasing mortality rate in the last 12 years. It is very important to emphasize that despite being considered a procedure of medium complexity, it has a high mortality rate.

MeSH terms: brain stroke; epidemiology; hospitalizations.

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Analysis of procedures for treating multiple sclerosis outbreak in the state of São Paulo in 13 year

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Background: Multiple sclerosis is a chronic disease of the central nervous system, it has an inflammatory and autoimmune character.
Objectives: Analyze the current panorama of multiple sclerosis treatment procedures carried out in the State of São Paulo for 13 years and correlate the current epidemiology with the results obtained.
Methods: A literature review and observational, descriptive and transversal data collect on the treatment data for multiple sclerosis outbreaks, available at DATASUS from January 2008 to December 2020, and articles available at Scielo and PubMed, were carried out.
Results: There were 13,282 hospitalizations, representing a total expenditure of R$ 6,493,227.03, with 2019 being the year with the highest number of hospitalizations (2,250) and with the highest amount spent during the period (R$ 915,299.20). Of the total procedures, 9,104 were performed on an elective basisand 4,178 on an urgent basis, with 1,897 occurring in the public sector and 1,493in the private sector. All 13,282 considered to be of medium complexity. The totalmortality rate was 0.62, corresponding to 83 deaths. The mortality rate for electiveprocedures was 0.05 compared to 1.87 for urgent procedures, whereas in the public sector it was 1.00 compared to 2.41 for the private sector. The average total hospital stay was 2.6 days, with an average cost of R$ 488.87.
Conclusion: It is possible to note, therefore, that the procedures have a predominance of the elective character and the public sector, with the highest mortality rates occurring in the private and emergency services.

MeSH terms: Multiple sclerosis; Autoimmunity; Epidemiology.

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Analysis of procedures for treating muscle dystrophies in the state of São Paulo

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Background: Muscular dystrophies are degenerative and genetic diseases characterized by progressive weakness and muscle atrophies.
Objectives: To analyze the current panorama of muscular dystrophy treatment procedures performed in the State of São Paulo, correlating it with current epidemiology.
Methods: literature review and observational, descriptive, and transversal data collect on the treatment of muscular dystrophies, available on the DATASUS website, from January 2008 to December 2020, and articles from Scielo and PubMed.
Results: There were 2,600 hospitalizations with a total expenditure of R$

28,004,202.59, with 2015 being the year with the highest number of hospitalizations (248), although 2014 was the year responsible for the highest amount spent during the period (R$ 2,858,500 , 87). Of the total procedures, 1,849 were carried out on an elective basis and 749 were urgent, with 1,330 occurring in the public sector and 286 in the private sector. The total mortality rate was 1.08, corresponding to 28 deaths, with 2016 being the year with the highest mortality rate, 4.91, while 2014 had the lowest rate, 0.41. The mortality rate for elective procedures was 0.54 compared to 2.40 for urgent procedures, whereas in the public sector it was 0.53 compared to 1.75 for the private sector. The average total hospital stay was 27.7 days, with an average cost of R$ 10,770.85.

Conclusion: the treatment of muscular dystrophies usually occurs in an elective regime and in the public sector, with the mortality rate being lower in the public service compared to the private one.

MeSH terms: Muscular dystrophy; Muscular atrophy; Epidemiology.

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Evaluation of the treatment of hypertensive encephalopathy in the state of São Paulo

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Background: Hypertensive encephalopathy constitutes a neurological emergency, in which there is an acute failure of cerebrovascular self-regulation, due to the acute elevation of blood pressure, causing cerebral edema.

Objectives: Analyze the current panorama of hypertensive encephalopathy treatment procedures carried out in the State of São Paulo and correlate with the current epidemiology.

Methods: A literature review and observational, descriptive and transversal data collect on the treatment for hypertensive encephalopathy, available at DATASUS from January 2008 to December 2020, and articles available at Scielo and PubMed, were carried out.

Results: There were 6,851 hospitalizations, representing a total expenditure of R$ 4,386,876.29, 2009 being the year with the highest number of hospitalizations (690) and 2014 the year with the highest amount spent (R$ 483,788.87). 224 procedures were performed on an elective basis and 6,625 of urgency, with 1,357 occurring in the public sector and 3,227 in the private sector. All 6,851 were considered of medium complexity. The total mortality rate was 5.66, corresponding to 388 deaths. The mortality rate for elective procedures was 5.80 compared to 5.66 for urgent procedures, whereas in the public sector it was 7.81 compared to 4.25 for the private sector. The average total hospital stay was 5.2 days, with an average cost of R$ 640.33.

Conclusion: It is possible to observe that the treatment of hypertensive encephalopathy has a predominance of emergency care and the private sector, which has shown to have a lower mortality rate compared to the public service.

MeSH terms: Hypertension; Hypertensive Encephalopathy; hospitalizations.

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Overview of procedures for treating intracerebral hematoma in the state of São Paulo

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Background: Intracerebral Hematoma has a high mortality rate. However, those who survive may experience sequelae, such as severe neurological deficits.

Objectives: To analyze the current panorama of surgical treatment procedures for intracerebral hematoma performed in the State of São Paulo and to correlate the current epidemiology.

Methods: A literature review and observational, descriptive and transversal data collect on surgical treatment of intracerebral hematoma, available at DATASUS from January 2008 to December 2020, and articles available at Scielo and PubMed, were carried out.

Results: There were 7,716 hospitalizations, representing a total expenditure of R$ 43,880,884.82, with 2009 being the year with the highest number of hospitalizations (758) and 2010 the year with the highest amount spent (R$ 3,961,287.80). 777 procedures were carried out on an elective basis and 6,447 and on an urgent basis, with 3,074 occurring in the public sector and 2,004 in the private sector. All 7,716 considered to be of medium complexity. The total mortality rate was 35.82, corresponding to 2,764 deaths, with 2015 being the year with the highest mortality rate, 38.36, while 2020 had the lowest rate, 32.58. The mortality rate for elective procedures was 22.52 compared to 38.67 for urgent procedures, whereas in the public sector it was 34.39 compared to 37.77 for the private sector. The average total hospital stay was 15.7 days, with an average cost of R$ 5,687.00.

Conclusion: There was a predominance of the emergency service and the public sector, and the mortality rate was higher in the private service.

MeSH terms: Intracerebral hematoma; hospitalizations; epidemiology.

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Scenario of the last 13 years of procedures for treating acute demielinizing polyradiculoneuritis in the state of São Paulo

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Background: Polyradiculoneuritis is considered to be the biggest cause of flaccid paralysis in the world and even after the progression phase, some patients may present with disabling residual deficits, both sensory and motor.

Objectives: Analyze the current panorama of treatment procedures for acute demyelinating polyradiculoneuritis performed in the State of São

Paulo and correlate the current epidemiology with the results obtained.
Methods: A literature review and an observational, descriptive and transversal data collect on treatment for acute demyelinating polyradiculoneuritis, available at DATASUS from January 2008 to December 2020, and articles available at Scielo and PubMed.
Results: There were 7,917 hospitalizations, representing a total expenditure of R$ 9,392,552.04, 2009 being the year with the highest number of hospitalizations (809) and 2017 with the highest amount spent during the period (R$ 967,284.65). 805 are elective and 7,109 are urgent, with 1,736 occurring in the public sector and 3,506 in the private sector. All of them were considered medium complexity. The total mortality rate was 1.57, corresponding to 124 deaths, 2019 being the year with the highest mortality rate, 2.94, and 2015 with the lowest rate, 0.53. The mortality rate for elective procedures was 0.99 compared to 1.63 for urgent procedures, whereas in the public sector it was 1.61 compared to 1.23 for the private sector. The average total hospital stay was 8.3 days, with an average cost of R$ 1,186.38.
Conclusion: It is important to correctly notify the procedures performed, improving the epidemiological analysis and directing investments in health more appropriately.

MeSH terms: Guillain-Barré syndrome; Epidemiology; hospitalizations.

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Scenario of serious treatment of serious cranioencephalic traumatism in the state of São Paulo

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Background: Cranioencephalic trauma consists of injury to brain tissue, being one of the main causes of death in the world.
Objectives: Analyze the current panorama of conservative treatment procedures for severe traumatic brain injury performed in the State of São Paulo for 13 years and correlate the current epidemiology with the results obtained.
Methods: A literature review and observational, descriptive and transversal data collect on conservative treatment for severe traumatic brain injury, available at DATASUS from January 2008 to December 2020, and articles available at Scielo and PubMed, were carried out.
Results: There were 30,850 hospitalizations, representing a total expenditure of R$ 100,307,344.78, with 2008 being the year with the highest number of hospitalizations (2,596), although 2017 was the year responsible for the highest amount spent during the period (R$ 9,042,101.44). Of the total procedures, 997 were performed on an elective basis and 21,917 on an urgent basis, with 9,054 occurring in the public sector and 9,005 in the private sector. All 30,850 considered to be of high complexity. The total mortality rate in the 13 years studied was 36.32, corresponding to 11,204 deaths. The mortality rate for elective procedures was 49.15 compared to 35.40 for urgent procedures, whereas in the public sector it was 35.97 compared to 33.44 for the private sector. The average total hospital stay was 12.4 days, with an average cost of R$ 3,251.45.
Conclusion: There is a high mortality rate, mainly in elective procedures and in the public sector.

MeSH terms: Severe traumatic brain injury; hospitalizations; epidemiology.

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National scenario of procedures for intracranial tumor exerisis

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Background: Intracranial tumors have an incidence that varies between 10 to 17 cases per 100 thousand people.
Objectives: To analyze the panorama of craniotomy treatment procedures for removal of intracranial tumors in the State of São Paulo and correlate it with the current epidemiology.
Methods: observational, descriptive and cross-sectional collection of craniotomy treatment for removal of intracranial tumors, available at DATASUS website, from January 2008 up to December 2020 - evaluating the number of hospitalizations, public spending, complexity, mortality rate, deaths, permanence and character of care. **Results:** 9,569 hospitalizations were observed for such procedures in this period, representing a total expenditure of R$ 39,104,400.74. 2013 was the year with the highest number of hospitalizations (880), it was also the year with the greatest expenditure (R$ 3,729,954.75). 3,204 of them were elective and 6,365 were urgent, with 4,550 occurring in the public sector and 1,519 in private one. All 9,569 considered to be of high complexity. The mortality rate was 9.31, corresponding to 891 deaths, 2008 was the year with the highest mortality, 11.64 and 2018 the lowest, 6.29. Mortality rate was lower in elective procedures (6.27 versus 10.84 in urgent ones) and when carried out in public sector (9.27 versus 9.61 in private care). The hospital stay was 17.0 days, with a cost of R$ 4,086.57.
Conclusion: The excision of intracranial tumors represents a procedure of high complexity with a long period of hospital stay. Higher mortality was observed in emergency care and the private sector.

Key words: Intracranial tumors, craniotomy, panorama.
MeSH terms: Neurosurgical Procedures, Brain Neoplasms, Epidemiology

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Conservative treatment of cerebral hemorrhage: an analysis of the State of São Paulo

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Background: Cerebral hemorrhage represents 10% to 15% of all strokes, with the worst prognosis and the highest rate of morbimortality.
Objectives: To analyze the panorama of conservative treatment procedures for cerebral hemorrhage in the State of São Paulo and correlate it with the current epidemiology.
Methods: observational, descriptive and cross-sectional collection of conservative treatment data for cerebral hemorrhage, available at DATASUS website, from January 2008 up to December 2020 - evaluating the num-

ber of hospitalizations, public spending, complexity, mortality rate, deaths, permanence and character of care.
Results: 15,327 hospitalizations were observed for such procedures in this period, representing a total expenditure of R$ 30,258,539.39. 2008 was the year with the highest number of hospitalizations (1,373), and 2020 was the year with the greatest expenditure (R$ 3,008,526.38). 552 of the were elective and 14,606 were urgent, with 4,102 occurring in the public sector and 4,510 in private one. All 15,327 considered to be of medium complexity. The mortality rate was 29.68, corresponding to 4,549 deaths, 2009 was the year with the highest mortality, 33.33 and 2008 the lowest, 24.33. Mortality rate was lower in elective procedures (15.40 versus 30.48 in urgent ones) and when carried out in public sector (27.16 versus 30.07 in private care). The hospital stay was 11.0 days, with a cost of R$ 1,974.20.
Conclusion: The conservative treatment of cerebral hemorrhage represents a procedure of medium complexity with a long period of hospital stay. Higher mortality was observed in emergency care and the private sector.

Key words: cerebral hemorrhage; stroke; neurological emergency.
MeSH terms: Neurosurgical Procedures, Intracranial Hemorrhages, Mortality

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National perspective of the surgical treatment of platibasia and malformation of Arnold Chiari

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Background: Platybasia is a bone anomaly, characterized by the flattening of the skull base. Its etiology is still questioned, but it is believed to occur in a congenital way.
Objectives: To analyze the panorama of Arnold Chiari's platelet and malformation surgical treatment procedures in the State of São Paulo and correlate it with the current epidemiology.
Methods: observational, descriptive and cross-sectional collection of Arnold Chiari's platelet and malformation surgical treatment data, available at DATASUS website, from January 2008 up to December 2020 - evaluating the number of hospitalizations, public spending, complexity, mortality rate, deaths, permanence and character of care.
Results: 1,573 hospitalizations were observed for such procedures in this period, representing a total expenditure of R$ 5,680,871.82. 2011 was the year with the highest number of hospitalizations (142), it was also the year with the greatest expenditure (R$ 582,194.40). 1,006 of the were elective and 567 were urgent, with 509 occurring in the public sector and 482 in private one. All 1,573 considered to be of high complexity. The mortality rate was 2.16, corresponding to 34 deaths, 2010 was the year with the highest mortality, 4.10 and 2012 the lowest, 0.83. Mortality rate was lower in elective procedures (1.89 versus 2.65 in urgent ones) and when carried out in public sector (2.36 versus 2.49 in private care). The hospital stay was 12.7 days, with a cost of R$ 3,611.49.
Conclusion: Platybasia is a highly complexity condition with a long period of hospital stay. However, the predominance of care is elective, with low mortality.

Key words: Platybasia, Neurological emergency, Epidemiology.
MeSH terms: Rare Diseases, Morbidity, Skull Base

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Evaluation of procedures for treating polyneuropathy in the state of São Paulo for 13 years

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Background: Polyneuropathy is the simultaneous dysfunction of several peripheral nerves that normally occurs as a result of diabetes.
Objectives: To analyze the current panorama of treatment of polyneuropathies performed in the State of São Paulo and to correlate with the epidemiology.
Methods: literature review and observational, descriptive and transversal data collect on treatment of polyneuropathies, available at DATASUS from January 2008 to December 2020, assessing the number of hospitalizations, the amount of public spending, complexity, mortality rate, deaths, permanence and character of service, and articles available in Scielo, Lilacs and PubMed.
Results: There were 19,099 hospitalizations for polyneuropathy treatment procedures with a total expense of R$ 21,870,767.84, with 2014 being the year with the highest number of hospitalizations (1,740) and with the highest amount spent (R$ 2,034,880.25) . Of the total procedures, 3,732 were carried out on an elective basis and 15,362 in urgency, with 5,774 in the public sector and 6,396 in the private sector. All 19,099 considered to be of medium complexity. The total mortality rate was 1.63, corresponding to 312 deaths, with 2020 being the year with the highest mortality rate, 2.42, while 2014 had the lowest rate, 1.26. The mortality rate for elective procedures was 0.38 compared to 1.94 for urgent procedures, whereas in the public sector it was 1.25 compared to 1.77 for the private sector. The average total hospital stay was 9.3 days, with an average cost of R$ 1,145.13.
Conclusion: Polyneuropathy is a disease that has a low mortality rate.

MeSH terms: Polyneuropathies; health expenditures; epidemiology.

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Overview of the conservative treatment of light grain cranioencephalic traumatism in the state of São Paulo

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Background: The traumatic brain injury is one of the main causes of mortality and disability in the world.
Objectives: To analyze the current panorama of conservative treatment procedures for mild traumatic brain injury performed in the State of São Paulo and correlate with the current epidemiology.

Methods: Literature review and observational, descriptive and transversal data collect on conservative treatment of mild grade traumatic brain injury, available at DATASUS from January 2008 to December 2020 and articles from Scielo, Lilacs and PubMed.
Results: There were 150,743 hospitalizations for the conservative treatment of mild traumatic brain injury, being considered of medium complexity. They represent a total expenditure of R$ 64,098,819.38, with 2010 being the year with the highest number of hospitalizations (14,153) and 2011 being the year with the highest amount spent during the period (R$ 5,522,391.52). Of the total procedures, 1,744 are elective and 112,805 are urgent. In the public sector, 53,820 were carried out and 45,050 in the private sector. The total mortality rate was 1.60, corresponding to 2,413 deaths, with 2008 being the year with the highest mortality rate, 2.20 and 2016 had the lowest rate, 1.18. The mortality rate for elective procedures was 1.89 compared to 1.71 for urgent procedures, whereas in the public sector it was 1.73 compared to 1.58 for the private sector. The average total hospital stay was 2.4 days, with an average cost of R$ 425.22.
Conclusion: The conservative treatment of traumatic brain injury has a low hospital stay and average cost.

MeSH terms: Traumatic brain injury; Conservative treatment; Epidemiology.

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Profile conservative treatment of cranioencephalic traumatism medium degree in the state of São Paulo

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Background: The traumatic brain injury has a great impact on neurological emergencies.
Objectives: To analyze the current panorama of conservative treatment procedures for mid-level traumatic brain injury performed in the State of São Paulo and to correlate with the current epidemiology.
Methods: Literature review and observational, descriptive and transversal data collect on conservative treatment data for medium grade traumatic brain injury, available at DATASUS from January 2008 to December 2020 and articles available at Scielo, Lilacs and PubMed.
Results: There were 63,218 hospitalizations for conservative treatment procedures in this period, accounting for R$ 68,668,413.92, with 2011 being the year with the highest number of hospitalizations (5,262), although 2020 with the greatest expenditure (R$ 5,984,875.09). 1,149 of them were elective, while 47,478 were urgent, with the occurrence of 24,527 in the public sector and 13,705 in the private sector. All 63,218 considered to be of medium complexity. The total mortality rate was 9.69, corresponding to 6,125 deaths, with 2009 being the year with the highest mortality rate, 10.34, while 2011 had the lowest rate, 9.14. The mortality rate for elective procedures was 6.44 compared to 9.89 for urgent procedures, whereas in the public sector it was 10.80 compared to 7.63 for the private sector. The average total hospital stay was 7.7 days, with an average cost of R$ 1,086.22.
Conclusion: Medium grade traumatic brain injury has a short period of in-hospital stay and a higher number of admissions and mortality rates in emergency care and in the public sector.

MeSH terms: Traumatic brain injury; epidemiology; hospitalization.

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Treatment procedures for uncontrolled epileptic seizures in the state of São Paulo, Brazil: an overview

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Background: epileptic seizures are treated with antiepileptics; nevertheless, about 30% of these patients do not present complete control with only drug therapy.
Objectives: to describe the overview of treatment procedures for uncontrolled epileptic seizures in the state of São Paulo, correlating it with current epidemiology.
Methods: observational, descriptive, and transversal data collect on treatment procedures for uncontrolled epileptic seizures, available on DATASUS website, from January 2008 up to December 2020, taking in account: number of hospitalizations, public health expenditures, complexity, mortality rate, deaths, hospital stay, and service character.
Results: there were 131,397 hospitalizations for treatment procedures in this period, accounting for R$97,412,992.73, with 2008 the year with the greatest number of hospitalizations (12,041) and 2020 with the greatest expenditure (R$10,065,826.67). 7,091 of them were elective, while 124,290 were urgent. 45,307 were carried out in public care and 38,154 in private one. All of them were considered medium complexity. Mortality rate was 2.76%, corresponding to 3,621 deaths, with 2020 the year with the greatest mortality (3.67%) and 2008 with the lowest (2.21%). Mortality rate was lower in elective procedures (0.83 versus 2.87 in urgent ones) and when carried out in public sector (2.40 versus 2.55 in private care). Average stay was 5.4 days and average cost per hospital stay was R$741.36.
Conclusion: treatment procedures for uncontrolled epileptic seizures are classified as medium complexity, most of which being urgent. Higher mortality rate was observed in urgent cases and private health care.

MeSH terms: hospitalization; health expenditures; epidemiology; emergencies; neurology.

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Surgical procedures for the treatment of extradural hematoma in the state of São Paulo, Brazil: an analysis

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Background: extradural hematoma (EDM) is one the most lethal traumatic brain injury, being due to the rupture of middle meningeal artery and resulting in intracranial hypertension and brain damage.
Objectives: to describe the overview of surgical procedures for the treatment of EDM in the state of São Paulo, correlating it with current epidemiology.

Methods: observational, descriptive, and transversal data collect on surgical procedures for the treatment of EDM, available on DATASUS website, from January 2008 up to December 2020, taking in account: number of hospitalizations, public health expenditures, complexity, mortality rate, deaths, hospital stay, and service character.
Results: there were 10,210 hospitalizations for such procedures in this period, accounting for R$39,342,868.41, with 2010 the year with the greatest number of hospitalizations (1,074) and 2011 with the greatest expenditure (R$3,772,361.55). 849 of them were elective, while 7,279 were urgent. 4,459 were carried out in public care and 2,671 in private one. All of them were considered medium complexity. Mortality rate was 11.29%, corresponding to 1,153 deaths, with 2015 the year with the greatest mortality (14.20%) and 2020 the lowest (9.93%). Mortality rate was lower in elective procedures (10.60 versus 11.46 in urgent ones) and when carried out in public sector (10.88 versus 11.49 in private care). Average stay was 10.9 days and average cost per hospital stay was R$3,853.37.
Conclusion: surgical procedures for the treatment of EDM are considered medium complexity, most of which being carried out in public care. Higher mortality rate was observed in urgent cases and private care.

MeSH terms: surgical procedures, operative; health expenditures; epidemiology; emergencies; neurology.

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Profile of procedures for the treatment of chronic suddural hematoma in the state of São Paulo

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Background: Chronic subdural hematoma is a common type of intracranial hemorrhage with a greater predominance in the elderly.
Objectives: To analyze the current panorama of surgical treatment procedures for chronic subdural hematoma performed in the State of São Paulo and to correlate the current epidemiology with the results obtained.
Methods: A literature review and an observational, descriptive and transversal data collect on surgical treatment was carried out, available from January 2008 to December 2020 and articles available in Scielo, Lilacs and PubMed.
Results: There were 15,148 hospitalizations for surgical procedures for the treatment of chronic subdural hematoma, representing a total expenditure of R$ 45,365,258.21, with 2018 being the year with the highest number of hospitalizations (1,418) and with the highest amount spent during the period (R$ 4,570,334.28). 678 of them were elective while 11,671 were urgent. 3,820 were carried out in public care and 4,317 in private one. All of them were considered medium complexity. Mortality rate was 9.20, corresponding to 1,393 deaths, with 2020 the year with the greatest mortality, 10.24, and 2013 with the lowest, 8.00. The mortality rate for elective procedures was 10.18 compared to 9.63 for urgent procedures, whereas in the public sector it was 8.09 compared to 9.73 for the private sector. The average total hospital stay was 8.7 days, with an average cost of R$ 2,994.80.
Conclusion: There is a greater number of hospitalizations in the urgency and private sector and a higher mortality rate in elective procedures and in the private sector.

MeSH terms: chronic subdural hematoma; epidemiology; intracranial hemorrhage.

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Global open-label extension: 24-month data of patisiran in patients with hattr amyloidosis

Wilson Marques Jr presenting on behalf of the authors

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Introduction: Hereditary transthyretin-mediated (hATTR) amyloidosis is a progressive, life- threatening disease. The efficacy and safety of patisiran has been demonstrated in Phase 3 (APOLLO) and Phase 2 Open-Label Extension (OLE) studies in patients with hATTR amyloidosis with polyneuropathy.
Objective: To describe interim 24-month efficacy and safety analyses of the ongoing Global OLE study.
Methods: International OLE study (NCT02510261) in eligible patients who completed parent studies, including APOLLO patients randomized to placebo (APOLLO/placebo, n=49) or patisiran (APOLLO/patisiran, n=137) and Phase 2 OLE patients (n=25).
Results: As of 10/07/2019, 178/211 patients had 24-month assessments. Safety profile remained consistent with previous studies. After 24 months of additional patisiran treatment in the OLE, durable improvement was seen for mNIS+7 (mean change [SEM]) in APOLLO/patisiran (-4.9 [2.1]) and Phase 2 OLE (-5.9 [2.1]) groups vs. parent study baselines. Norfolk QOL-DN continued to show durable improvement in APOLLO/patisiran patients (-2.4 [2.4]) following additional 24- months treatment. In the Global OLE, APOLLO/placebo patients experienced halting of disease progression and quality of life (QOL) improvement compared to Global OLE baseline after 24 months of patisiran (mNIS+7: +0.1 [3.3], Norfolk QOL-DN: -4.1 [3.3]), although they had progressed relative to APOLLO baseline (mNIS+7: +26.3 [5.0], Norfolk QOL-DN: +15.8 [4.5]) given progression while on placebo in APOLLO.
Conclusion: Patients with long-term exposure to patisiran continue to demonstrate durability of efficacy. Despite marked progression on placebo during APOLLO, previously untreated patients continue to exhibit halting of disease progression and QOL improvement following 24 months of patisiran. Patisiran continues to demonstrate a positive benefit:risk profile.

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Death of adults by stroke in Santa Catarina

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Background: Stroke is the second leading cause of death worldwide, including 10% of deaths. In addition to death, stroke can cause irreversible paralysis, permanently disabling the patient.

Objectives: The present study proposes an analysis of the epidemiological variants that interfere with the number of adult deaths from stroke in the state of Santa Catarina (SC).
Design and setting: This is an ecological study, whose area of analysis was the state of Santa Catarina, located in Brazil. The population studied was the group of individuals aged 20 to 59 years old living in the area studied and who died of a stroke (ICD-10 I64) in the period from January 2005 to December 2019.
Methods: The data used were obtained from DATASUS. The variables analyzed were: sex, color/race, and region.
Results: The present study found a greater predominance of the white race in both sexes in the state of SC with 86% of total deaths. The male gender was higher in all age groups and years analyzed presenting a percentage of 56%, and the female with 44%. The Mountainous and the South regions of Santa Catarina, two less industrialized regions and with the two lowest GDP's in the state, had the first and third highest prevalence of deaths, respectively 20% and 16%.
Conclusions: The state of Santa Catarina showed a higher prevalence of deaths from stroke in the analyzed period in white adults, males, and residents of the Mountainous region and South of the state.

MeSH terms: Stroke, Epidemiology, Race, Sex, Region
Key words: Brazil, Santa Catarina, Variants, Death.

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Epidemiological profile of home deaths due to stroke during the COVID-19 pandemic

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Background: Stroke is one of the main causes of death, disability and hospitalization. Although more prevalent in adults and the elderly, it has increased in young people for stress, poor diet, excessive alcohol and sedentary lifestyle. This study is justified because the restrictions in the pandemic, such as social isolation, reduced access to health services, have changed people's behavior in relation to health care. This can cause the delay in medical care, leading to negative outcomes.
Objectives: Analysis of home deaths for stroke, in Brazil, in the pandemic by age intervals.
Design and Setting: Cross-sectional study in Federal University of Uberlândia.
Methods: Study of home deaths from stroke, based on the Portal de Transparência do Registro Civil (ARPEN). Analyzing a previous context and during the pandemic, the percentage variations by age group between 2019 and 2020 were compared.
Results: In 2020, 15,777 home deaths were recorded, while 2019 there were 12,349, representing an increase of 27.76%. In 2020, all age groups analyzed, there were increases in relation to 2019, the most expressive were: 0-9 years (76%), 10-19 (32.14%), 60-69 (28.12%), 70-79 (36.35%) and 80-89 (29.97%).
Conclusions: Medical support in the first hours of symptoms is essential. The delay in care can delay the diagnosis, make the use of medications unfeasible, due to the door-to-needle times, as well as increasing home deaths. Thus, it is important to guide the population in the identification of signs and symptoms, to knowledge about the need for immediate hospital care, even in the pandemic.

MeSH terms: Stroke, Coronavirus Infections, Delayed Diagnosis, Encephalitis
Key words: Brain Stroke, SARS-CoV-2, Disease Prevention

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Case report: Intracranial Arterial Dolichoectasia

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Introduction: Intracranial arterial dolichoectasia (IADE) is a diameter increase and/ or a long and tortuous path in one or more Intracranial arterial. Most patients keep asymptomatic and eventually present neurological complications (ischemia, bleeding or compression of adjacent structures). At around 12% of the patients with stroke present this kind of intracranial dilated, which 80% are in the posterior cerebral circulation, mainly in basilar artery.
Objective: Report an unusual case of IADE refractory to the clinical treatment.
Method: The information was obtained by reviewing the medical record, after the patient's consent.
Result: Patient, 51, male, hypertensive and dyslipidemic, with abdominal aortic aneurysm surgery and an incidental diagnosis in 2015 of fusiform basilar artery aneurysm, presented in March 2020 after cervical flexion, dysarthria, horizontal diplopia when looking to the right and ptosis to the left. The computed cranial angiotomography showed a basilar artery of 1.8 cm diameter fusiform aneurysm, compressing the pons and medulla oblongata, with no signs of ischemia or bleeding. He was discharged from hospital with clopidogrel without deficits, however, after 30 days, manifested a new focal neurological deficit with spontaneous remission. During the investigation a skull resonance was presented without ischemia, transcranial doppler with circulatory delay and without embolization. In view of the recurrence, an exchange in clopidogrel for ticagrelor was decided, which was kept stable for 30 days.
Conclusion: IADE may be an incidental finding or even a life-threatening illness. Thus, these cases remain a major challenge in clinical practice and in interventional radiology.

Key words: stroke; IADE; Basilar Artery.

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The relation between COVID-19 and cerebrovascular diseases

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Introduction: Covid-19 is characterized by respiratory syndrome and has symptoms that affect the central nervous system such as headache, anosmia, hypercoagulability, etc. In this sense, it is known that the virus shows tropism by the receptors of the angiotensin-converting enzyme 2 (ACE2), becoming a gateway to the neurological system, which can cause complications. Is to relate the infection by COVID-19 and the increase in cerebrovascular diseases.

Methods: A literature review was carried out using search for scientific articles in PubMed, in April / 2021, with a filter in the last 5 years, using the descriptors "Covid", "Cerebrovascular Diseases" and "Man" associated with the Boolean operator AND.
Results: 53 articles were found, of which 19 were selected for research. There is a higher frequency of neurological symptoms in patients with COVID-19 than in patients without the disease. The effect of binding the virus to ACE2 receptors is to activate a cascade of cytokines, which tends to lead to serious complications. For this reason, severe coagulopathies can be caused, increasing products of the degradation of C-reactive protein, D Dimer, fibrinogen and thrombocytopenia. The increase in cerebrovascular events also occurs because the antithrombotic, neuroprotective, antihypertensive effects, among others, of the alternative renin-angiotensin system in the brain are interrupted due to COVID-19.
Conclusion: It was seen that cerebrovascular events are related to the course of COVID-19, in which patients may develop several serious complications, such as encephalitis, strokes and vascular thrombosis. Thus, the pathophysiology of this disease is related to an inflammatory process.

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Aortic thrombosis presenting with low back pain and paraplegia: a medical alert

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Context: The importance of a thorough neurological examination of the patient should always include research into differential diagnoses such as vascular syndromes, increasingly common in our population.
Case report: A 46-year-old man evaluated and screened by the Neurosurgery's department team, after an initial complaint of sudden onset low back pain and acute weakness in both lower limbs. The patient was healthy before the event. Patient didn't have pathological history or use of chronic medications, referring only to use sporadic medication for sexual impotence, approximately 6 months ago. Observation revealed pale cold lower limbs, with livedo reticularis. Pulses of the femoral artery were absent bilaterally. Neurological examination revealed complete flaccid paraplegia with neurological level of L1. Below this level loss of pain, light touch and temperature sensation (0/2 in all dermatomes on both extremities), muscle weakness (0/5 in all neurotomes bilaterally), absent tendon and plantar reflexes. Axial tomography of the lumbar spine didn't reveal vertebral lesions or pressure within the spinal canal. Consultation of the vascular surgeon confirmed absence of blood flow through femoral arteries and emergency angiotomography of the abdominal aorta showed complete occlusion of the descending aorta, upper renal arteries. Patient underwent percutaneous embolectomy treatment, with successful revascularization of lower extremities; unfortunately died about 10 hours after surgery due the development of revascularization syndrome.
Conclusions: Acute aortic occlusion is a catastrophic event and can present itself as flaccid paraplegia, leading to misdiagnosis and loss of valuable time for positive outcome. Vascular examination should always be performed on each patient with neurological deficit in lower limbs, especially patients with clinical history of peripheral vascular disease. Immediate start of treatment is imperative to improve survival rates.

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Optic Neuritis and its several etiologies

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Introduction: Optic neuritis (ON) is characterized by a condition of the optic nerve´s demyelinating inflammation, unilateral or bilateral involvement, which can lead to painful visual loss, color blindness, and other neurological and systemic impairments. Because it has several etiologies, ON is underdiagnosed and the studies seek an integrative review to identify the causes and differential diagnoses for the proper management.
Methods: An analysis of scientific publications in the Pubmed and ScienceDirect databases was realized using the descriptors Optic Neuritis and diagnosis.
Results: The diagnosis of ON is made by clinical findings associating neuroimage tests. About 60% of diagnosed patients have an alternative diagnosis; as optic neuropathies of anterior ischemic causes, Leber's hereditary neuropathy and compressive neuropathies; infiltrative; toxic-metabolic or vitamin B12 deficiency. ON has different etiologies, such as infectious, paraneoplastic, autoimmune and demyelinating, so a directed anamnesis and ophthalmological examination is essential for professional´s orientation. The investigation of infectious, parainfectious and inflammatory causes must include the research of diseases such as syphilis, ricketsiosis, toxoplasmosis, mycobacteriosis, HIV and herpes zoster, and the recent vaccination. It is necessary to investigate autoimmune diseases, due to the increased risk of the coexistence of autoantibodies that attack structures of the optic nerve. Within the spectrum of demyelinating lesions, Multiple Sclerosis is the most common etiology, although Neuromyelitis Optica, Schilder Disease and Encephalitis Periaxilis Concentric should be remembered.
Conclusion: When considering the various causes, it is necessary for professionals to make the diagnosis with effective clinical evaluation, with complementary tests, essential for the proper patient´s management.

Key words: Optic Neuritis, Optic Nerve Diseases, Cerebrovascular Disorders.

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The role of image in the diagnosis of pseudotumor lesions: a pictorial essay

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Introduction: The clinical-radiological differentiation between neoplastic and pseudotumoral lesions has an important role in therapeutic approach, with repercussions on the conduct to be taken. When facing an expansive lesion, in addition to neoplasms, a list of differential diagnoses must be considered, including inflammatory, infectious, hemorrhagic lesions, among others. In this context, the role of imaging methods is highlighted in order to anticipate surgical management in the presumption of an aggressive neoplasm or, on the other hand, avoid an unnecessary invasive procedure.

Objectives: To identify the warning signs of pseudotumor lesions in imaging studies.
Methodology: Retrospective pictorial review of the archives of Diagnostic Imaging service of Santa Casa de São Paulo, between 2010 and 2020.
Results: The warning signs that indicate a probable pseudotumoral lesion include spontaneous hypersignal in T1, marked hyposignal in T2, absence of significant expansive effect, cavitated lesion with high signal in diffusion, incomplete ring impregnation, restricted peripheral ring diffusion and spectral relations (choline / creatine) lower than 2. Each of these distinguishing features is discussed and exemplified.
Conclusions: Although the distinction between expansive neoplastic and pseudotumoral lesions is not always direct, the systematic use of the exposed criteria allows greater assertiveness in the differential diagnosis. If the diagnostic doubt persists, therapeutic proof tests have a fundamental role in this context and, unfortunately, in some cases the final diagnosis will only be possible with biopsy.

MeSH terms: Pseudotumors, neoplasm, radiology, image
Key words: Neuroradiology, pseudotumoral, differential diagnoses, imaging

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MERIDIAN: A phase 2, randomized, double-blind, placebo-controlled, multicenter study to evaluate the efficacy and safety of pegcetacoplan in patients with amyotrophic lateral sclerosis

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Introduction: Inflammation underlies the pathogenesis of numerous neurodegenerative diseases, including amyotrophic lateral sclerosis (ALS). In ALS, the complement system has been implicated in the neuropathology of disease and disease progression. Pegcetacoplan, a subcutaneously administered C3 complement inhibitor, is being investigated in hematology, nephrology, and neurology. The current clinical study (NCT04579666) is investigating whether pegcetacoplan can improve survival and function in people diagnosed with apparent sporadic ALS.
Objectives and Methodology: Evaluate the efficacy and safety of pegcetacoplan compared to placebo among people diagnosed with ALS in a global, multicenter, randomized, double-blind, placebo-controlled, phase 2 study. Approximately 228 patients diagnosed with apparent sporadic ALS, ≥18 years of age and with an ALS Functional Rating Scale-Revised (ALSFRS-R) score ≥30, slow vital capacity (SVC) ≥60% of the predicted value at screening, and with symptom onset within 72 weeks before screening, are eligible for enrollment. After screening, patients will be randomized 2:1 to treatment groups receiving either subcutaneous pegcetacoplan (1080 mg) or placebo twice weekly for a duration of 52 weeks. The primary efficacy endpoint is the difference in the Combined Assessment of Function and Survival (CAFS) ranked score at 52 weeks after treatment initiation. Additional, secondary functional efficacy (ALSFRS-R, percent SVC, muscle strength, quality of life, and caregiver burden) and safety endpoints will be analyzed at 52 weeks. After the placebo-controlled period, all patients will have the option to receive pegcetacoplan in an open-label period for an additional 52 weeks.
Results: This ongoing study is currently enrolling participants.
Conclusions: Results of this study will determine the role of complement and C3 inhibition in patients with ALS.

Key words: Clinical trials, neuroinflammation

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An artificial intelligence solution to detect and manage non-response to chronic-pain treatment

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Chronic Pain (CP) affects one in five people in developing countries, and is the most frequent reason motivating medical visits. Some CP types rank as the most common symptomatic diseases affecting humans worldwide (eg, tension-type headache), and the most common cause of years lived with disability (eg, low back pain). Despite the high costs related to the diagnosis and management of CP, up to 40% of patients remain symptomatic despite best medical therapy. The relative inefficiency of CP management stems from several causes, lack of good predictors of response to treatment being one of them. Inefficient prognostication leads to low response to treatment, high odds of side-effect and iatrogeny, especially in CP syndromes where lesion to somatic or neural tissues are not the driving mechanisms leading to pain (primary headaches, low-back pain, fibromyalgia).
We have developed an electronic medical record system specific for pain management and used it in 611 prospective patients addressed to our Institution. We then used structured and unstructured data from the first visit and used as an end-point of good outcome the two higher strata of the patients' Global Impression of Change score (very much and much improved) systematically collected at the last visit, which took place within 12 months from the first. By using state of art AI algorithms in an interpretable approach, we obtained a list of 12 highly predictable variables, which included pain in specific pain areas of the body, sex, pain pattern and temporal profile. Using these variables, and their complex relationship, we developed a machine learning model that predicted a good long-term outcome at the moment of the first visit, yielding a sensitivity and specificity of 0.69 and 0.73, respectively, with an

area under the curve of 0.71. When imputed with variables from the second visit, AUC numbers reached 0.85.

Business Model: given the challenges that health systems around the world are facing, the main target today is to make the shift from a pay-per-use mode to a value-based approach. This will bring the patient to the center of medical decisions. Chronic pain is an ideal scenario to test new strategies directed to these goals. In fact, our strategy allowed the identification of patients who would not respond to traditional therapeutic approaches before they were implemented, potentially saving time, resources and mitigating suffering. Public health systems and integrated health operators can be greatly benefited using this tool by increasing treatment effectiveness and reducing losses. Lower costs for all enables more people to access good health faster.

Market share: large health conglomerates with closed loops of care including diagnostic and health-care provider facilities using electronic data record systems.

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Impacts of the SARS-CoV-2 pandemic on the epidemiological profile of hospitalizations for stroke in Brazil

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Background: Due to the coronavirus pandemic, the fear of getting infected has caused case underreporting and reduced demand for medical care in urgent cases, which includes strokes - a major cause of death and hospitalization in Brazil.

Objective: Analyze the sociodemographic profile and the number of emergency hospitalizations for stroke from 2016 to 2020, the latter being the year in which the SARS-CoV-2 pandemic began.

Methods: This is an ecological study based on the database (DATASUS), published by the Ministry of Health (Brazil) and extracted from the Hospital Information System of the Unified Health System (SIH/SUS). It refers to hospitalizations for strokes, from 2016-2019, compared to the year 2020, in Brazil. We also analyzed the most prevalent group by sex and age group.

Results: 140.064 hospitalizations for stroke were registered in the year 2020. O the other hand, 160.816 occurred in 2019; 154.744 – 2018; 151.129 – 2017 and 145.944 in 2016. This demonstrates a typical pattern of hospitalizations with a tendency to rise, when compared from 2016 to 2019, dropping in 2020. Among the hospitalizations registered in 2020, 102.018 (72.84%) occurred in individuals over 60 years of age and 73.855 (52.73%) occurred in males. The same pattern was registered in previous years.

Conclusion: Thus, more studies need to be carried out to prove whether the decrease in hospitalizations was in fact due to a reduction in the demand for medical care, case underreporting or a real drop in the number of strokes.

MeSH terms: Stroke, hospitalization, SARS-COV-2.

Key words: Underreporting, urgency, internation.

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COVID-19 and neuroinvasion: a systematic review

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Background: Clinical practice throughout the pandemic has generated a debate about the existence of neurotropism and the neuropathogenic capacity of the new coronavirus. Medical professionals have noted that there is a wide spectrum of neurological manifestations associated with SARS-CoV-2 infections; from hyposmia to encephalopathy. The interaction of the viral protein spike (S) with the ACE2 gene present in endothelial and nerve cells and the cytokine storm triggered by COVID-19 are explanatory bases for a series of mechanisms proposed in recent literature.

Objectives: To establish a direct connection, or not, between neurological manifestations and SARS-CoV-2 infection.

Design and setting: Analysis of the current literature present in medical databases.

Methods: To select the studies, the Medline (Pubmed), LILACS and SciELO databases were used with the keywords "neurology" and "covid" and "mechanism". The search period for the articles covered the last 10 months (since June 2020). The selection and design criteria of the studies were descriptive, cross-sectional, cohort, case report and randomized clinical study.

Results: Thirty-eight articles with potential for inclusion were retrieved, but only seventeen of them declared no conflict of interest and answered the inclusion criteria and the guiding question, which consisted of assessing the association between neurological disorders and COVID-19.

Conclusion: Eight studies defend the indirect invasion, due to the imaging exams presenting an olfactory bulb without any alteration. Through infection of the endothelial cells, vascular alterations and wear of the BBB by the cytokine storm. In parallel, the other nine studies advocate direct invasion, where the virus infects the olfactory bulb and reaches the rhinencephalon and midbrain through the axons, generating, for example, the lack of symptoms in the so-called happy hypoxia of the coronavirus. Neuroinvasion in COVID-19 is still unclear, but hypotheses show 2 possible pathways for the virus to access the CNS: hematogenous and retrograde neuronal pathways. To elucidate these pathogenic pathways, larger and more systematic studies will be needed.

Systematic Review Registration: https://pubmed.ncbi.nlm.nih.gov/?term=neurology±and±covid±and±mechanism

Key words: SARS-CoV-2; infections; neurologicals; headache; cytokines; pathogeny.

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Sign of the unilateral "Coca-Cola Bottle": in addition to thyroid disease

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Background: The "Coca-Cola Bottle Sign" is a classic sign of thyroid diseases, especially Graves' disease, with the appearance of eye orbit muscles edema

seen by Magnetic Resonance Imaging. The belly of the muscle increases in thickness, giving the characteristic appearance. Despite being classically associated with this etiology, the finding may be present in other diseases, especially infiltrative ones.
Objectives: To demonstrate how this radiological signal can suggest other etiologies, when atypical.
Methods: Case report of a patient with an image finding suggestive of "Coca-Cola Bottle Sign".
Results: Patient, 71 years old, with Breast Cancer and Hepatic Metastasis, using Anastrazole. Osmophobia started and after 3 months, reduced visual acuity in the right eye, evolving in 20 days to amaurosis in the right eye, dizzying, and loss of visual acuity in the left eye. Upon examination, he had a missing direct pupillary reflex in the right eye and only light perception, and counting fingers in the left eye; paresis of the Superior Rectus, Medial, and Lower Oblique muscles of the Left Eye, with paresis maintained in the forced duction test. On ophthalmoscopy, he had atrophy of the retinal pigment epithelium in the bilateral periphery, without Papilledema. Metabolic screening did not show any relevant changes. In the Magnetic Resonance of Orbits, an intraconal nodular image was seen in the right orbital cavity, with perineuritis and extension to the belly of the lateral rectus muscle on this side, as the "Coca-Cola Bottle Sign". Due to unilateral muscle involvement and signs of meningeal involvement, lumbar puncture with cytopathological examination was requested, being positive for Carcinoma Metastasis.
Conclusions: The "Coca-Cola Bottle sign" is a classic sign of Graves' disease, however, some signs, such as, unilateral and single orbital musculature involvement, may be suggestive of involvement by other etiologies, suggesting the benefit of an early expanded investigation.

Mesh terms: Carcinomatoses, Meningeal; Disease, Graves; Orbital Implant.
Palavras-chave: Sinal da Garrafa de Coca-Cola; Perineurite; Osmofobia.

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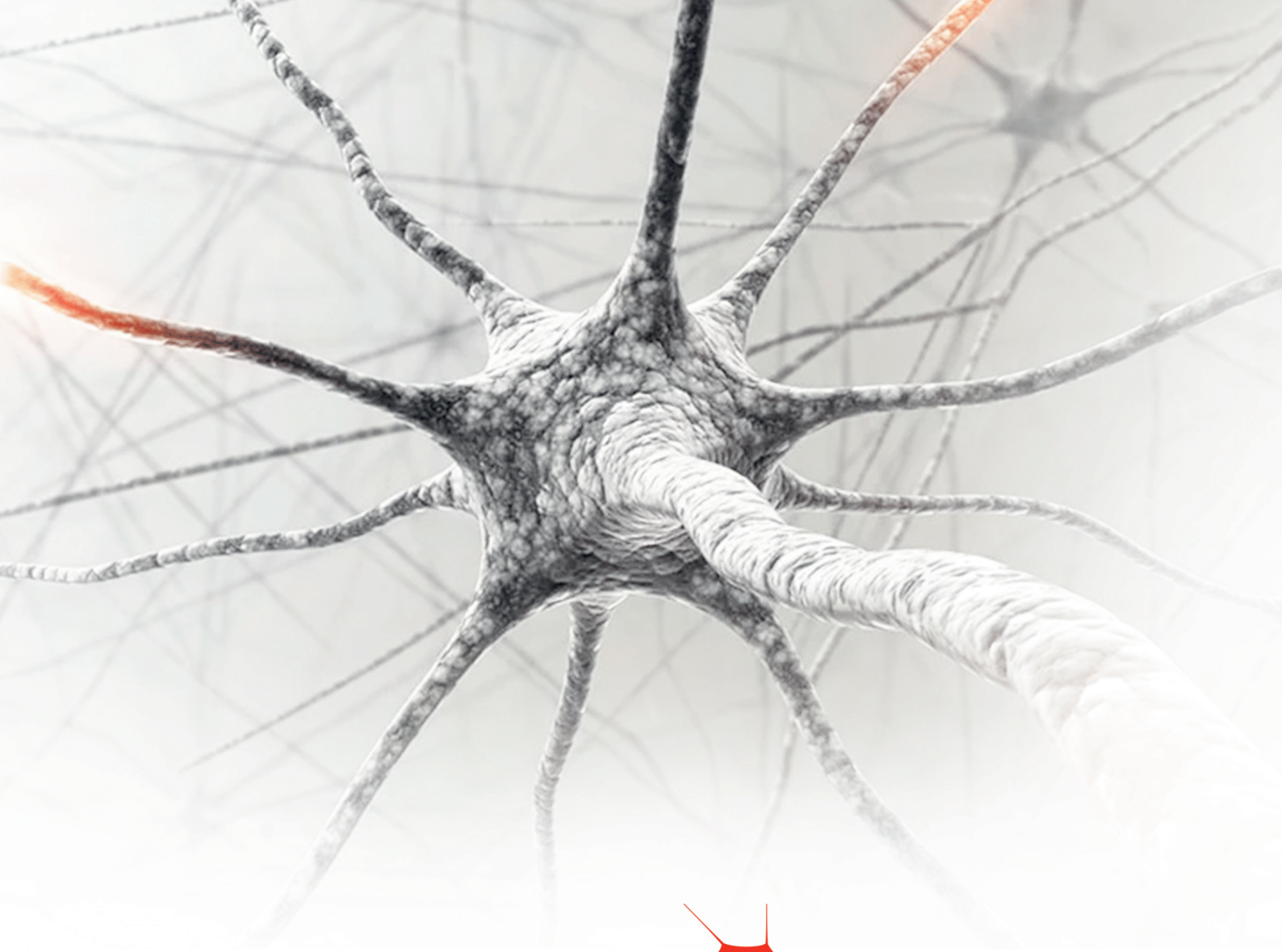

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