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Medical controversies and systematic reviews: the heat and the light

There are many ways to prove that doing a systematic review in order to acquire the best evidence to apply to medical practice is better than continuing to practice the old-fashioned way of preparing overviews, with no methods.

A systematic review implies the use of reproducible methods. It also implies the intention to prevent bias in the process of including and excluding the clinical trials for the statistical summary (meta-analysis), to establish criteria to include well-designed and well-conducted trials, and the intention to beat the publication bias phenomenon.

But imagine that someone , for instance, is interested in the effect of streptokinase on the mortality rate as a consequence of acute myocardial infarction. This was the case for Lau et al, 1992 (1). After a careful search for relevant trials in the literature, and submitting the trials that were found to the application of inclusion and exclusion criteria described in the publication, 33 trials were selected. Of these, five described significant reduction in mortality due to infarctions, but 28 did not. However, the typical odds ratio showed a significant mortality rate reduction that was already detectable in the cumulative odds ratio in the early 1970s, about 20 years before, Lau's systematic review.

Now suppose that a group of medical students, are sent to a good library to research the same question, and had enough skills to find the same 33 trials selected, using the criteria established in the systematic review. Each one may, depending on their particular skills and determinations, come up with 1,2,3,4,5,6, up to 33 trials, in combinations of 33 trials 2 by 2, 33 trials 3 by 3, 33 trials 4 by 4, and so on. At the end of the day they would be faced with **8,589,937,592** different sets of clinical trials, and of course, a great probability of different opinions. That is usually called medical controversy.

Thus it is my understanding that doing systematic reviews is a good way of precluding the heat of medical controversies, and to shed more light on improving the practice of medicine.

REFERENCE

1. Lau J, Antman EM, Jimenez-Silva J, Kupelnick B, Mosteller F, Chalmers TC. Cumulative meta-analysis of therapeutic trials for myocardial infarction. N Engl J Med 1992; 327:248-54.