Editorial

Gaps of perception on evidence and the role of systematic reviews in evidence-based medicine

Evidence is defined as “information indicating whether something is true or valid” by the Oxford Dictionary. It was found that 11% of 2500 treatments included in 'BMJ Clinical Evidence' demonstrated clear beneficial efficacy of an intervention, 23% demonstrated that the intervention was likely to be beneficial, and half of the interventions had unknown efficacy. These information show many treatments with no clear efficacy are using in clinical practices in both conventional and complementary medicines. The gaps exist between clinical practice and the status of current evidence mostly because of lack of rigorous studies.

Clinical practitioners often recognize that the patients' perceptions on the effects of treatments are very different from theirs. For example, although practitioners perceive improvements of patient's symptoms after treatments, patients often complain about other problems and continue to think that their symptoms have not changed. This gap may arise from the insufficient interaction or communication between patients and their physicians. A similar gap was addressed in the perception on evidence for choosing the treatments for their symptoms improvement between patients and practitioner or medical scientists. According to an evidence pyramid of patients’ perspectives, the highest level of valid evidence is considered to be their “gut feeling” and the lowest to be “scientific evidence”. This is completely reverse pyramid of evidence hierarchy in general.

Systematic reviews (SRs) are the highest level of evidence in general evidence hierarchy. “A systematic review is a scientific investigation that focuses on a specific question and uses explicit, prespecified scientific methods to identify, select, assess, and summarize the findings of similar but separate studies. It may include a quantitative synthesis (meta-analysis).” When appropriate, combining the results of several studies provides a more reliable and precise estimate of an intervention's effectiveness, compared to one study, alone. SRs adhere to a strict scientific design that is based on explicit, pre-specified, and reproducible methods. They can be conducted to investigate therapies, diagnostic, prognostic, etiological, economic, and qualitative studies, as well as other SRs. If performed rigorously, they can provide the most reliable evidence available. However, this is not to say that they are without limitations. The most important limitation is that they are retrospective and are a secondary analysis. Their quality is also limited by that of primary studies that they investigate.

In evidence-based medicine (EBM), the SR provides the best available evidence and is combined with practitioners' clinical experiences and patients' values or preferences. One of the misunderstandings regarding SRs is that the evidence that is presented is equivalent to EBM. In clinical practice, evidence is one of three parts of the decision-making process. When we develop clinical practice guidelines (CPGs), we use the evidence from SRs and evaluation of the quality of evidence through the Grading of Recommendations Assessment, Development and Evaluation (GRADE). Interventions with a low level of evidence because of a small number of rigorous studies that support them can be recommended expert opinions and patients' values can be applied as part of EBM process. Some interventions cannot be recommended because of the harm or other healthcare issues that they cause. Therefore, the use of evidence from SRs is only one of the processes in EBM.

There are several important roles of SRs in establishing the evidence and contribution to improving health care. First, they pool previous trials and summarize the current evidence and help to develop rigorous clinical trial protocols. It will improve the level of evidence by reporting on the results from those clinical trials. Secondly, SRs contribute to develop credible CPGs with trustworthy evidence. Thirdly, SRs can contribute to reduce research waste. According to the REWORK alliance (http://rewardalliance.net/), 85% of current research and development processes are composed of research waste. Therefore, there needs to be a more careful study of the available evidence, especially through SRs, before starting studies. A recent article says, “To meet the needs of patients, clinicians, and policy makers, unnecessary trials need to be reduced, and systematic reviews need to be prioritized.”

It is vital to remember one of the roles of SRs in EBM is to improve the quality of evidence and to apply the findings to develop trustworthy CPG and healthcare policies.

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References

1. Compact Oxford dictionary & thesaurus. 3rd ed. Oxford: Oxford University Press; 2009.
2. BMJ Clinical Evidence. How BMJ Clinical Evidence works. Handbook of BMJ Clinical Evidence. London: BMJ; 2015.
3. Verhoef MJ, Mulkins A, Carlson LE, Hilsden RJ, Kania A. Assessing the role of evidence in patients’ evaluation of complementary therapies: a quality study. Integr Cancer Ther 2007;6:345–53.
4. Institute of Medicine (U.S.). Committee on Standards for Systematic Reviews of Comparative Effectiveness Research. Finding what works in health care: standards for systematic reviews. Washington, DC: National Academies Press; 2011.
5. Green S, Higgins JPT, Alderson P, Clarke M, Mulrow CD, Oxman AD. Introduction. In: Higgins JPT, Green S, editors. Cochrane handbook for systematic reviews of interventions version 5.10. The Cochrane Collaboration; 2011. Available from www.cochrane-handbook.org [chapter 1, updated March 2011].
6. Straus SE, Glasziou P, Richardson WS, Haynes RB. Evidence-based medicine. Edinburgh: Elsevier; 2019.
7. Institute of Medicine (U.S.). Committee on Standards for Developing Trustworthy Clinical Practice Guidelines. Clinical practice guidelines we can trust. Washington, DC: National Academies Press; 2011.
8. Chalmers I, Glasziou P. Avoidable waste in the production and reporting of research evidence. Lancet 2009;374:86–9.
9. Bastian H, Glasziou P, Chalmers I. Seventy-five trials and eleven systematic reviews a day: how will we ever keep up? PLoS Med 2010;7:e1000326.

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