

Evidence-Based Medicine

K H Lee

What is evidence-based medicine (EBM) and does it matter in today's medicine (where the economical and political aspects are in the ascendancy)? EBM is the conscientious and judicious use of current best evidence from clinical care research in the management of individual patients. This means that our final clinical decision and recommendation is a combination of research evidence, clinical expertise and patient preference⁽¹⁾. Research evidence per se is not EBM – it is the evidence part of EBM while the other components make up the other part of the important “medicine” element.

Research evidence is graded according to the rigorous nature of the study design and hence, the validity of their conclusions. The most rigorous study design is the randomised prospective doubleblind trial which appears to be the norm these days for new drugs. This is called Class I evidence. It has contributed valuable information to clinical practice and has significantly altered certain practices like the use of thrombolytic agents in acute myocardial infarction⁽²⁾. Other studies are regarded as lower levels of evidence, as the study designs allowed greater potential for bias. In this respect, a case control study is called Class II evidence and a case series without control is considered the lowest level of evidence.

Evidence as such is presented in an open and evaluable form, distinct from intuition, unsystematic clinical experience and pathophysiologic rationale⁽³⁾. This is not to say that the elements of intuition and so forth are not important in making the final clinical decision. Rather, one recognises that the confidence of providing a certain statement is different depending on the level of evidence. For instance, one can categorically recommend the use of ACE inhibitors for severe heart failure⁽⁴⁾ and tell the patient that his outcome will be significantly improved. The prescription of antibiotics for all and sundry with sore throat however is not based on any research evidence, and instead represents a call towards pragmatic medicine in the marketplace. The role of clinical expertise rests on how to apply the evidence. Some studies would exclude certain high risk groups of patients because they are too young, too old or pregnant, for instance. We need to recognise that the data therefore is not available for such groups, and substitute our clinical expertise to finally decide on the treatment plan. As such, clinical expertise is a vital part of EBM or evidence-based healthcare.

Take for example, the clinical situation whether to start warfarin on an 80-year-old lady with lone atrial fibrillation who lives alone and is house-bound. The risk of complications along with compliance and monitoring issues, probably outweighs the benefit of stroke reduction. This is evidence-based healthcare at work. We begin with the evidence about stroke risk reduction with warfarin for lone atrial fibrillation as demonstrated by previous clinical trials⁽⁵⁾, but then one may make a conscious decision not to initiate such therapy because our clinical opinion is that she is unlikely to benefit from such proven therapy because of other extenuating factors.

Obtaining research evidence and evaluating their worth and applicability is obviously very time consuming. For the general practitioner who faces numerous problems, the ability to research every single piece of advice is an impossibility no matter how hard he tries. Fortunately, there are currently various publications that try to address this problem, and provide short articles that distil the vital elements to the busy practitioner. These publications include the ACP Journal Club and the Evidence-Based Medicine Journal. The Cochrane collaboration is an Oxford-based effort to internationalise such efforts at evaluating relevant data that allows practice recommendations to be disseminated. Their recommendations are available on CD-ROM and partially on the internet at this moment. Having CME programmes may also help educate and update such busy practitioners. Ultimately, however, the profession has to decide who is to be responsible for disseminating the knowledge, and ensuring that the knowledge is used. This is an issue of quality of care that has to be addressed in the local medical scene.

The medical students and the medical trainees will also require education in defining a patient problem, proficiently searching, critically appraising, and sensibly applying relevant information from the literature. Textbook medicine without further evaluation has to be discouraged. Critical appraisal has to be instilled and appropriate role models are required if we believe in the benefits of EBM⁽⁶⁾.

The assumption has been made that the practice of EBM will be beneficial. This assumption in itself goes against the ethos of EBM, which is to substantiate any such claims of benefit in an objective fashion. Hence, more studies are required to study the impact of EBM on clinical outcomes, although the evangelists will claim that the past is anachronistic

Department of Medicine
National University Hospital
5 Lower Kent Ridge Road
Singapore 119074

K H Lee, MBBCHIR, MRCP,
FAMS
Senior Lecturer

The detractors would also claim that EBM is not possible as most of our practice does not have any such research evidence backing and in fact, it was claimed that only about 15% of medical interventions are supported by solid scientific evidence⁽⁶⁾. However, a review of inpatient general medicine in Oxford found that out of 109 primary treatments (eg COPD, asthma, AMIs, etc.), 82% were evidence-based⁽⁷⁾.

To me, the path for the clinician is to listen to the patient and evaluate their needs. Then, with the fullbacking of the science of medicine and your clinical experience, decide on an individualised treatment strategy. Continue to monitor the patient's response and adjust one's therapy accordingly. Interestingly, the Hippocratic canon has espoused a similar approach to medicine: "The growth of plants forms an excellent parallel to the study of medicine. Our characters resemble the soil, our masters' precepts the seed; education is the sowing of the seed in season and the circumstances of teaching resemble the climactic conditions that control the growth of plants. Industrious toil and the passage of time strengthen the plant and bring it to maturity." Thus, one needs to be humble to learn, and medicine will never cease to be a wonderful teacher about human nature and biology.

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