



Evidence-Based Medicine in Endocrinology: The Path to the Future- Review Article

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(Received 11 Oct 2013; accepted 22 Feb 2014)

Abstract

Evidence-based medicine is becoming an important s of human life span, which crucial developmental processes occur. Since peers play a critical role in the psychosocial development of most adolescents, peer education is currently considered as a health promotion strategy in adolescents. Peer education is defined as a system of delivering knowledge that improves social learning and provides psychosocial support. As identifying the outcomes of different educational approaches will be beneficial in choosing the most effective programs for training adolescents. The present article reviewed the impact of the peer education approach on adolescents. In this review, databases such as PubMed, EMBASE, ISI, and Iranian databases, from 1999 to 2013, were searched using a number of keywords. Peer education is an effective tool for promoting healthy behaviors among adolescents. The development of this social process depends on the settings, context, and the values and expectations of the participants. Designing such programs requires proper preparation, training, supervision, and evaluation.

Keywords: Evidence-based medicine, Endocrinology, Evidence, Critical appraisal, Clinical decision making

Introduction

Evidence-based medicine (EBM) as a developing field of medicine has several definitions. Each of them emphasizes on particular aspects of the practice (1). However, all definitions have something in common which defines the branch of science as the process of systematically finding; appraising and using contemporaneous research findings as the basis for clinical decisions (2).

The practical implication of EBM can be defined as the conscientious and judicious application of the best available evidence from clinical care research to making clinical decisions (3). In the other words, the practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research (3) which is essential to con-

sider the patient's values and preferences along with understanding the context of the individual patient in order to make sound evidence-based decisions.

The philosophy of EBM which is essentially related to the search and the critical appraisal of evidence cover various medical fields including medical education, health policy and different health interventions evaluation (4). It should be noted that EBM is principally about thinking and using information and technology is just used as a kind of supporting tool. In this manner, changes in thinking (not text books) affect the medical practice (5).

Therefore, EBM can be considered as a novel method in clinical practice of medicine (6) and

endocrinology (7–9). This review article aims to describe and discuss the applications of Evidence-based Medicine in Endocrinology.

History of evidence-based medicine

A group of investigators from McMaster's University reported the term of Evidence-based medicine for the first time during the 1990s. It became established in the global medical community at same time. It should be noted that technology has had a great role in the advancement of EBM (10). EBM as a new era in medicine was the subject if series of articles in the Journal of American Medical Association (JAMA) (11). After wards new journals such as Evidence-Based Medicine, Evidence-Based Cardiovascular Medicine, the ACP Journal Club (American College of Physician' Journal Club), Evidence-Based Nursing, and Evidence-based Mental Health has launched. Then EBM applied to subspecialty fields of medicine including Family Medicine, clinical practice clinical care medicine, surgery, cardiology, and endocrinology and so on (12-19) .

Nowadays EBM introduced as a valuable mechanism for improving quality of care and reducing medical errors in field of clinical practice (20).

Evidence Based Endocrinology helps Endocrinologists keep up to date

Endocrinologists encounter many endocrine-related articles every day which cause a serious problem in being up to date and decision making. Additionally, a section of the literature possibly will not include critical evidence applicable to the practice. Regarding to the fact that reading article related to the ease of access (for instances journals belong to the specialty society or articles with full content on the Internet) more than articles validity and reliability, it seems that finding valid and relevant evidence is an important step for endocrinologists to keep them up to date.

Preparing Future Generations of Evidence-Based Endocrinologists

Evidence-based medicine (EBM) has now been integrated as a fundamental part of medical curriculum which expected cause to improve quality

of health care (21). Physician frequently seeks advice from non-evidence-based sources (22, 23), and reveal wide practice variations (24).

Although recommendation of identify, appraise, and apply the best evidence in patient care could be ideal, physician should be encouraged the use this method to answer their clinical questions (25, 26). According to traditional model of continuing medical education (CME) (27, 28), universities of medical sciences along with professional organizations are asked to increased EBM training in medical education.

Nowadays it would be recommended that EBM implemented in Health care provider Education in all residency and fellowship programs (29) such as Internal Medicine and Medical Specialties. For instance the American Boards of Internal Medicine (ABIM) and Medical Specialties notice to the acquisition on self-directed, practice-based learning, in their certification (30).

The subspecialties of internal medicine education program in form of curriculum related to EBM (31), provided three dimension including Educational program (general), Medical informatics and decision-making skills and Research. In this way it is expected that endocrinology fellows “investigate and evaluate the patient care practices, appraise and assimilate scientific evidence, and finally improve the quality of patient care.”

Although there are different method to integrate EBM in endocrinology subspecialty education pogram, it would be recommended that in order to teach EBM, teachers should focus on the fellow's temporary learning schedule which is based on information needs, make a question, search for evidence, or consider the evidence in decision making as well as follows:

ASKING Fruitful Clinical Questions

Faculty members must use maximally from every moment to highlight clinical questions when uncertainty occur during fellows' presentations. They not only must aware of unrecognized information needs, but also help fellows in specify the type (background vs. foreground) and the clinical task after identification of question. In this step fellow

should identify, classify, and reformulate a clinical question

ACQUIRING the Evidence

Fellow with the help of attending should match the need with the source through selecting secondary evidence-based information resources at first.

Faculty member could guide fellows by use of educational prescriptions to teach aspects of evidence-based decision making. Moreover an assignment such as portfolio in order to seek “the evidence” could be useful because the collected information in form of portfolio offer documentation of the Practice-based learning.

Applying the Evidence

Make use of the “EBM moment” to help fellows integrate the evidence into the practice could be a kind of art of the faculties.

The importance of customizing the evidence should be emphasized by faculty members since the hospitalized patient usually does not look a lot like the patients in the available study.

Regarding make a best decision, fellows must consider the evidence with other considerations; consist of clinical circumstances and the patient’s preferences (32).

Evaluation

Programs will continue to evaluate fellows’ practice in evidence based learning. In this case Portfolios as an assessment tool provide document related to the EBM performance. In addition faculty member by reviewing all these steps could be provided formative feedback.

Finding Current Best Evidence in Endocrinology

There are many different resources for finding best evidence of endocrine disorders (33). Clinicians not only face to countless resources but also most of them claim to be “evidence based”.

The accessibility to the various evidence-based resources indicates that clinicians be required to distinguish the best evidences and use of them accordingly.

So emphasizing on helpful resources in endocrinology practice could be one way to solve this problem in endocrinology field.

Recently “5S” approach including studies, syntheses, synopses, summaries, and systems recommended helping endocrinology practitioners to assemble and organize evidence-based library (34).

Studies

Searching the original studies is the final step where searches in systems, synopses, or syntheses fail. Original studies can be found in several ways. Some web-based services are used to evidence-based principles. The Medline clinical queries screen (www.ncbi.nlm.nih.gov/entrez/query/static/clinical.html) should be recommended since present search strategies which help to find clinically relevant.

Syntheses

Whenever we need more detail, a database of systematic reviews (“syntheses”) could be useful. Some databases in this field are the Cochrane Library (www.thecochranelibrary.com), Knowledge Finder (www.kfinder.com), and Ovid’s Evidence-Based Medicine Reviews Service.

Synopses

Synopsis of a systematic review or an individual study could be the next step if there is not any answer for a clinical question in the current evidence-based information systems. There are several synopses which present evidence as follows:

- *ACP Journal Club* (www.acpjournals.org)
- *Evidence-Based Medicine* (ebm.bmjournals.com)
- *Evidence-Based Obstetrics and Gynecology* (www.elsevier.com/wps/find/journaldescription.cws_home/623029/description#description)
- *Bandolier* (www.ebandolier.com)
- *POEMs* (www.infopoems.com)

Summaries

Summaries integrate best available evidence to make available a full variety of evidence regarding management options for an endocrinology problem. Evidence Based Textbook could be an example in this area.

Systems

An integrated decision-support system as one ideal and more compiled system could summarize evidence in field of endocrinology and link to the specific patient's problems. Electronic medical record systems and several web-based search engines could be evidence sources in this field (35).

Conclusion

Evidence-based medicine (EBM) is the formal practice of making decisions about the best treatment option based on a systematic and multifaceted approach to the existing research evidence. Currently, there exist many different resources for valid evidence in endocrine disorders and clinicians should be encouraged to apply the best evidences they can find in the literature and practice them accordingly.

Ethical considerations

Ethical issues (Including plagiarism, Informed Consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc) have been completely observed by the authors.

Acknowledgements

The authors declare that there is no conflict of interest.

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