

The Challenges in Practice of Evidence Based Medicine

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Received date: September 11, 2017; Accepted date: September 11, 2017; Published date: September 18, 2017

Citation: Mallidi JR (2017) The Challenges in Practice of Evidence Based Medicine. J Circ. Vol.1 No.1:2

Introduction

Evidence based medicine (EBM) is defined as “the conscientious and judicious application of the best available scientific knowledge and evidence to improve the well-being of individual patients” [1]. Since the introduction of the term in 1990 by David M Eddy in an article in The Journal of American Medical Association (JAMA) [2], the field of cardiovascular diseases (CVD) has been in the forefront in propagating and integrating EBM into daily clinical practice. This is predominantly due to the fact that CVD is the number one cause of mortality globally [3] and a vast number of clinical trials involving large CVD patient populations have been conducted.

The five basic components of EBM include converting the need for information about prevention, causation, diagnosis, therapy or prognosis into an answerable question; tracking the best available evidence to answer the question; critically appraising the evidence for validity, impact and applicability; integrating the critical appraisal with clinical expertise and personalizing it to a patient’s unique biology and preferences; and finally constantly evaluating the effectiveness and efficiency of the above steps to seek ways to improve the process [4]. In United States, EBM is utilized in multiple ways by insurance payers, policy makers, legislators and guideline making societies [5]. Despite this push by various organizations, for clinicians on an everyday basis, practicing and implementing EBM is a daunting and overwhelming task [5]. For example, several randomized trials have proved that fractional flow reserve (FFR) as an adjunct to coronary angiography should guide revascularization of intermediate coronary artery lesions [6,7]. However, despite well-established evidence, physiological lesion assessment in the cardiac catheterization laboratory is underused. In an analysis of 61, 874 coronary interventions of intermediate stenosis from the Cath PCI registry, FFR was used only in 6.1% of the cases [8].

The following are some common barriers to the practice of EBM in daily clinical practice [9]:

Time constraints

Physicians are pressurized to see more patients and work long hours due to declining reimbursements. Most physicians base their decisions on personal experiences and what they learned in their residency and fellowship. However, medical knowledge, especially in the field of cardiology is rapidly expanding and

practice guidelines are being constantly updated. What is learned years ago in training may be obsolete in practice. For example, in the year 2016, there were 57 key cardiology clinical trials which had a direct impact on everyday clinical decision making [10]. To keep up with this burgeoning information, physicians need to make a conscientious effort to seek information and self-educate themselves outside their busy work schedules. Sometimes, the time constraints are so powerful that even the knowledge of the available evidence is not enough to provide the best care to the patient. One of the reasons FFR of intermediate lesions is still not universally adopted into everyday routine of catheterization laboratories despite well-established evidence, is the additional time required to do it [11]. Resting indices of physiological assessment are now being developed to obviate the need for hyperemia, reduce the time for physiological assessment and hence promote the routine use of physiologically guided revascularization [11].

Lack of free access to all available information

Physicians without an association with a university or a teaching hospital, currently have no free or reasonably priced service to access a comprehensive database of full text research articles and journals. Membership access to educational resources such as ACCEL (Audio Journal of American College of Cardiology) costs several hundreds of dollars every year. Unless sponsored by pharmaceutical companies, registration and travel to the international conferences to keep oneself updated is also every expensive.

Integrating patients values

A common challenge in everyday cardiology practice is dealing with patient’s perceptions and values in taking medications. We often see this when prescribing statins [9]. Despite explaining the evidence that statins prevent future heart attacks and cardiovascular death, some patients are reluctant to even try taking statins because of their own perceptions about their health, fear of side effects or belief in naturopathic medications. At this point, it is unclear as to how to integrate these values into the practice of EBM and communicate effectively with patients to improve satisfaction, compliance and outcomes [9].

Financial barriers

Many medications proved to be effective by quality clinical research are expensive and are not universally available, especially to patients without medical insurance. Examples of such drugs in cardiology include-Ticagrelor, Prasugrel, Entresto and all the new anticoagulant agents (NOACs). Every day a considerable time is spent in the clinic, dealing with the insurance companies and getting paper work filled out for prior authorizations for these drugs.

Conclusion

In summary, there are practical barriers for physicians to practice EBM and deliver the best care for their patients. While there are several organizational and institutional support tools to learn, promote, overcome the above barriers and practice EBM, the responsibility to seek out those resources falls on the clinician. This undoubtedly requires an additional deliberate, conscientious effort and time on part of busy clinicians. The Journal of Circulation aims to publish high quality, peer reviewed original research pertaining to the field of cardiovascular diseases. In our own small way, being an open access journal with free world wide access to all the articles in our journal, we hope to advance and promote the practice of EBM in daily cardiology practice.

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