Utility of Evidence-Based Medicine in the Medical Profession

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I am an allopathic physician who taught evidence-based medicine (EBM) for many years and recently joined the faculty of an osteopathic medical school. I was curious about osteopathic perspectives on EBM and was delighted to find a letter to the editor[1] by Jay B. Danto, DO, and a number of other EBM-related editorials published in *The Journal of the American Osteopathic Association (JAOA)*.

Danto wrote in his letter that Allen Shaughnessy, PharmD, "a US leader in evidence-based medicine,"[1] concluded that lifestyle interventions do not decrease adverse clinical outcomes in patients with or at high risk for type 2 diabetes mellitus. In part, this conclusion led Danto to suspect that EBM may "not [be] entirely concurrent with osteopathic philosophy"[1] because osteopathic philosophy emphasizes optimum health as a central theme rather than disease management. Offering further support for his suspicion, Danto wrote that if the empirical evidence "does not show how an intervention can prolong life or decrease morbidity or mortality, then the evidence base does not support its [intervention's] use."[1]

I do not believe Danto's concern about the concurrency and compatibility of EBM practice with osteopathic philosophy is warranted. Shaughnessy did not say that lifestyle modifications should not be used at all; he said that no evidence exists to support its use specifically for the purpose of limiting adverse clinical outcomes in patients with or at high risk for type 2 diabetes. Lifestyle modifications might and probably would positively contribute to the realization of optimal health. Although the Shaughnessy POEM (Patient Oriented Evidence that Matters) did not address this issue, nothing inherent to the practice of EBM prevents him or others from applying standard EBM principles to do so. Thus, no discernable incompatibility exists between EBM practice and osteopathic philosophy.

Perceived Flaws of EBM

In the November 2014 issue of the *JAOA*,[2] Jonathon D. Parker, DO, MS, outlined 5 themes of the perceived flaws of EBM previously identified by Cohen and Hersh.[3] These themes are identified in the following paragraphs, along with my commentary.

1. The philosophical underpinnings of EBM, which is based on empiricism, are problematic.

Although empiricism (ie, the doctrine that all knowledge is derived from sense experience) is not the only path to knowledge, EBM and POEMs (ie, EBM's most clinically relevant offshoot) apply knowledge and evidence that produces outcomes. If a medical outcome is not "sensed" in some way by our patients or recognized through laboratory evaluations, it should be questioned along with the practical value of the knowledge that produced it. Thus, given the goals of EBM, it seems antithetical to criticize its empiric basis.

2. The definition of evidence within EBM is narrow and excludes information important to clinical decision making.

Rather than excluding evidence or information, EBM provides methods (eg, SORT [Strength of Recommendation Taxonomy]) to assess the likely validity, importance, and applicability of any form of evidence. Thus, a decision based on evidence that is judged to be of potentially lower quality can be recognized as such and appropriately adjusted as newer, better, and more trustworthy evidence becomes available.

3. Evidence-based medicine is not "evidence-based" because it does not meet its own empirical tests for efficacy.

Clinicians should use EBM to guide patient care strategies for which the best evidence of effectiveness exists. The philosophical underpinnings of EBM lead us to accept the notion that the

universe works in predictable ways according to underlying laws (eg, gravity, motion). If a stimulus produces the same outcome when applied in controlled circumstances, the same outcome will likely occur in the future if that stimulus is similarly applied.

4. The usefulness of applying EBM to the individual patient is limited.

Parker argues that "The real divide between osteopathic philosophy and EBM is statistics. Evidence-based medicine is a population-based, mathematical approach to patient care in contrast to a patient-based approach."[2] Indeed, EBM information is population-based, but it also provides techniques that can adjust population-based information to better predict patient outcomes for those whose baseline characteristics (eg, degrees of risk, values) differ from those of the research participants.[4] Likewise, EBM sources specifically describe the performance and value of "n-of-1" studies[4] for circumstances in which population-based information is lacking. Finally, the standard approach to medical practice requires the application of population-based information to individual patients. If each patient is so unique that population-based information cannot be applied, how would a physician be able to identify normal vs abnormal? How would we as physicians defend our rationale for trying it in any patient?

5. Evidence-based medicine has been criticized for reducing the autonomy of the patient-physician relationship by limiting patients' rights to choose what is best in their individual circumstances.

The autonomy of the patient-physician relationship has never been questioned in any EBM source I have seen. In fact, Straus et al ask, "What are our patient's values and expectations for both the outcome we are trying to prevent and the treatment we are offering?"[4] and "How can we incorporate these into a treatment recommendation?"[4] Asking these questions would not reduce patient autonomy but rather would formally include patients in decision making. It is clear to me that evidence will be used and autonomy will be limited by government agencies or third-party payers by means of reimbursement strategies, but to a certain extent, the restrictions put on treatment decisions should be welcomed because we have all seen examples of wasteful medicine (ie, administering diagnostic testing or treatment for which indications are sketchy or altogether nonexistent). Of course, physicians will debate where the line separating the useful from the useless should be drawn, and we must keep a vigilant eye out for misapplications of EBM principles.

Conclusion

About 25 years ago, the phrase and practice of "evidence-based medicine" arrived on the medical scene,[5] and it has been a lightning rod for skepticism and criticism ever since. On the one hand, we welcome skepticism and critical evaluation because it is a key component of practicing EBM. On the other hand, I have never been challenged to justify the practice of treating patients using the best empirical evidence of efficacy—especially when that treatment mirrors their personal desires and wishes. (doi:10.7556/jaoa.2015.133)

References

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