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EDITORIAL COMMENTARY

Opinion-Based Recommendations: Beware the Tyranny of Experts

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Numerous randomized controlled trials (RCTs) have established that 4–8 days of antibiotic therapy is as effective as longer courses for patients with various infections caused by gram-negative bacilli [1–14]. These infections include complicated urinary tract infections (cUTIs) [1–8], complicated intra-abdominal infections (cIAIs) [9, 10], ventilator-associated pneumonia [11, 12], and gram-negative bacteremia irrespective of source [13, 14]. Similarly, RCTs have demonstrated that oral antibiotics are as effective as intravenous therapy for the same infections, including cUTIs [15–18], cIAIs [19–23], and gram-negative bacteremia irrespective of source [24–26]. Of course, no group of RCTs can possibly encompass every patient variation, which always leaves questions regarding how well the data extrapolate to some patients in real-world settings.

In this context, Heil et al invited a panel of primarily academic infectious diseases physicians and pharmacists to discuss a series of questions about their opinions regarding treatment of gram-negative bacteremia [27]. Based on interactive dialogue, the experts achieved consensus on how to define the term "uncomplicated gram-negative bacteremia," which was intended to guide treatment decisions, such as duration of therapy, use of oral agents, and need for repeat blood cultures.

A strength of the approach is the acknowledgment of controversy where it existed, for example regarding what type of immunocompromise or which species of bacteria, if any, should make a case of bacteremia complicated rather than uncomplicated. Another strength is their resulting consensus that 7 days of antibiotic therapy and oral therapy are generally appropriate for gram-negative bacteremia, which is concordant with the multiple RCTs cited above that have addressed these questions.

Yet, there are also concerns with the approach. For example, the extensive body of RCTs demonstrating that short-course therapy and oral antibiotics are effective for gram-negative bacteremia had specific enrollment criteria, which already define the populations studied. Thus, it is not clear why the term "uncomplicated bacteremia" needs to be separately defined per se, or how it would be useful to determine how to treat patients with gram-negative bacteremia. Indeed, 3 RCTs and a quasi-experimental study have demonstrated that oral antibiotic therapy is at least as effective as intravenous therapy for bacterial endocarditis, which is the most complicated of all forms of bacteremia [28]. So, why should the term "uncomplicated bacteremia" be needed to define treatment parameters? Rather than creating a consensus definition of this term, elucidating for practitioners the nature of the patients enrolled in the relevant RCTs, and thoughtfully discussing the pros and cons of extrapolating therapeutic concepts beyond those limits, might be a helpful process.

Another limitation of the approach was the lack of inclusion of a more diverse panel [29], to include experts of other specialties, and perhaps more importantly, primary physicians (eg, hospitalists, critical care physicians), who provide the majority of care in health systems. It is common for experts of different specialties to have differing views on optimal care. This is particularly true for primary physicians, who are responsible for making care decisions for the benefit of the entire patient (rather than just the one problem that a subspecialist consults on), and integrate recommendations from across multiple consulting services, which sometimes conflict. Furthermore, many physicians, allied health professionals, and other health care providers work in environments very different than highly resourced, quaternary care, academic medical centers. Optimal health care decision-making may differ across care environments in ways not accounted

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for when limited, academic expert panels are established by invitation due to their social connectedness in specialty societies. Our experience in the Los Angeles County Department of Health Services is that treatment paradigms are best optimized when both primary and specialty physicians work together to establish care pathways, or "expected practices" [30].

Despite controversy on several topics as delineated above, the group was able to continue rounds of questioning until "consensus" was achieved, which is often a goal of guidelines and guidances. Achieving consensus provides a sense of comfort about conclusions drawn. Yet, the cost of this comfort is that the consensus may be somewhat artificial and may mask important and legitimate divergences in opinions on unsettled matters, which can in turn create an artificial sense of standard of care where no standard of care should exist. Former UK Prime Minister Margaret Thatcher summarized the risks of consensus approaches when she observed that "consensus seems to be the process of abandoning all beliefs, principles, values and policies. It is something in which no one believes and to which no one objects" [31].

It is uncomfortable for clinicians to admit when equipoise remains because it leaves practitioners uncertain what course to take. There may also be an ego risk to the expert, who may be confronted by the fact that despite their expertise, they are not the sole possessor of truth, and other qualified experts may not concur. Yet, acknowledging this uncertainty is critical to avoiding mistakes of the past in medicine, where the tyranny of experts has resulted in harmful care becoming standard.

Indeed, expert opinion can be much more dangerous than the opinion of nonexperts, because harmful practices may and have propagated for generations due to the eminence of their expert advocates. Examples from the annals of medical history include centuries of use of poisonous mercury and bleeding patients to release harmful humors. Even in the modern era, expert opinion has led to society-wide adoption of practices that subsequent controlled investigations found were incredibly harmful or wasteful (eg, hormone replacement therapy for postmenopausal women, various aspects of sepsis care, perioperative β-blockade, hemoglobin targets for transfusion or erythropoietin, vancomycin target dosing) [32, 33].

Thus, no matter how strongly beliefs are held, or how august the experts' academic statuses are, opinions absent high-quality, prospective, controlled data should never be used to set standards of care. Opinions are just that: a description of what people think in the absence of appropriate data. It is absolutely reasonable that such opinions inform clinical thinking by nonexperts. But those opinions, absent high-quality confirmatory data, should not create standards of care that constrain, bind, or coerce providers to do what the experts say should be done based on the "because we said so" level of evidence. And it is all the more important when expert opinions diverge to describe the nature of the divergence (eg, how many or what proportion of experts disagreed, and what was the nature of the disagreement?).

In the case of gram-negative bacteremia, irrespective of whatever opinions exist, and irrespective of expert consensus, numerous RCTs have unanimously demonstrated that short-course and oral antibiotic regimens are as effective as longer and intravenous courses of therapy (including for cUTIs, cIAIs, and other sources). Thus, the role of the expert is really to educate and remind the primary physicians of the data establishing these 2 demonstrated standards of care, and about the limits of those data, whatever they may be.

Experts should always be very careful to distinguish what is known to be established from reproducibly concordant, carefully controlled, prospective investigations, versus what is not and is solely based on their opinions [33]. And when based solely on opinions, irrespective of consensus, a safer, humbler approach than making explicit recommendations is to discuss the pros and cons of care options so that primary physicians can make better informed choices for their patients [33].

Notes

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