Telephone Consultation for *Staphylococcus aureus* Bacteremia: Opening Pandora’s Box

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(See the Major Article by Forsblom et al on pages 527–35.)

An unsolicited call from a physician seeking advice about the management of a complicated condition such as *Staphylococcus aureus* bacteremia (SAB) is sometimes analogous to opening Pandora’s box. As soon as the conversation begins, troubles related to incorrect information, misstated facts and other misunderstandings figuratively “fly out.” Too often such discussions include preliminary, second-hand, incomplete or incorrect information. Surprisingly, the impact of telephone consultations on patient outcomes has received little scientific scrutiny. The study by Forsblom et al in this issue of Clinical Infectious Diseases is an important attempt to remedy this gap [1].

Forsblom et al retrospectively compared the relative effectiveness of bedside consultation with informal (mostly telephone) consultation for patients with SAB. Bedside infectious disease (ID) consultation was associated with more radiologic imaging, more frequent identification of focal infections, and longer hospitalization. However, bedside ID consultation had a crucially important benefit: it was associated with a lower 90-day mortality than telephone consultation.

A sufficient duration of antibiotic therapy was given to 85% of patients who received a bedside consultation, compared with 63% of patients who were managed with telephone consultation ($P = .008$) in this study. Similar results were described in another study by Lahey et al [2]. In contrast, Fowler et al found that duration of antibiotic use was not significantly different in patients treated with or without formal ID consultation [3]. However, all physicians caring for patients with SAB received initial management recommendations by telephone and were given the option of formal bedside consultation. Only patients for whom recommendations were followed had significantly fewer relapses (6.3% vs 18.2%; $P < .01$) and a nonsignificantly lower rate of death [3]. These findings lead us to 2 general conclusions: first, assigning the proper duration of antibiotics is necessary but not sufficient to produce better outcomes in SAB; and second, clinicians do not always follow advice that is given by telephone or even by bedside consultation.

Antibiotic selection is also a problem when patients with SAB are managed by means of telephone consultation in locations where methicillin-resistance and reduced susceptibility to vancomycin are prevalent among *S. aureus* isolates. For example, Kaye et al found that a majority of patients with SAB cared for in community hospitals in the southeastern United States did not receive an appropriate effective antibiotic as initial therapy [4].

As all ID specialists well know, antibiotic choice and duration are only part of the solution when treating SAB. Identification and eradication of primary or metastatic foci of SAB are essential components of the proper management of SAB. Failure to detect complications such as endocarditis, abscesses, or osteomyelitis has a deleterious impact on the chance of relapse and survival in patients with SAB [2, 3]. Identification of these complications requires knowing what to ask (the patient), where to look (physical examination), and how to find or prove the existence of these focal or metastatic infections. ID specialists who are asked to provide telephone consultations must rely on another clinician’s primary observations. If the physician asking for telephone advice does not provide accurate or thorough information, important diagnoses such as vertebral osteomyelitis can be missed. Indeed, Forsblom et al found that metastatic complications and focal infections were detected in a significantly higher percentage of patients with SAB who had bedside consultation, an observation that was also seen in the study by Lahey et al [2].

Varying amounts of relevant clinical information necessary for the proper
management of patients with SAB are routinely not available at the time SAB is detected. Moreover, as every ID specialist knows, complications may appear during the subsequent management of patients who are initially thought to have a straightforward problem, such as catheter-related SAB. Detection and management of these complications require serial assessments of clinical response, appropriate and timely decisions as to when and how to drain deep abscesses detected by such imaging studies. In addition, common problems such as subtherapeutic vancomycin trough levels, acute renal failure with vancomycin or β-lactam antibiotics, and other less obvious drug-related complications occasionally occur in patients in whom the source of infection is obvious and treatment is seemingly straightforward. Although detailed information about the timing and specific advice given to physicians requesting telephone consultation were not collected by the authors of this study, lack of attention to some of the above issues may have led to the differences in outcomes observed by Forsblom et al.

Although the comparison of outcomes of patients with SAB who received ID consultation and no ID consultation was relatively straightforward in the study by Forsblom et al, the absence of a precise definition of a telephone consultation makes it difficult to understand the worse outcomes in patients with SAB whose physicians sought help via telephone consultation. The authors of this study did not collect sufficient information to determine whether the telephone consultation documented by the treating physician was, in fact, only a short or incomplete discussion held informally with an ID specialist. Furthermore, the authors of this report were unable to determine whether the advice they gave during telephone consultation was followed or misunderstood. The information presented by the authors is insufficient to determine whether specific types of physicians (eg, intensivists or surgeons) routinely sought telephone rather than bedside consultations. Such a bias might explain why an intensive care unit stay was associated with not getting a bedside consultation, a finding that struck us as both odd and in need of further explanation.

Future studies on the impact of telephone consultations on the outcomes of patients with SAB as well as other serious infectious diseases need to clearly define the term “telephone consultation.” We suspect that defining this “intervention” will be a difficult task. A telephone consultation that includes discussion of pertinent negatives, each observed positive finding, contingency plans, and appropriate follow-up is far different than one that addresses one or two or even none of the above critical elements. Discussions about the management of SAB take considerable time, effort, and communication skills. Most ID clinicians lack sufficient time or motivation to provide comprehensive advice when they receive an unsolicited call from another physician who intends to manage a problem as complex as SAB without a formal bedside consultation. Such calls are not rare even in tertiary care centers.

The findings by Forsblom et al have potential medical-legal implications for physicians practicing in the United States. SAB often leads to bad outcomes for some patients, and bad outcomes sometimes lead to lawsuits. Because bedside consultations are more likely to lead to better outcomes in both theory and practice, ID specialists may wish to cite the study by Forsblom et al and those written by other investigators [2, 3, 5–7] as their justification for recommending a bedside consultation when they receive a telephone request for advice from a local practitioner about the management of SAB.

It is neither required nor practical for consultants to document their recommendations about management, or their recommendation for a formal bedside consultation when they receive an unsolicited phone consultation related to the management of SAB or other potentially serious infectious diseases. Rather, we suggest that ID specialists, as a matter of routine, preface or conclude all telephone consultations about the management of SAB with the disclaimer that advice given by phone or email is general advice and that patient-specific advice can be provided through bedside consultation.

We recognize that enormous numbers of patients who are hospitalized in small and medium-sized community and rural hospitals do not have access to bedside ID consultation. In such locations, telephone consultation by an ID specialist may be the only option available to both the primary physician and the consulting specialist. In this situation, the consulting physician should take reasonable measures to try to avoid the poor outcomes of SAB that can be related to incomplete information, improper plans for source control, and incomplete follow-up by suggesting follow-up calls and emphasizing the limitations of a short phone conversation.

There were several notable weaknesses in the design of the study by Forsblom et al. This study was retrospective; it lacked a rigorous definition of a telephone consultation; adjustments for confounders of outcome were probably imperfect; and there was lack of detailed information about the type, timing, and number of patients with relapses of their staphylococcal infections. Finally, it was not possible to determine the timing and content of the advice given by telephone or to determine whether the advice was understood or followed. However, these weaknesses do not invalidate the authors’ key finding: there were significant differences in outcomes between patients with SAB who received
bedside consultation, no consultation, or telephone consultation. It is reasonable and logical to conclude these differences were due to the commonsense notion that skilled clinician specialists who direct the care of patients with SAB are more likely than nonspecialists to produce better and safer outcomes.

Pandora was dismayed to discover that all the world’s evil and trouble escaped from her mythological box before she could close it. Most experienced ID specialists are aware that, like Pandora, they encounter troubles of unsuspected depth and complexity soon after they pick up the phone to respond to a physician who is requesting help in managing a patient with SAB. The data presented by Forsblom et al should be useful for ID consultants who face this dilemma in their daily practice. Specifically, these data and the results of other studies can be cited to advocate, whenever possible, bedside consultation for patients with SAB.

Finally, some persons may not be aware of an important aspect of this famous myth. After Pandora opened her box and all the troubles of the world escaped, only one thing was left: Elpis, the spirit of hope. ID specialists who are frustrated by dilemmas related to providing telephone consultations may wish to keep this aspect of the Pandora myth in mind. We hope that the findings of Forsblom and colleagues will stimulate others to further investigate the disadvantages of telephone consultations with the goal of devising better systems and processes to avoid telephone consultation when feasible or to improve it (eg, with adequate reimbursement and/or improved telecommunications) when there is no alternative.

Note

Potential conflicts of interest. Both authors: No reported conflicts.

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References