EDITORIAL COMMENTARY

Should We Measure Body Temperature for Patients Who Have Recently Undergone Surgery?

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(See the article by Vermeulen et al. on pages 1404–10)

Vermeulen et al. [1] have conducted a study of postoperative temperature measurements, and once again it has been found that such measurements are of very little use for detecting postoperative infections or treating patients who have had recent surgery. Although this topic has been examined at least 30 times previously in the literature [1, 2], the authors have added prospective data collection and a unique blinding technique to their study. In this study, the clinical team caring for the patients was not informed of patient body temperatures and was forced to make clinical decisions without consulting temperature data. In addition, the nurses and patients were not informed of patient temperatures. Patients underwent regular temperature measurement until the time of hospital discharge or for 14 days after surgery and were observed for any indication of infection, as defined according to Centers for Disease Control and Prevention criteria.

The authors observed 284 general surgery patients for whom they had 2282 postoperative temperature measurements. They defined fever as a temperature $\geq 38^\circ C$. What they found, as others have found before them [3–7], was that fever is a very nonspecific and insensitive marker for infection. A total of 19 patients (7%) had infection, of whom only 7 (37%) ever had a temperature $\geq 38^\circ C$. Thus, 63% of infected patients did not have a fever. Sixty-one patients (21%) did have a temperature $\geq 38^\circ C$, but only 7 (11%) of these patients had an infection. Examination of data for temperatures $>38^\circ C$ did not improve the sensitivity or specificity in a clinically helpful manner, and examination of patients who had 2 consecutive temperature measurements $\geq 38^\circ C$ also did not improve the diagnostic value. Thirty previous reports, most of which were retrospective analyses, have shown similar results. Why do we continue measuring the temperature of postoperative patients?

One thing that Vermeulen et al. [1] do not examine in detail is the relevance of timing in the measurement of postoperative temperatures. They comment that 44% of all temperature measurements $\geq 38^\circ C$ occurred during the first 2 days after operation. A similar observation was made in an article published many years ago that examined fever after operation for 871 patients who underwent general surgery [8]. In this article, Garibaldi et al. [8] reported that 37% of all fevers occurred during the first 2 days after surgery and that 73% of these fevers were not attributable to an infectious cause. Garibaldi and colleagues defined fever as a temperature $>38^\circ C$ for 2 consecutive days, highlighting another important point in the literature of postoperative fever: nearly every author who has written about this topic has chosen a different definition for fever [2]. A close reading of the articles by Garibaldi et al. [8] and Dellinger [2] shows that the timing of postoperative fever is significant. As these articles show, and as experienced surgeons know, early postoperative fever is common and rarely represents an infection. However, fever that begins or persists beyond the fifth postoperative day is much more likely to represent a clinically significant infection. It seems that some old clinical truths need to be rediscovered every few decades.

A wider appreciation of this relationship could actually improve the postoperative care of patients. Too many surgeons continue to administer antibiotics during the postoperative period, apparently hoping that this will prevent postoperative infection, despite a mountain of persuasive literature suggesting that this is not effective [9–11]. Continuation of antibiotic therapy during the postoperative period increases the risks of acquiring resistant bacteria and delaying the diagnosis of actual infections. Although this has not been proven, I believe that the noninfectious fever that frequently follows many...
types of major operations encourages the use of postoperative antibiotics. Perhaps the blinding procedure used by Vermeulen et al. [1] would help patients worry less about postoperative fever and reduce the incentive among surgeons and other physicians caring for postoperative patients to administer unhelpful antibiotic therapy. When it comes to measuring body temperature in patients who have had recent surgery, there is an area in which temperature measurement and attention to and correction of abnormal temperatures could probably benefit such patients to a much greater degree than postoperative temperature measurement. A growing body of literature has demonstrated the relationship between intraoperative body temperature and the risk for postoperative surgical site infection [12–14]. Attention to normothermia in the operating room, routine measurement of body temperature during operative procedures, and correction of low body temperatures could reduce the number of postoperative surgical site infections, regardless of whether they are associated with postoperative fever.

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References