General Versus Regional Anesthesia for Peripheral Vascular Surgery

To the Editor.—We congratulate Bode and collaborators on completing this important study. However, we have some comments regarding their work and the accompanying Editorial.

We are disappointed that in the 1990s, anesthesiologists still attempt to improve cardiac outcome by limiting therapeutic protocols to the intraoperative period. Recent work has demonstrated that postoperative myocardial ischemia (POMI) is the single most important predictor of poor cardiac outcome, defined as myocardial infarction, unstable angina, and sudden death. In studies in which researchers evaluate patients for POMI, it was determined that myocardial ischemia occurs most frequently within the first 36-48 h after surgery in 30-60% of the patients. Therefore, patients who undergo vascular surgery are at risk of experiencing this higher incidence. Poor cardiac outcome follows 24-36 h later in 10-50% of the patients. Therefore, attempting to determine beneficial effects on cardiac outcome of a technique that is limited to the intraoperative period will not yield clinically useful results.

From the analysis of the natural history of myocardial infarctions, it is clear that one has to implement therapeutic techniques both intraoperatively and postoperatively to derive beneficial effects. Our group and others suggested that epidural anesthesia and analgesia is effective in decreasing the incidence of postoperative myocardial ischemia. In addition, the physiologic basis for these results has been established. However, therapy must be provided for at least 72 h. The mechanisms that underlie these beneficial effects are described in, part, by Go and Browner in the accompanying editorial to Bode’s paper. However, they also fail to recognize the importance of the postoperative period. In the study by Christopsgren et al, postoperative epidural therapy was limited to 24 h. Beyond that point, parenteral morphine was used intramuscularly. Likewise, Bode et al administered parenteral morphine or meperidine intravenously to their patients for 12-24 h. Subcutaneous morphine or oral opioids were used thereafter. They acknowledged that an unspecified number of patients received epidural morphine. However, all epidural catheters were removed after 12-24 h, thereby limiting the most important benefit of this technique.

We suggest that the problem in analyzing perioperative cardiac outcome is not statistical power or analysis, as inferred by Go and Browner—it is protocol design. Therefore, we disagree with their closing statement that “additional randomized controlled trials comparing regional and general anesthesia to determine their effects on perioperative cardiac morbidity and mortality are unlikely to be useful.” As of now, further trials are not needed. Conversely, we have an urgent need of randomized controlled trials that compare epidural anesthesia and analgesia with general anesthesia and parenteral analgesia throughout the postoperative period to further clarify this issue. The conclusion that there is no difference after general or epidural techniques is, in our view, premature and even incorrect.

A second concern we have with Bode’s article is the use of pulmonary artery monitoring in every patient. This is not the standard of care for patients who undergo femoral-to-distal artery bypass surgery. Therefore, their results may not be applicable to routine practices for this procedure throughout the country. Because they neither specified a protocol of treatment for perioperative hemodynamic aberrations detected by pulmonary artery catheter monitoring, nor describe the number of therapeutic interventions per group, they may have introduced a bias in the way patients were treated.

Oscar A. de Leon-Casasola, M.D.
Mark J. Lema, Ph.D., M.D.
Department of Anesthesiology
Roswell Park Cancer Institute
Elm and Carlton Streets
Buffalo, New York 14263

References
CORRESPONDENCE

duration postoperative ST-segment depression in cardiac morbidity after vascular surgery. Lancet 1993; 20:15–9
11. de Leon-Cassasola OA, Lema MJ, Karabella D, Harrison P: Postoperative myocardial ischemia: Epidural versus intravenous patient-
422–54

(Accepted for publication April 18, 1996.)

In Reply:—We emphasize that the scope of our study and subsequent conclusions were limited to patients undergoing intrainguinal peripheral vascular surgery (PVS). Trials cited by de Leon-Cassasola and Lema as evidence that postoperative analgesia impacts cardiac outcome studied other surgical populations, including intraabdominal procedures.

Our data offer little encouragement to those who wish to improve cardiac outcome after PVS by providing postoperative epidural analgesia. Within the epidural group, 40% received 3 mg in 10 ml epidural morphine during surgery. Generally, a second bolus was given immediately before catheter removal at 24 h after surgery. Therefore, epidural analgesia would have been expected to be in the range of 36–48 h. This is well into the period when poor cardiac outcome becomes evident. The myocardial infarction rate for the epidural morphine group was 4.9% versus 3.6% and 3.7%, respectively, for the patients who received general or spinal, both with postoperative parenteral opioids. As we pointed out in our discussion of these results, patients undergoing lower extremity PVS probably do not experience the same intensity of postoperative pain as do patients undergoing other types of surgery, such as intrabdominal procedures. Any beneficial effects of postoperative epidural analgesia may, therefore, be rendered inconsequential.

In this era of severe cost constraints, we reduced costs by making various changes, such as shortening length of stay. But we continue to use arterial and pulmonary artery catheters in most of our PVS patients. Having established morbidity and mortality rates achieved with intensive perioperative monitoring, we believe that the onus is on those who deviate from this practice to show similar or better results.

As de Leon-Cassasola and Lema correctly point out, our study design had no protocol to guide participating anesthesiologists and surgeons in the use of vasopressive drugs and fluids. There was no “‘tune-up’” or “hemodynamic optimization” before surgery, as was described by others. More than 100 anesthesiologists (residents and staff) and surgeons were involved directly in the care of our study patients. Each physician used their own judgment in the use of hemodynamic data. It is hard to imagine how such a large group of practitioners could introduce a consistent and significant bias into the methods.

Robert H. Bode, Jr., M.D.
Keith P. Lewis, M.D.
Eric T. Pierce, Ph.D., M.D.
Department of Anesthesia
Deaconess Hospital
Harvard Medical School
Boston, Massachusetts 02215-9985

References
2. de Leon-Cassasola OA, Lema MJ, Karabella D, Harrison P: Postoperative myocardial ischemia: Epidural versus intravenous patient-
4. Berlauk JF, Abrams JH, Gilmour U, O’Connor SR, Knighton DR, Cerra FB: Preoperative improve of cardiovascular hemody-

(Accepted for publication April 18, 1996.)

Anesthesiology 1996; 85:225
© 1996 American Society of Anesthesiologists, Inc.
Lippincott-Raven Publishers

Downloaded From: http://anesthesiology.pubs.asahq.org/pdfaccess.ashx?url=/data/journals/jasa/931823/ on 06/22/2017