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Epidural Anesthesia in Patients with Coronary Artery Disease

To the Editor:—Epidural anesthesia and combination epidural-general anesthesia are becoming increasingly popular techniques. Potential advantages include decreased blood loss and decreased incidence of deep venous thrombosis for some procedures,¹⁻⁵ decreased general anesthetic requirements, pain-free emergence from general anesthesia, and use of epidural opioids postoperatively. In critically ill patients, there is evidence that epidural-general anesthesia with postoperative epidural analgesia may decrease duration of intubation, hospital and physician costs, and postoperative morbidity.⁶ Therefore, the recent study by Saada *et al.*⁷ examining the effects of epidural blockade on cardiac function in patients with and without coronary artery disease (CAD) was both informative and timely.

The investigators' showed that administering relatively large fixed doses of local anesthetic in order to achieve rapid onset of epidural blockade may be detrimental to patients with CAD. Clinicians who routinely administer a bolus dose of local anesthetic based on a prescribed number of ml per segment of analgesia desired now have evidence to reconsider this practice in patients with CAD. Perhaps a more gradual extension of sympathetic blockade by titration of local anesthetic would allow time for intravascular volume infusion and activation of reflex mechanisms to compensate for vasodilatation in resistance and capacitance vessels.

Indeed, Baron *et al.*⁸ have shown that volume loading patients with CAD is effective in restoring blood pressure to control values while left ventricular ejection fraction and segmental wall motion are maintained at preblockade levels. In fact, there was a trend (not statistically significant) toward fewer hypokinetic sectors in Baron's patients after epidural blockade and volume loading compared with the control state (11 hypokinetic sectors *versus* 19).

Therefore, when precautions are taken to minimize hemodynamic alterations, patients with CAD may be able to benefit from epidural anesthesia without aggravating the potential for myocardial ischemia. Clearly, further studies are necessary to fully address this topic.

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REFERENCES

1. Thorud T, Lund I, Holme I: The effect of anesthesia on intraoperative and postoperative bleeding during abdominal prostatectomies: A comparison of neurolept anesthesia, halothane anesthesia, and epidural anesthesia. *Acta Anaesthesiol Scand (Suppl)*83-88, 1975
2. Rosberg B, Fredin H, Gustafson C: Anesthetic techniques and surgical blood loss in total hip arthroplasty. *Acta Anaesthesiol Scand* 26:189-193, 1982
3. Ryan DW: Anaesthesia for cystectomy. A comparison of two anaesthetic techniques. *Anaesthesia* 37:554-560, 1982
4. Spielman FJ, Corke BC: Advantages and disadvantages of regional anesthesia for cesarean section. A review. *J Reprod Med* 30: 832-840, 1985
5. Modig J, Hjelmsstedt B, Sahlstedt B, Maripuu E: Comparative influences of epidural and general anesthesia on deep venous thrombosis and pulmonary embolism after total hip replacement. *Acta Chir Scand* 147:125-130, 1981
6. Yaeger MP, Glass DD, Neft RK, Brinck-Johnsen T: Epidural anesthesia and analgesia in high-risk surgical patients. *ANESTHESIOLOGY* 66:729-736, 1987
7. Saada M, Duval A-M, Bonnet F, Rey B, Castillon G, Macquin-Mavier I, Cabrit R, Boico O, Castaigne A: Abnormalities in myocardial segmental wall motion during lumbar epidural anesthesia. *ANESTHESIOLOGY* 71:26-32, 1989
8. Baron J-F, Coriat P, Mundler O, Fauchet M, Bousseau D, Viars P: Left ventricular global and regional function during lumbar epidural anesthesia in patients with and without angina pectoris. Influence of volume loading. *ANESTHESIOLOGY* 66:621-627, 1987

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Capnography or Capnometry?

To the Editor:—With today's frequent monitoring of oxygen saturation and end-tidal CO₂ in clinical anesthesia practice, both monitoring modalities are quite often mentioned or discussed in the literature. The process of measuring blood oxygen saturation is rightfully called pulse oximetry, because determination of S_{PO₂} is the main purpose of using a pulse oximeter in the operating room or in other clinical settings, despite the added capability available in many oximeters of producing a plethysmographic display that has been found useful in a

number of clinical situations.¹ The measurement of end-tidal CO₂, on the other hand, is variably referred to as capnometry or capnography, with the latter term seemingly having become the one used most often in current literature. Is the term capnography, however, really an apt description of the process of end-tidal CO₂ monitoring in the operating room? In measuring P_{ETCO₂}, instruments in clinical use determine the value of a spot sample derived by various methods from phase III of the expired CO₂ level. It reflects the alveolar CO₂ level and usually is