PCA—Not As Effective but Still a Valuable Method

To the Editor — The main purpose of Sharma et al.’s trial was to establish the effect of epidural analgesia on the rate of caesarean deliveries. It compared epidural with patient-controlled analgesia (PCA) with intravenous meperidine. That technique has never been widely used in obstetrics, but their trial has established again that it is not as effective as epidural analgesia, but it is still an valuable method.

My experience with a Welsh population of mixed social and economic status (there is no private obstetric practice in Cardiff) in contrast to poor, Hispanic, or black patients (pointed out by Chestnut as a restriction in Sharma’s trial) is similar, even though the equipment, dosage, and lockout times differed. Mean (± SD) meperidine doses were 159 mg (100 mg) for Sharma et al. and 171 mg (74.9 mg) for nulliparous women and 158.9 mg (74.2 mg) for multiparous women in our trial. In this study with PCA, nearly 65% reported good-to-excellent pain relief, and 70% would use the method again. In our study women receiving epidural anesthesia had linear analogue scores of 88.5% with epidural block compared with 67.2% with intramuscular meperidine. (PCA and intramuscular analgesia in Cardiff had similar scores). About two-thirds of women would choose the same method, epidural or meperidine, again.

Chestnut is concerned about the neonatal effects of high-dose opioids, which were not discussed in this report. These have been studied previously. It has been shown that naloxone, 40 μg, can reverse the respiratory effects for a time, and intramuscular naloxone, 200 μg, will reverse ventilatory, auditory, and feeding effects for at least 48 h after birth. The babies of women who had intramuscular naloxone and meperidine had significantly fewer effects, especially on muscle tone than those whose mothers received epidural block with bupivacaine (Mean ± SD, 130 ± 61.7 mg).

There can be no doubt that epidural block is the most effective form of pain relief in labor. Although there are risks associated with this method, it is largely safe administered under skilled obstetric anesthesia care. Nevertheless, Sharma et al. have demonstrated clearly again that PCA meperidine is an reasonable option in some circumstances, acceptable to mothers in the United States and in the United Kingdom. It can be made safe for the neonate.

Sharma et al. believe that this useful alternative does not require the involvement of an anesthesiologist. I dispute that. Like postoperative pain relief, only an lead by an anesthesiologist is likely to introduce and maintain interest in effective techniques in the labor and delivery areas.

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In Reply — It is interesting to know that Dr. Michael Rosen’s experience in terms of satisfaction with patient-controlled intravenous analgesia (PCA) using meperidine during labor in a population of mixed social and economic status was similar to our experience. In our obstetric unit, although we allow nurses to initiate and maintain PCA, an anesthesiologist is always available on an immediate basis.

Dr. Deborah Wilson’s concerns regarding the safety with PCA and its effectiveness have been well discussed in our manuscript and in the accompanying editorial by Dr. David Chestnut published in the September 1997 issue of Anesthesiology. Our manuscript has clearly suggested that epidural analgesia provides better analgesia than PCA during labor and that epidural analgesia should be preferred to PCA. However, in view of the complete satisfaction expressed by 65–70% of women in the PCA group and minimal crossover, it was reasonable to state that PCA is also an effective method of pain relief during labor. Professor Rosen has supported this view in his letter to the editor. Regarding neonatal outcome, we have also clearly indicated in our manuscript that our primary purpose in the study was to evaluate the rate of cesarean section. However, in our manuscript there was no difference between the two groups with regards to immediate neonatal outcome in terms of objective criteria such as Apgar scores and cord pH, PCO₂, and PO₂, except for an increased requirement for naloxone in the PCA group. Further, we had enough power to draw this conclusion (to determine a two-tailed significant difference of 0.05 between a mean ± SD umbilical arterial pH of 7.30 ± 0.06 and 7.25 ± 0.06 in the two groups for 80% power, only 24 acid base measurements per group are required). We did not compare neonatal neurobehavioral changes, so interpreting it either way would be incorrect. The clinical significance of subtle differences in neurobehavior is unclear. Overall our manuscript and the accompanying editorial clearly suggest that PCA using meperidine is a reasonable option in some circumstances.

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Preinsertion Pulmonary Artery Catheter Flushing

To the Editor—Since the introduction of central venous and pulmonary artery catheters into clinical practice, foreign body embolization from either guidewires or catheter shearing has been reported. We present this occurrence as the first reported case of potential foreign body embolization, unrelated to wires or catheter shearing, during pulmonary artery catheter insertion.

A 63-yr-old man was scheduled for sternal debridement, rewiring, and flap closure. The patient had sustained a recent myocardial infarction and a ventricular fibrillation arrest before surgery. He was now 10 days status after coronary artery bypass grafting (CABG), which was complicated by postoperative congestive heart failure (CHF). Current medications included lasix, digoxin, vasotec, potassium chloride, and aspirin.

Given the patient’s significant cardiac history and also the magnitude of the surgery, pulmonary artery catheter insertion was planned. After