

REFERENCE

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REPLY

Thank you for the opportunity to reply to the points raised by Drs. McMorland and Douglas. Our further clinical experience with epidural morphine 5 mg following Caesarean section, lends support to our original hypothesis concerning the benefits of long-action local anaesthetics, such as bupivacaine. Mothers who receive chloroprocaine as the primary agent for epidural anaesthesia commonly experience pain in the recovery room as the epidural block regresses, and one of us (WDRW) routinely administers epidural bupivacaine, 0.25 per cent, before recovery from chloroprocaine, in order to extend postoperative analgesia. Epidural morphine then reaches its peak effect, before the bupivacaine wears off.

Concerning the incidents of bradypnea following abdominal surgery, we cannot exclude the possibility of additive effects from other medications. One patient, aged 43 years, underwent abdominal hysterectomy for menorrhagia. She took ibuprofen, 400 mg t.i.d., during her heavy menses, but had received none in the seven days before surgery. After premedication with diazepam, 10 mg p.o., 1 h preoperatively, general anaesthesia was induced with thiopentone, 375 mg, and succinylcholine, 120 mg. Anaesthesia was maintained with nitrous oxide and isoflurane. The patient also received metocurine, 5 mg, pancuronium, 1 mg, and droperidol, 1 mg. Epidural morphine, 5 mg, was administered 40 min before the conclusion of surgery, and the isoflurane was discontinued prior to reversal of the neuromuscular blockade with atropine, 1.2 mg, and neostigmine, 2.5 mg. Despite apparently adequate neuromuscular reversal, the patient remained apneic for 45 min and in the recovery room would not breathe unless instructed. However, the apnea was significantly improved after IV naloxone, 0.2 mg.

The 69-year-old male who developed transient respiratory depression (9/min) 4½ hours after epidural morphine underwent choledochojunostomy for obstructive jaundice. He also received diazepam, 10 mg, preoperatively, and the anaesthetic technique included thiopentone, succinylcholine, pancuronium, nitrous oxide, oxygen and enflurane. A single dose of IV naloxone, 0.2 mg, was given.

Although butyrophenones, for example droperidol, have powerful central sedative effects, they do not appear to potentiate the respiratory depressant effects of systemic narcotics.¹ Diazepam, in contrast, may enhance respiratory depression, although this is usually associated with intravenous administration. Respiratory depressant drugs administered to our two patients during anaesthesia, for example thiopentone and volatile agents, may have contributed to the bradypnea, but the possibility of such interactions has not been addressed in epidural morphine

studies to date. Age and debility, as in the second patient, increase the risk of respiratory depression. The prompt response of both patients to IV naloxone, 0.2 mg, suggests a narcotic effect.

Bradypnea does not necessarily imply respiratory depression. Periods of apnea occur commonly during sleep in apparently healthy individuals not suffering from disabling or life-threatening illness.² Conversely, significant and prolonged depression of central respiratory regulation, with impaired ventilation but without significant bradypnea, may follow administration of epidural morphine.³ These findings underline the inadequacy of the respiratory rate as an indicator of respiratory depression, and emphasize the need for close surveillance of patients, as described in our paper.

Finally, McMorland and Douglas, after extensive experience with epidural morphine, suggest that parturients, because of their youth and generally good health, are less prone to develop delayed respiratory depression after epidural morphine. Shnider's group reported no respiratory depression in 276 consecutive parturients who received epidural morphine for Caesarean section,⁴ and this has been the experience to date in the Grace Maternity Hospital, Halifax, Nova Scotia. There is a need for studies to determine if the well-documented increase in alveolar ventilation during pregnancy protects the parturient against the respiratory depression from epidural narcotics.

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- 4 Hughes SC. Complications of regional anesthesia in obstetrics. Annual Refresher Course Lectures. San Francisco: American Society of Anesthesiologists, 1985: 164.