A comparison of two doses of epidural fentanyl

To the Editor:
If no differences in operative pain were found when 25 or 50 μg of fentanyl were used, was 25 μg really necessary? In my experience, talking to patients reduces (often to zero) the need for extra medication when regional techniques are employed.

Robert W. Lamont MD
138 Cassandra Boulevard
Don Mills, Ontario M3A 1S9

REFERENCE

1 *Yee I, Carstoniu J, Halpern S, Pittini R.* A comparison of two doses of epidural fentanyl during Caesarean section. Can J Anaesth 1993; 40: 722–5..

REPLY

Thank you for giving me an opportunity to reply to Dr. Lamont's letter.

In our study, we used the incidence of supplemental analgesia use as one measure of effectiveness of regional anaesthesia. We used this measure because it is clinically relevant and because it has been used previously.

Whether or not a placebo (narcotic) group should have been included in the study is debatable. Since all anaesthetists in our institution at the time the study was performed used supplemental epidural fentanyl we chose not to include a placebo.

Dr. Lamont makes the very good point that communication with the patient often reduces or eliminates the need for supplemental intravenous analgesia during Caesarean section. I wholeheartedly agree that if a non-pharmacological intervention is available and effective, it should be used in preference to drug therapy. However, our study did not address that issue.

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Packaging of saline and Quelicin (Abbott)

To the Editor:
I am writing to voice concern with the similar packaging of normal saline 10 ml (DIN 00037796, Abbott 4888(13) and Quelicin 20 ml (succinylcholine, DIN 00038172 Abbott 6629). We find the similarity in packaging of these vials, both in the colour of the tops (yellow) and the colour of the labels, both white and yellow background with red printing, unacceptable and potentially dangerous to patient care, particularly in an emergency situation where speed of identification of a drug is of utmost importance.

Steven Dain MD FRCPC
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REPLY

In response to Dr. Steven Dain's concern about the packaging similarities of Abbott's 0.9% sodium chloride 10 ml vial and Quelicin 20 ml vial, there are differences between each container. The front panel of the sodium chloride vial has a large "1 DOSE" printed on the front of the glass vial. Quelicin is packaged in a plastic multiuse vial. Although both vials have yellow capped tops, all medications administered to patients must be identified by inspecting the product labelling. We appreciate customer comments and to this end, Abbott will be packaging the 20 ml Quelicin vial with a white cap.

Jim Currie
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Prolonged use of isoflurane in asthma

To the Editor:
Volatile anaesthetic agents are of value in the management of patients with severe bronchospasm requiring mechanical ventilation.[1,2] Since less than 1% of an absorbed dose of isoflurane undergoes biotransformation in the body,[3] the potential for fluoride-induced nephrotoxicity is low. However, the prolonged use of isoflurane in children[4] and adults[3] with sometimes unpredictable increases in serum levels of inorganic fluoride has led to concerns about the potential for inorganic fluoride nephrotoxicity.[5]

We would like to report on the prolonged use of isoflurane for management of status asthmaticus in two patients. The first was a 19-yr-old woman known asthmatic who presented to a referring hospital in status asthmaticus. At the referring centre she was ventilated using isoflurane intermittently over 48 hrs before transfer to our institution. The total MAC hours of Isoflurane administration before transfer is unknown. However, at our institution, she was administered isoflurane for three days ranging from 0.4–1.0%. This resulted in 55 MAC hr isoflurane. However, the total amount of isoflurane received was certainly higher but unfortunately unavailable. The second patient was a 41-yr-old woman with a history of asthma. Within several hours of her presentation, treatment with isoflurane by inhalation was begun for severe bronchospasm. This patient received seven days of iso-

flurane administration with a resultant total MAC hours of 113.

Both patients' clinical status improved with the administration of isoflurane. This was manifested as a reduction in airway pressures and improvement in gas exchange. Indices of renal function were monitored in both patients during the period of isoflurane inhalation and there was no deterioration. For the second patient serum fluoride concentrations were monitored during the isoflurane inhalation. The highest serum fluoride concentration was 10.5 $\mu mol \cdot L^{-1}$ which occurred at 112 MAC hr. At no time did the fluoride level approach the nephrotoxic level of 50 $\mu mol \cdot L^{-1}$.[6]

Our second patient received 113 MAC hr isoflurane. This is a larger total dose of isoflurane than has been previously reported. Despite this, fluoride concentrations did not reach nephrotoxic levels. A previous report[4] has shown higher levels of fluoride after a smaller total isoflurane dose (36.8 $\mu mol \cdot L^{-1}$ after 107 MAC hr). There are three reasons that may explain the difference in results. Firstly, it is possible that the metabolic pathways involved in the biotransformation of isoflurane may be immature at two years than in adults. Alternatively, an individual variation in metabolism of isoflurane or in excretion of fluoride may account for the variation in fluoride levels. Thirdly, the effects of concurrently administered drugs may affect the rate of metabolism of isoflurane and therefore cause differences in serum fluoride concentrations.

We believe that we have demonstrated the safety of prolonged use of isoflurane. We would advise, however, that inorganic flouride concentrations should be monitored during and immediately[5] after the administration of isoflurane. This would ensure that nephrotoxic levels are not reached in some patients due to individual variability in drug biotransformation.

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1 *O'Rourke PP, Crone RK.* Halothane in status asthmaticus. Crit Care Med 1982; 10: 341–3.
2 *Parnass SM, Field JM, Chamberlin WH, Segil LJ.* Status asthmaticus treated with isoflurane and enflurane. Anesth Analg 1987; 66: 193–5.
3 *Murray JM, Trinick TR.* Plasma fluoride concentrations during and after prolonged anesthesia: a comparison of halothane and isoflurane. Anesth Analg 1992; 74: 236–40.
4 *Truog RD, Rice SA.* Inorganic fluoride and prolonged isoflurane anesthesia in the intensive care unit. Anesth Analg 1989; 69: 843–5.
5 *Spencer EM, Willatts SM, Prys-Roberts C.* Plasma inorganic fluoride concentrations during and after prolonged (<24 h) isoflurane sedation: effect on renal function. Anesth Analg 1991; 73: 731–7.
6 *Cousins MJ, Mazze RI.* Methoxyflurane nephrotoxicity. A study of dose response in man. JAMA 1973; 225: 1611–6.

Post-succinylcholine muscle pain and smoking

To the Editor:

Diffuse muscle pain is a well-known adverse effect of succinylcholine. Myalgia involves the muscles of the trunk and the extremities and is observed most frequently on the first postoperative day in young women who are ambulatory soon after surgery. The frequency varies widely.

We suspected that smoking might be a factor that has not been controlled by the experimental design. The nicotine receptors in smokers might respond less vigorously when challenged by succinylcholine, a nicotinic agonist, than the same, "naive" receptors in nonsmokers. We tested in a small cohort of patients with the working hypothesis that the incidence of myalgia is less frequent in smokers.

The study was approved by the Institutional Review Board of the University Hospital, Groningen. Forty-two adult patients of whom 19 were women, gave their verbal consent and were studied. Smokers (16/42) constituted a smaller group. Of the smokers, only four patients were women, whereas 15 of the 26 non-smoking patients were female. Age and the duration of the surgical intervention did not differ between sexes or between smoking habits (overall mean ± SD: age = 29.5 ± 8 yr, duration = 75 ± 38 min). After induction with thiopentone (4–5 $mg \cdot kg^{-1}$), anaesthesia was maintained with isoflurane (0.5% to 1.0% inhaled) and nitrous oxide (65%). Succinylcholine (1 $mg \cdot kg^{-1}$) was administered as a bolus *iv*, and intubation was performed after adequate relaxation as judged by clinical criteria. The extent of fasciculations (none, mild, or marked) was estimated by an anaesthetist-observer, blinded as to the smoking habits of the patients. Another anaesthetist, also blinded, interviewed the patients 24 hr postoperatively. Postoperative myalgia not related to surgical intervention was graded on a four-point scale (none, mild, moderate, and marked). No patient required analgesics to alleviate muscle pains.

Overall, myalgia was reported by 19 of the 42 patients. Since only five patients reported moderate muscle pain