

## LETTERS TO THE EDITOR

### Anaesthetic for Colles' fracture

EDITOR,—I was surprised to read in the paper on Colles' fracture reduction by Kendall and his colleagues<sup>1</sup> that the trend is veering away from the use of general anaesthetics. The authors surmise in two places in the paper that this may be owing to the cost and resource implications of admitting patients. I have now worked in two departments where virtually all Colles' fractures are manipulated under a general anaesthetic. The patients have their fractures splinted and are asked to return after having been nil by mouth for six hours. If this is later than 5 pm then they are asked to return the next morning, having been nil by mouth from midnight. The procedure is performed in the A&E theatre with a fully trained anaesthetist and a senior A&E doctor either manipulating the fracture or supervising a junior. The patient is given intravenous propofol alone with subsequent increments of propofol if instant check radiographs are required. The patient is usually fit for discharge from the department within a few hours. This method does not require the patient to be admitted. Patient satisfaction is high and the procedure is no more hazardous than a Bier's block. The only requirement is a user friendly anaesthetic department, which we are blessed with in Dewsbury.

Kendall *et al* quote their survey of large A&E departments in 1994,<sup>2</sup> asking what techniques are used. It would be interesting to see which way the goal posts have shifted in 1997.

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- 1 Kendall JM, Allen P, Younge P, Meek SM, McCabe SE. Haematoma block or Bier's block for Colles' fracture reduction in the accident and emergency department—which is best? *J Accid Emerg Med* 1997;14:353-6.
- 2 Kendall JM, Allen PE, McCabe SE. A tide of change in the management of an old fracture? *J Accid Emerg Med* 1995;12:187-8.

### The authors reply

Lignocaine was used as the local anaesthetic for the haematoma block because this was the current practice in both departments before the onset of the study. It is also the standard local anaesthetic against which others are measured in terms of efficacy; it has a rapid onset of action, and fracture reduction is performed during its recognised duration of efficacy. There are alternatives, but we are not aware of any definite proven benefits of these.

We have no evidence to support the belief that haematoma block works better in older patients; it would, however, seem unlikely, bearing in mind that the majority of patients suffering Colles' fractures are elderly (mean age 64 years overall), and that analgesic efficacy in the haematoma group overall was significantly worse.

Performing general anaesthetics within the accident and emergency department for these patients is presented by Andrew Lockey as an alternative. This may present several practical difficulties, even if one had an extremely user

friendly anaesthetic department, which we also have. The whole "treatment episode" is lengthened by the need to starve patients, and requires patients to be very compliant in terms of accessing the department, depending on whether they are starved or not, and on the time of day that they present. These patients, who are often elderly and frail, may have difficulty with this.

There is no doubt (certainly up until 1994, and these are the most recent data that we have) that there has been a marked trend in the anaesthetic management of Colles' fractures away from general anaesthesia and towards local/regional anaesthesia. At that stage 66% of patients who had a general anaesthetic were in fact admitted<sup>1</sup>; there surely must be a significantly greater resource implication in these patients compared with those who have a local/regional procedure performed within the accident and emergency department by accident and emergency doctors.

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- 1 Kendall JM, Allen PE, McCabe SE. A tide of change in the management of an old fracture? *J Accid Emerg Med* 1995;12:187-8.

### Sevoflurane

EDITOR,—We read with interest the case reports and subsequent discussion which recently appeared in the *Journal* concerning the use of the volatile anaesthetic agent sevoflurane.<sup>1</sup> The authors suggest that sevoflurane is an appropriate agent for inhalational induction of anaesthesia in patients with partial obstruction of the upper airway. However, up to now most experience with sevoflurane in patients with "difficult airways" has been in non-emergency situations.<sup>2</sup>

The foremost requirement of general anaesthesia in partial airway obstruction is a smooth induction to minimise the risk of converting the problem to complete obstruction. The volatile anaesthetic agents, which are ethers (such as diethyl ether and isoflurane), are generally much more unpleasant to inhale than halogenated hydrocarbons which do not possess an ether linkage (for example, chloroform and halothane). However, despite its ether structure, sevoflurane seems to cause relatively little airway irritation. In this respect, it is probably equal to (but no better than) halothane—the classical inhalational agent for this situation. Furthermore, the increased respiratory depression seen with sevoflurane is more likely to be a problem than the myocardial irritability and hypotension produced by halothane. The very small risk of halothane hepatitis (1 in 35 000) is outweighed by the benefits of a safe induction in a critical situation.<sup>3</sup>

Sevoflurane has a low blood/gas partition coefficient (that is, solubility in blood) of 0.69, as compared to 2.3 for halothane.<sup>4</sup> Theoretically, this results in a rapid induction and recovery from anaesthesia. However, a recent paper found that time to adequate anaesthesia (defined as unimpeded insertion of an airway) was slower with sevoflurane than with halothane.<sup>5</sup> The time to produce satisfactory conditions for intubation has previously been shown to be almost identical for the two agents.<sup>6</sup> In addition, there is anecdotal evidence (including our own observations) that the rapid recovery from sevoflurane induction may not allow sufficient time for careful

instrumentation of the airway. Further confirmation of this effect is provided by the unsuccessful intubation in case 1, which the authors attributed to a reduction in the depth of anaesthesia.<sup>1</sup> The authors also suggest that this rapid recovery may be a useful feature if complete airway obstruction supervenes. However, in the absence of gas exchange (as during complete airway obstruction), recovery from inhalational anaesthesia cannot occur at all!

In conclusion, there is little current evidence to suggest that sevoflurane should replace halothane as the agent of choice for emergency induction of anaesthesia in patients with partial upper airway obstruction. This view is in agreement with that expressed in the major review article quoted by the authors.<sup>4</sup> It should also be noted that the high level of anaesthetic skills required for this type of procedure is unlikely to be acquired by most practitioners of emergency medicine.

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- 1 Mitchell RG, Nichol N, Goldie AS, Steedman DJ. Inhalational anaesthesia in emergency medicine using a new volatile—sevoflurane. *J Accid Emerg Med* 1997;14:328-30.
- 2 Mostafa SM, Atherton AMJ. Sevoflurane for difficult tracheal intubation. *Br J Anaesth* 1997;79:392-3.
- 3 Elliott RH, Strunin L. Hepatotoxicity of volatile agents. *Br J Anaesth* 1993;70:339-48.
- 4 Smith I, Nathanson M, White PF. Sevoflurane—a long awaited volatile anaesthetic. *Br J Anaesth* 1996;76:435-45.
- 5 Paris ST, Cafferkey M, Tarling M, Hancock P, Yate PM, Flynn PJ. Comparison of sevoflurane and halothane for outpatient dental anaesthesia in children. *Br J Anaesth* 1997;79:280-4.
- 6 Sarner JB, Levine M, Davis PJ, Lerman J, Cook DR, Motoyama EK. Clinical characteristics of sevoflurane in children; a comparison with halothane. *Anesthesiology* 1995;82:38-46.

### The authors reply

We find Moulton and Dark's comments on our article of interest, but would like to further clarify several points. Sevoflurane is a relatively new volatile agent and there is little published experience of its use for inhalational induction of anaesthesia in the emergency situation. However, in this circumstance we are not suggesting that it replaces halothane at present.

Halothane causes more hypotension than sevoflurane, and sensitises the myocardium to the effects of catecholamines.<sup>1</sup> This is may be a serious problem in a patient with 40% carboxyhaemoglobin level and possible volume depletion from burns, as opposed to respiratory depression for which a patient can be ventilated following successful intubation.

Recovery from anaesthesia with sevoflurane is more rapid than with halothane.<sup>2</sup> Should warning signs of impending airway obstruction develop, the process can be expediently reversed and an alternative technique used. Complete airway obstruction should be avoided if the procedure is carried out with vigilance, but if it does supervene further action will be required regardless of the volatile agent used.

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