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 that the trend is veering away from the use of general anaesthetics. The authors also comment 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, asking what techniques are used. It would be interesting to see which way the goal posts have shifted in 1997.

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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 effects of the haematoma group overall was significantly worse.

Performing general anaesthetics within the accident and emergency department for these patients is presented by Andrew Lockeby as an alternative. This may present initial 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 admitted for 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 against 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; 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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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.1 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.

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 anaesthetics 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 structure (such as sevoflurane, ether 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.2

Sevoflurane has a low blood/gas partition coefficient (that is, solubility in blood) of 0.69, as compared to 2.3 for halothane.3 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.4 The time to produce satisfactory conditions for intubation has previously been shown to be almost identical for the two agents.5 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. 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.6 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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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. This may be a serious problem in a patient with 40% coronary artery disease 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. Should warning signs of impending airway obstruction develop, the process can be expediently reversed and an alternative agent selected. 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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Traumatic pericardial tamponade

Editor,—We agree with Crawford et al.1 that it is difficult to make an early diagnosis of cardiac tamponade and even more difficult to diagnose penetrating cardiac injury in the haemodynamically stable patient without tamponade. Once tamponade has developed immediate intervention is critical. The role of rapid ultrasound and cross sectional echocardiography needs further clarification in these situations.

In several American trauma centres ultrasound examinations looking for haemopericardium and the more informative cross sectional echocardiography have been found to be very useful for the early diagnosis of penetrating cardiac injuries in haemodynamically stable patients, provided that scans are performed diately in the resuscitation room and performed and interpreted by trained technici ans, cardiologists, trauma surgeons, or emergency physicians. In a study by Rozycki et al.2 of 247 patients who had ultrasound carried out by trauma surgeons, the sensitivity, specificity, and accuracy was 100%.3 Similarly, in a report by Ma et al.4 of 245 patients who had ultrasound carried out by emergency physicians, the sensitivity, specificity, and accuracy were 100%, 99%, and 99% respectively.5 Freshman and his colleagues6 did not show false negatives in a cross sectional echocardiographic examination of 32 patients in whom no pericardial effusion was found, contrary to the statement by Crawford et al.1 However, a recent prospective study of 105 patients by Meyer et al.7 showed that false negatives were a problem only in patients with a haemothorax, as cross sectional echocardiography missed four significant injuries. Otherwise the sensitivity, specificity, and accuracy of this investigation in those without haemothorax is at least as high as that of subxiphoid pericardiocentesis (100%, 89%, and 90% respectively).

The paper highlights the difficulties we face in the management of patients with traumatic haemopericardium in hospitals without cardiothoracic services on site. The matter is further complicated where there is no reliable 24 hour ultrasound service. In Glasgow, two haemodynamically stable patients decompensated rapidly, one requiring an emergency thoracotomy in the ward and the other in the resuscitation room. Both survived, but the outcome may have been different in other units. We suggest that another lesson to be learned from their experiences is to consider the option of rapid ultrasound or cross sectional echocardiography as early as possible when cardiac injury is suspected.


SHOs' interpretation of x rays

Editor,—The article by McLauchlan et al.8 on x ray interpretation at A&E SHOs9 is both unscientific and unfair on our junior colleagues.

Essentially the authors have constructed an x ray quiz containing abnormalities that are both rare and often missed. So difficult were these films that only a single correct identification by senior clinicians. The films were then shown, without any clinical information, to SHOs, many of whom had worked in A&E for just three weeks. This scenario is so far from reality as to render the results meaningless.

We all agree that a consultant based A&E service would improve standards but until that unlikely event occurs our junior staff deserve our support and not negative articles such as this. Of further concern is that this paper is likely to be quoted by those hostile to our specialty.

A fairer assessment of this issue is provided by an ongoing "missed fracture" audit in my department, which has shown that A&E SHOs miss one significant fracture for every 650 new attendances. A few of our more capable SHOs miss no significant abnormalities during their six months, and this variability in accuracy is worthy of further study.

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The author replies

I agree with Mr Alan Leaman up to a point, in that there was an element of unreality in the quiz, but I do not think it was pejorative or derogatory to junior staff but rather encour aged further support for them.

Mr Leaman is correct in that the x rays were uncommon and sometimes difficult to diag nose (and not scoring 100% myself I strongly agree) but they were all significant in that correct diagnosis would lead to important changes in the patient's management. As we discussed in the paper, detailed clinical information was not provided and this reduced the realism for junior doctors, although less so for the radiologists. The readers will have to judge for themselves whether they feel this was unscientific.

Although 20% of the abnormalities were not identified by senior clinicians, there was variation and for some films for which the senior doctors scored 100% correct, the juniors still scored poorly—for example only 12% correctly identified periperal dislocation, 34% elbow effusion, and 46% comminuted calcaneal fracture. These significant injuries are difficult to diagnose and many of us in A&E suspect that they are therefore likely to be missed by junior doctors working on their own. The idea of the paper was to document this more accurately and I think it does. At the same time we hoped it would act as further argument for providing juniors with greater support and training (as well as improved risk management) rather than being pejorative.

I feel that analysing our errors and devising ways to overcome these is more important than fears of derisory comments from "those hostile to our specialty."

Mr Leaman mentions "missed fracture" audits, and I agree it is important to review these for feedback. However, statistically this is not very meaningful as any percentage error is bound to be small since most of the x rays are normal anyway, and the doctor's x ray threshold is an important variable. It is more accurate to look at the percentage of abnormal x rays that are missed. In our study, part of the point was that many of the apparent abnormalities were uncommon and SHOs on their own may only see one or two examples of each in their six months.

I certainly agree with Mr Leaman that our SHOs do a fine job but this paper emphasises that they need support and other systems to reduce the error rate.

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Curriculum based teaching

Editor,—We were interested by the article by Davies et al on their experience of curriculum based teaching.1 We too have adopted this curriculum based programme. It is organised by a committee of four (two consultants and two trainees) and all of its members have accredited teaching skills, for example advanced life support instructor, City and Guilds teacher's certificate 7307. Consultants also contribute to the programme on the grounds that if you wish to benefit from the meetings you should be prepared to contribute to them. Two to three meetings are covered in each afternoon meeting, with time built in for discussion. Although we do not attempt to rank our meetings we ask participants to evaluate their attendance for the purposes of feedback.

The speakers are either consultants who present a topic related to their area of expertise and interest, or trainees who are required to extend their knowledge base by addressing an allocated topic from the FFAEM curriculum, but avoiding areas where they are likely to have a large knowledge base. The trainees are given six months' notice, allowing comprehensive research on their topic.

As regards content, all presentations have to be referenced from the most up to date sources and to be of the standard of Rosen et al and the Oxford Textbook of Medicine. It is also a requirement that the presentation should make clear any audit or resource implications.

Throughout the course there is standardisation of format: all presentations to be on Microsoft PowerPoint and be accompanied by a document on Microsoft Word or Word Perfect. Participants are required to have hard copy notes on a very simple font type, point size, and the use of colours.

At the end of the each meeting, which is informal and allows for constructive debate, the speaker receives a summary of peer group evaluations (trainees only). The Word and PowerPoint files are copied from the presenter's