PostScript

LETTERS

Placement confirmation of Sengstaken-Blakemore tube by ultrasound

The management of oesophageal bleeding disorders remains a challenging problem in the emergency department. Oesophageal varices are dilated veins; they are most commonly a result of portal hypertension and are often associated with a poor outcome.¹ Haemorrhage from oesophageal varices is a life-threatening emergency with a mortality rate of 30–50%. Approximately 90% of patients with cirrhosis will develop varices, of which bleeding occurs in 25–35%.² Balloon tamponade is one of the methods for temporary control of acute variceal haemorrhage and works by directly compressing the varices at the bleeding site. Placement of a Sengstaken-Blakemore tube into the gastric fundus controls variceal bleeding via a tamponading effect. However, incorrect placement of the tube with inflation of the balloon in the oesophagus may cause oesophageal perforation or extrinsic compression of the trachea.³ The Sengstaken-Blakemore tube can be placed nasogastrically or orogastrically and maintained in the correct position as confirmed by chest radiograph. Traditionally, the tube is first presumed to be placed in the stomach, then the gastric balloon is partially inflated with 50 cc of either water or air. A chest x ray is required to confirm the position of the gastric balloon in the stomach before it can be fully inflated. However, the partially inflated balloon is not always visualised on chest x ray. Other methods for placing the Sengstaken-Blakemore tube utilising endoscopic confirmation have been reported.⁴ However, endoscopic confirmation is not readily available in all clinical areas, and there may be undue delay in placing the Sengstaken-Blakemore tube if it is recommended for all procedures. We describe an easy-to-use method with ultrasound that is readily available in every emergency setting for Sengstaken-Blakemore tube placement confirmation.

For ultrasound confirmed placement of the Sengstaken-Blakemore tube, it is inserted and the patient is placed in a supine position. The transducer is placed sagittally along the midline of the epigastrium and then tilted toward the patient's left to identify the gastroesophageal junction. With the gastroesophageal junction in view, the ultrasound probe is rotated counterclockwise to best see the liver, aorta and lower oesophageal sphincter. This view confirms the presence of the tube traversing through the lower oesophagus sphincter into the stomach (fig 1). However, failure in identifying the gastroesophageal junction due to a poor echo window sometimes occurs, especially in those with massive ascites and/or obesity. Because patients who require gastroesophageal tamponade for active variceal haemorrhage are almost always hemodynamically unstable, delay in inflating the balloon may have serious consequences. The use of ultrasound in this emergency setting obviates the need for a possibly equivocal radiograph confirmation and can improve patient care. The

Figure 1 The liver, aorta and lower oesophagus sphincter (arrow) are seen and the image represents the passage of the Sengstaken-Blakemore tube through the lower oesophagus sphincter into the stomach.

proficiency of emergency department physicians in performing ultrasound examinations should be enhanced.

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References

- 1 Kleber G, Sauerbruch T, Ansari H, *et al.* Prediction of variceal haemorrhage in cirrhosis: a prospective follow up study. *Gastroenterology* 1981;80:800–9.
- 2 Gow PJ, Chapman RW. Modern management of oesophageal varices. *Postgrad Med J* Feb, 2001;77:75–81.
- 3 Kelly DJ, Walsh F, Ahmed S, *et al.* Airway obstruction due to a Sengstaken-Blakemore tube. *Anesth Analg* 1997;85:219–21.
- 4 Lin TC, Bilir BM, Powis ME. Endoscopic placement of Sengstaken-Blakemore tube. *J Clin Gastroenterology* 2000;31:29–32.

Are chest pain observation units essential for rapid and effective emergency care in the UK?

It has been suggested that chest pain observation units are a cost effective solution

to the risks inherent in assessing patients at risk of myocardial infarction and its sequelae within emergency departments in the UK. Their function requires that patients are monitored closely for several hours, and they consume significant resources.

An alternative is the use of a rapid 90 minute rule-out method, incorporating myoglobin along with creatine kinase-MB (CK-MB) and troponin I.^{2,3} This has a sensitivity and negative predictive value of 100% for myocardial infarction, reduces coronary care unit (CCU) admissions by 40%, and does not require a dedicated observation unit.² The method is particularly useful for patients with non-diagnostic electrocardiograms (ECGs).

We have modified the method described by Ng *et al*² for use in our department.

Patients presenting with chest pain suggestive of acute myocardial ischaemia but with a non-diagnostic ECG on arrival are tested for myoglobin, troponin I, and CK-MB, using point of care, whole blood testing (BioSite Inc., San Diego, USA). The ECG and cardiac markers are repeated in 90–120 minutes. Patients with a rise in myoglobin of 25% or more (even if both values are normal) or a sustained elevation of any of the three markers are referred to cardiology. If ECGs and markers remain normal and if there is not a rise in myoglobin of greater than 25%, patients may be safely discharged, all other things being equal. Otherwise, further management is weighted by clinical risk stratification⁴—for example, patients with persistent pain suggestive of unstable angina, but whose markers and ECGs are normal, are not discharged. A decision is taken, in consultation with the cardiologist on call, to admit them to cardiology or general medicine as an acute coronary syndrome.

We have used this pathway in our emergency department for over 3 years without any additional staffing. In a 3 month audit of the first cohort of 197 patients, we found a 44% reduction in chest pain admissions compared to historical controls. There were also earlier and more appropriate referrals to CCU. This audit included the use of 30 day telephone follow up with 100% contact. One adverse event was noted in a patient who was discharged; this was a protocol violation and the patient should have been admitted. We are aware of one patient who suffered an infarct after discharge within the whole period. This patient was discharged by a new doctor who had not yet been given induction in the pathway. Two patients, who were sent home from the department, died suddenly, presumably from fatal arrhythmias. In both, their pain was in the abdomen so the protocol was not used.

Triple marker testing costs about £30 per patient for two serial tests. The pathway works 24 hours a day, seven days per week, and requires little additional training for medical and nursing staff. We suggest this pathway is effective in the emergency department assessment of patients with acute chest pain.

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References

- 1 Goodacre S, Nicholl SJ, Dixon S, Cross E, *et al.* Randomized controlled trial and economic evaluation of a chest pain observation unit compared with routine care. *BMJ* 2004;**328**:254–7.
- 2 Ng S, Krishnaswamy P, Morissey R, *et al.* Ninety minute accelerated critical pathway for chest pain evaluation. *Am J Cardiol* 2001;**88**:611–17.
- 3 McCord J, Nowak RM, McCullough P, *et al.* Ninety-minute exclusion of acute myocardial infarction by use of quantitative point of care testing of myoglobin and Troponin I. *Circulation* 2001;**104**:1483–8.
- 4 Herren KR, Mackway-Jones K. Emergency management of cardiac chest pain: a review. *Emerg Med J* 2001;**18**:6–10.

Injury to supraorbital area – should this be referred to as a head injury or facial injury?

The National Institute for Health and Clinical Excellence (NICE) published clinical guidelines for the management of head injury (NICE HI) in 2003.¹ There is only one indication for a skull x ray in an adult. This is where computed tomography (CT) scanning resources are unavailable. Before the publication of NICE HI, patients with a history of trauma and a large tender swelling in the frontal area would have x rays of the skull taken,² which included a lateral view of the frontal bone. We describe a case with no NICE HI indications for skull x rays or head CT scans that resulted in a missed frontal sinus fracture.

A 27 year old male presented to the emergency department after playing football. He had struck his forehead against the back of another player's head. There was no loss of consciousness, no amnesia, visual disturbance, or vomiting. The Glasgow Coma Scale was 15 and the neurological examination was normal. A large tense tender swelling over the left supraorbital area of frontal bone was noted. No imaging was indicated using NICE HI.¹ After a short period of observation he was discharged home with oral analgesia and a head injury instruction leaflet. Six days later he noticed a depression in his forehead. A head CT scan was performed demonstrating a depressed fracture of the anterior wall of the left frontal sinus. The fracture was treated by open reduction and internal fixation.

In this case, the treating doctor used NICE HI guidelines in the assessment of a swelling over the supraorbital frontal bone, which is part of the skull. From a radiographic point of view, the frontal sinus is visualised as a part of the upper third of face represented by the area above the superior orbital margin. Classically, the occipitofrontal and lateral radiographs of the upper third of the face are taken to detect this fracture.³

The frontal sinuses lie deep to the frontal squama in the frontal bone. The size and shape of this sinus varies among individuals and between the two sides. The anterior wall of the sinus is considered the stronger of the two tables. The posterior wall separates the sinus from the anterior cranial fossa and is much thinner. The frontal sinus is extremely

resilient to injury. However, high velocity impact, such as motor vehicle accidents and assault, can result in frontal sinus fractures.

This case indicates a lacuna in current practice. Since the introduction of NICE HI guidelines skull x rays are rarely done. It is the authors' contention that when there is a large haematoma in the supraorbital area, following significant trauma to the forehead, emergency department practitioners should request facial bone x rays that include a lateral view of the frontal bone. This should be the case if a CT scan of the head is not indicated. The reasoning behind this recommendation is to detect a facial fracture and must not be confused with NICE HI guidelines, which are designed to identify brain injury.

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References

- 1 NICE. Head injury. Triage, assessment, investigation and early management of head injury in infants, children and adults. Clinical Guideline 4. Developed by the National Collaborating Centre for Acute Care. National Institute for Clinical Excellence, 2003.
- 2 Royal College of Radiologists. *Making the best use of a department of clinical radiology. Guidelines for doctors.* Fourth edition. London: The Royal College of Radiologists, 1998:74.
- 3 Nicholson DA, Driscoll PA. *ABC of Emergency Radiology.* London: BMJ Publishing Group, 1995.

Intranasal alfentanil for acute pain in children

Traditionally, the intranasal analgesic drug of choice in children has been diamorphine. Prompted by the Department of Health bulletin in December 2004,¹ warning of an impending shortage of diamorphine, we sought a viable alternative intranasal drug for providing analgesia for children with acute pain.

Alfentanil has a favourable pharmacokinetic profile for nasal administration with maximal plasma concentrations at 9 minutes and calculated bioavailability of 64.96%.² It has been suggested from separate studies that intranasal alfentanil is safe and effective for premedication in children³ and comparable to intravenous for postoperative pain relief.⁴ Its relatively short duration of action also means that lengthy (longer than 2 h) observation after using the drug is unnecessary.

We report our experience in using intranasal alfentanil as the initial analgesic administered to children presenting to the emergency department in acute moderate to severe pain. A dose of 0.01 mg/kg alfentanil in 0.2 ml of solution was administered through atomiser to children without contraindications to either route or drug. Thirty six patients received the drug over a 2 month period, with a median age of 8 years (range 1.5–16 years), and 1.8:1 male:female ratio. Median dose administered was 0.275 mg (range 0.1–0.7 mg). Ninety four per cent of children received the drug for orthopaedic injuries (n = 33). No adverse events were recorded. Thirty per cent of patients (10/33) required further analgesia or regional anaesthesia to facilitate further emergency department management, and all of these were admitted to hospital. Fifty six per cent (20/36) of all

patients required admission but none was because of drug effects. Nursing and parental acceptability was high for both ease of administration and analgesic effect.

Intranasal alfentanil has proven to be safe and effective in providing adequate pain relief in our experience in a selected paediatric population. Further evaluation is warranted, and ongoing.

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References

- 1 http://www.dh.gov.uk/publicationsandstatistics/pressreleases/pressreleasenotices/fs/en?content_id=4099536&chk=gfksyg (accessed 23 December 2004).
- 2 Schwagmeier R, Boerger N, Meissner W, *et al.* Pharmacokinetics of intranasal alfentanil. *J Clin Anesth* 1995;**7**:109–13.
- 3 Ozcengiz D, Akman H, Ozbek H, *et al.* Intranasal alfentanil application in children for premedication. *Turk Anesteziyoloji ve Reanimasyon* 1996;**24**:15–18.
- 4 Ozbek H, Ozcengiz D, Unlugenc H, *et al.* The effects of intranasal and intravenous alfentanil administration on postoperative pain relief. *Agri* 1998;**10**:64–7.

"Street" supplies of the anticoagulant drug warfarin: a worrying new trend

Increasingly, physicians in emergency departments are seeing cases of injecting drug users (IDU) with dangerously high International Normalized Ratio (INR) results. Some of these patients have admitted to buying warfarin from a "street" source and taking the medication without INR monitoring. This group are known to be at significant risk of developing venous thrombo-embolic disease¹ and have difficulties in accessing healthcare.²

The risk factor of femoral vein injecting and recognition of progressive symptoms of deep vein thrombosis (DVT) is common. Many IDU are also aware of treatment with warfarin, and, hence, self-diagnose and treat using street acquired warfarin.

Complications associated with warfarin treatment include major haemorrhage. Also, a sub-therapeutic INR does not protect against thrombus propagation and pulmonary embolism.

A 37-year-old man with a long history of injecting drug use, was admitted with extensive bilateral DVT, multiple septic pulmonary emboli and pneumonia with a para-pneumonic effusion. During admission a temporary, indwelling inferior vena cava filter was inserted.

The patient failed to attend follow-up, although he continued to take warfarin, purchasing it from a fellow IDU who obtained the drug on prescription. When the patient's INR was checked 2 months later, it was >10.

This patient bought warfarin from a street source. He self-administered the anticoagulant in an attempt to treat and prevent worsening symptoms. We are aware of a number of other people presenting with bleeding symptoms to accident and emergency. These people indicate a willingness to have the correct treatment, however, an inability to access healthcare. Improved education and provision of healthcare facilities aimed at this group are