LETTERS TO THE EDITOR

Radiography for head trauma in children: what guidelines should we use?

Editor,—I was very interested to read the paper by Moreea et al from the Leeds General Infirmary comparing a set of British and American guidelines for the use of skull radiography in children.1 A statistically valid conclusion is that we should follow the American guidelines, which would result in a considerable financial saving and reduction in unnecessary and potentially harmful radiation exposure. However, there are a couple of points of confusion which their paper introduces. Firstly, their guidelines compare British criteria for x ray with American criteria for NO x ray. The list of criteria for NO x ray reads: “Asymptomatic; Headache; Scalp laceration/contusion/abrasion/haematoma; Dizziness; Absence of other risk criteria.”2

This is clearly nonsense as it would imply that anybody with, say, a scalp laceration does not need an x ray—notwithstanding any other signs or symptoms that may be present. The paper from which these recommendations are taken, by Masters et al,3 divides patients into three groups: a high risk group, requiring neurological consultation or emergency CT, a low risk group requiring discharge with head injury advice, and a moderate risk group in whom close observation is recommended and possibly skull x ray, although CT should also and possibly be considered. Masters et al gave a list of criteria which would indicate that a patient should be in the moderate risk group. These were not produced by Moreea et al and without them it is, of course, impossible to follow the guidelines. For the record, these criteria are:

- History of change of consciousness at the time of injury or subsequently
- History of progressive headache
- Alcohoh drug intoxication
- Unreliable or inadequate history of injury
- Age less than 2 years (unless injury very trivial)
- Post-traumatic seizure
- Vomiting
- Post-traumatic amnesia
- Multiple trauma
- Serious facial injury
- Signs of basilar fracture
- Possible skull penetration or depressed fracture
- Suspected non-accidental injury

Also, in the paper by Moreea et al the figures given in table 4 are completely different from those described under the paragraph beginning “table 4 shows…” in the text.

Drug doses in children

Editor,—Greg et al demonstrate the potential inaccuracies of calculating drug doses and fluids based on estimates of weight in children.4 Weighing children is routine in paediatric accident and emergency and outpatient departments, and usually involves undressing younger children. Indeed, parents expect younger children to be undressed for weighing, based on their experience at Health Visitor clinics.

There is another important message for general departments: undressing younger children for weighing also allows visual inspection for signs of non-accidental injury, particularly in non-mobile children, and is an opportunity not to be missed.

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Bradydysrhythmia due to an eye dressing

Editor,—We wish to warn of the potential danger of facial dressings placed over the eye which may cause stimulation of the ocuovagal reflex and produce profound bradydysrhythmia and circulatory collapse.

A normally fit young man attended the accident and emergency department following an assault with a machete. He had wounds to the left chest and a pressure dressing over his left face, which had been applied by the paramedics.

On arrival the patient was talking anxiously. He had a respiratory rate of 17/min, a central trachea, and symmetrical air entry. Oxygen saturation was 97%. Heart rate was 50 beats/min and blood pressure 109/70 mm Hg. Heart sounds were heard clearly and jugular venous pressure was not elevated. Within five minutes he became sweaty and less responsive. His pulse rate had fallen to 37/min. Review of his airway and breathing showed no deterioration. Before giving atropine his facial dressing was removed, whereupon his pulse rate rapidly increased to 80/min, his blood pressure increased to 150/60 mm Hg, and his anxiety decreased. Radiography of the chest was normal.

The ocuovagal reflex described by Aschner in 1908 involves an afferent pathway via the trigeminal nerve, the reticular formation of the brain stem, and the vagus. The compression of the orbit causes bradydysrhythmia. Bradydysrhythmiae have been described with direct pressure from a Honan balloon,5 and during surgery of facial fractures.6 This patient was relatively bradydysrhythmic on arrival and rapidly deteriorated. Prompt recognition of the role of the ocuovagal reflex reversed his shock. The bradydysrhythmia was caused by the pressure dressing alone and not by any underlying injury.

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Injuries from broken china

Editor,—Injuries from broken china are commonly seen in the accident and emergency department. One man was injured during the washing of crockery, although domestic altercations and enthusiastic postprandial entertainments may also be responsible.

It has long been established that all forms of glass are radio-opaque,1 but the properties of china are well less defined. Metal salts are added to silica in the manufacture of both glass and china clay but lead is added only to glass and this is thought to increase its radiopacity.

Patients who have sustained lacerations to their hands from broken china are often seen in A&E. In managing these injuries it is important to know whether china fragments are radio-opaque, and therefore if x rays can be expected to reveal any significant foreign body.

We conducted a simple experiment to determine whether china fragments are detectable by x ray when embedded in human tissue. A chicken drumstick was used as an animal model of a metacarpal or phalanx. Pieces of china and glass of various dimensions were inserted into the muscles and x rays taken at various exposures. Using a range of exposures we found that 45 mV, which is exactly that used for glass localisation in the hand, gave the clearest image.

As is clear from the x ray shown (fig 1) all forms of china are well demonstrated, even if they are small. China has a radioopacity indistinguishable from glass, and the type of china seems to be irrelevant, as does the presence of glaze, metallic or otherwise, on the china fragments.

It has long been accepted that wounds due to glass should be x rayed; not to do so is negligent if a retained fragment is missed. We suggest that wounds due to broken china should also be x rayed to reveal the presence or absence of a china foreign body.

Figure 1 Radiograph of a chicken drumstick taken at 45 mV showing glass and china fragments.

