

Centre in collaboration with the British Association for Accident and Emergency Medicine, June 1995.

- 3 Underhill TJ, Greene MK, Dove AF. A comparison of the efficacy of gastric lavage, ipecacuanha and activated charcoal in the emergency management of paracetamol overdose. *Arch Emerg Med* 1990;7:148-54.

### The authors reply

We are grateful for the opportunity to respond to these comments regarding our paper.

With regard to the suggestion that we implied gastric lavage to be an inappropriate measure in scenarios 1 and 2, we must stress that the intention of our paper was to provoke debate (successfully it would appear) rather than to suggest management guidelines.

The paper by Underhill *et al* (reference 3 above) showed paracetamol levels falling by a mean of 39.3% over the two hours following lavage. This does not demonstrate causality, particularly in the absence of an adequate control group. The paper also demonstrated a mean fall in serum paracetamol levels of 40.7% following administration of ipecacuana and of 52.5% over the same two hour period following administration of activated charcoal. The difference between results for lavage and ipecacuana was not significant. The fall in paracetamol levels following charcoal was significantly greater than both other forms of treatment. The paper concludes that "activated charcoal was more effective at limiting absorption of paracetamol following overdose than either gastric lavage or ipecacuana induced emesis". The authors also comment that gastric lavage is not a risk-free procedure.

The new guidelines for the management of paracetamol poisoning recommend lavage or charcoal rather than lavage with charcoal as the optimal treatment within two hours of ingestion (reference 2 above).

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### Support surfaces

EDITOR,—I was concerned to read the paper by P W Main and M E Lovell entitled "A review of seven support surfaces with emphasis on their protection of the spinally injured".<sup>1</sup>

I would not in any way doubt their findings on the pressure problems related to the use of long spinal boards. Unfortunately, however, they seem to have missed the whole point of the use of spine boards in the prehospital care of critically injured patients. Although the spine board may provide a surface for in-line immobilisation of the spine, its primary function is in the road traffic accident setting, where it is used to extricate patients from vehicles and for their subsequent transportation to hospital.

The spine board is the only tool that can be used to slide a patient with a serious injury from a vehicle with safe in-line minimal immobilisation of the spine and retain that immobilisation on route to hospital. With the use of a board for both rearward and side

extrication from a vehicle, the patient can be extricated with support to the whole spine safely from virtually any vehicle accident. The board's construction, specifically designed with a slippery surface to slide patients from the wreck, has a major advantage in prehospital care as an extrication device. This is not possible with a vacuum mattress or scoop types of stretcher or, in fact, any other type of stretcher available.

The patient on extrication is immediately immobilised with head and neck restraint and four body straps and transferred to an ambulance trolley. The patient is then transported on the board during the short transfer to hospital, where, again, the advantage of being on a board is obvious. In the case of a multiple injury patient, rapid transfer from an ambulance to hospital trolley is essential and this is facilitated by rapid transfer on the spine board, again with a patient fully immobilised. The hospital staff, once appraised of the mechanism of injury and apparent injuries to the patient, can decide whether to maintain the patient on the board or transfer them with an appropriate spinal lift to a vacuum mattress.

If a vacuum mattress were available on all front line ambulances, a single ambulance crew would not be able to transfer a patient, once extricated from a wreckage, from a spine board to a vacuum mattress. The vacuum mattress, therefore, although an ideal A&E department and secondary transfer tool, has a number of practical limitations in its prehospital use as a primary stretcher. The spine board certainly does have its limitations, with pressure area problems if patients are left on the board for long periods of time, but its value as an extrication device, enabling extrication with in-line spinal immobilisation for transfer to hospital, cannot be overemphasised.

This paper clearly emphasises the potential hazards of a spine board to a patient, with defined spinal column injury, but one must remember that the majority of patients are placed on a board with only suspected injury, because of their injury pattern or injury mechanism that puts the spine at risk. The safe extrication of a patient from the wreckage is almost certainly of more importance to the integrity of a damaged spinal column than a smaller risk of pressure area problems in the short transfer time to hospital.

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- 1 Main PW, Lovell ME. A review of seven support surfaces with emphasis on their protection of the spinally injured. *J Accid Emerg Med* 1996;13:34-7.

### The authors reply

Thank you for the opportunity to answer Dr Carney's points. We would value any debate of this most important subject.

We disagree that the long spinal board's main and most used function is in the extrication setting, involving motor vehicle trauma. The spinal board will be used for any patient when spinal injury is suspected, including motorcycle accidents, falls from heights, pedestrian RTAs, diving accidents, etc. We wonder what percentage of calls that an ambulance crew attends and where a spinal board is used are for extrication. We suspect that it is few. It would be helpful if such information were collected, since no direct figures are available. We are grateful to Mr DA Boot (Mersey Trauma Outcome

Study) for providing information from the study. This database, compiled from clinical notes, reveals that of the 658 patients with a trauma score greater than 15, only 51 patients were recorded as trapped and requiring extrication (personal communication).

If thought necessary, a single ambulance crew could transfer a patient from a spinal board simply by use of a scoop stretcher placed between the patient and the board and then lowered onto a vacuum mattress. This, however, would be time consuming and probably not warranted; it would add time to the evacuation of the casualty.

As covered in our paper, the spinal board is not an ideal surface. The spine is not flat! The neck is extended on the board<sup>1</sup>; it causes patients without spinal injury pain and discomfort; it causes pressure sores in those patients with (often irreversible) spinal injury, who may stay on the board until they arrive at a spinal centre. Patients are left on the board longer than necessary due to caution about causing or extending an injury. This is usually until a radiological series is performed. These x rays may also be needed because of pain caused by lying on a board, which cannot be differentiated from significant trauma.<sup>2</sup> We do not think that in most settings rapid removal from the board takes place, and many casualty departments own boards to continue this type of spinal immobilisation.

Although we do not expect change in practice from our paper we wish to highlight the above points and agree with Dr Carney's suggestion that spinal boards should only be used for the short periods of transfer to hospital from the scene of the accident.

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- 1 Schringer DL, Larmon B, LeGassick T, Blinman T. Spinal immobilisation on a flat board: does it result in a neutral position of the cervical spine. *Ann Emerg Med* 1991; 20:878-81.  
2 Chan D, Goldberg R, Tascone A, Harmon S, Chan L. The effect of spinal immobilisation on healthy volunteers. *Ann Emerg Med* 1994;23:48-51.

### Fast tracking patients with a proximal femoral fracture

EDITOR,—Ryan *et al* are right to highlight the need for improvement in the management of patients with proximal femoral fractures in accident and emergency departments in the United Kingdom<sup>1</sup> but even with the fast tracking system in place, over 75% of their patients waited two hours or more in the A&E department before transfer. Consequently, we feel that the system does not fully address the real priorities for treatment of such patients. We define these priorities as (a) the urgent provision of effective analgesia and splintage, (b) prompt imaging and other investigations to allow for a plan of action, (c) the primary prevention of common complications such as pressure sores, and (d) clear and frequent communication with the patient (and carers) about the likely timescale of transfer to a ward, surgery and postoper-

ative recovery. Ryan's paper is important not just for the proposal of accelerated transfer of patients out of the A&E department but also for its clear demonstration that A&E department staff are, with or without a fast tracking system, the key agents in assuring that these priorities are tackled.

The primary problem for elderly patients with femoral fractures is, of course, not the location of, but rather the quality of, their wait for definitive care. The universal scarcity of beds is of fundamental concern to us all at the present time, but it is something over which clinical staff in an A&E department often have little control and which we believe is too often used as an excuse for poor immediate care. In our departmental policy, for instance, patients with suspected proximal femoral fractures are given opiates in a judicious manner (rather than the non-steroidal medication described in Ryan's article, which is associated with acute renal impairment and other serious complications in the elderly<sup>2</sup>). We also prefer the three-in-one ("triple nerve") block which anaesthetises the femoral, obturator, and lateral cutaneous nerves<sup>3</sup> (and not just the femoral nerve as was the case in 17% of Ryan's patients), which then permits comfortable splintage and transfer to a bed. Alternatively, we transfer such patients directly from ambulance stretchers to beds which are "borrowed" if necessary from our short stay observation ward (SSOW) but which could, in other hospitals, be borrowed from the closed wards that clinicians bewail. Occasionally, younger patients (who are better able to tolerate lying on hard trolleys) need to wait a little longer for a SSOW bed to allow more appropriate use of such beds for the infirm and elderly. Finally, when the elderly patients are comfortable, we begin the quest for orthopaedic transfer.

In short, then, Ryan *et al* are to be applauded for establishing a system to reduce delays in transfer but, while frustrating bed shortages and delays in transfer abound, they should not have an exaggerated bearing on the provision of timely, effective, and compassionate care in the A&E department.

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- 1 Ryan J, Ghani M, Staniford P, Bryant G, Edwards S. "Fast tracking" patients with a proximal femoral fracture. *J Accid Emerg Med* 1996;13:108-10.
- 2 Schoch PH, Ranno A, North DS. Acute renal failure in an elderly woman following intramuscular ketorolac administration. *Ann Pharmacother* 1992;26:1233-6.
- 3 Winnie AP, Ramurthy S, Dirrani Z. The inguinal paravascular technique of lumbar plexus anaesthesia: the "3 in 1" block. *Anesth Analg* 1973;52:989-96.

**Emergency medicine at a large rock festival**

EDITOR,—We were very interested to read the experience of Hewitt, Jarrett and Winter at the Monsters of Rock Festival '92.<sup>1</sup> We have just completed examining our experience at a similar rock music festival held in Cork from 4th to 6th August 1995 (*Feile '95*). This

festival was a three day event attended by 70 000 people. The medical facilities at *Feile '95* were distributed between five first aid posts and one medical centre with facilities for observation and treatment. This centre received referrals from the first aid posts and a small number presented directly. The medical staff consisted of 12 doctors, nine contracted through a private firm and three accident and emergency (A&E) physicians who were from the local health authority. Two A&E nurses staffed the medical centre between 12.00 am and midnight. The cost of the provision of medical services was funded by the organisers of the event.

A total of 1627 individuals required medical attention and their diagnoses are shown in the figure. In contrast to the Monsters of Rock festival, 407 (25%) of attendances were for heat related conditions, while 180 (11%) of those attending required attention after substance abuse (alcohol, Ecstasy, LSD, etc). Eighteen patients were ultimately referred to the A&E services in the city and of these only eight (0.5% of total medical encounters) required hospital inpatient services. The Cork fans were probably a more cheerful bunch in that there were only eight assaults with only one needing head injury observation in the hospital. Perhaps this can be explained by the higher intoxication rate among the devotees

in Cork! On a more serious note, there was a marked absence of sale of items that could be used as missiles. We would therefore support Hewitt *et al* in their call for consideration of what is sold at such festivals. Finally, our experience suggests that provision of on-site medical cover with an observation area is highly desirable. The benefits of such a service have been noted at similar large gatherings on both sides of the Irish sea.<sup>2 3</sup> There is obviously a need for this type of care and it is highly protective of the local A&E departments and general practitioners.

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- 1 Hewitt S, Jarret L, Winter B. Emergency medicine at a rock festival. *J Accid Emerg Med* 1996;13:26-7.
- 2 Bitten S, Whitley MS, Fox PF, Goodwin MI, Horrocks MJ. The Glastonbury Festival 1993: pattern of attendances and admissions to an NHS Trust. *J Accid Emerg Med* 1995;12:30-1.
- 3 Ryan JM, Noone E, Plunket PK. Review of a mobile accident and emergency unit at a rock concert. *Irish Med J* 1994;87:148-9.

**Thrower's fractures of the humerus**

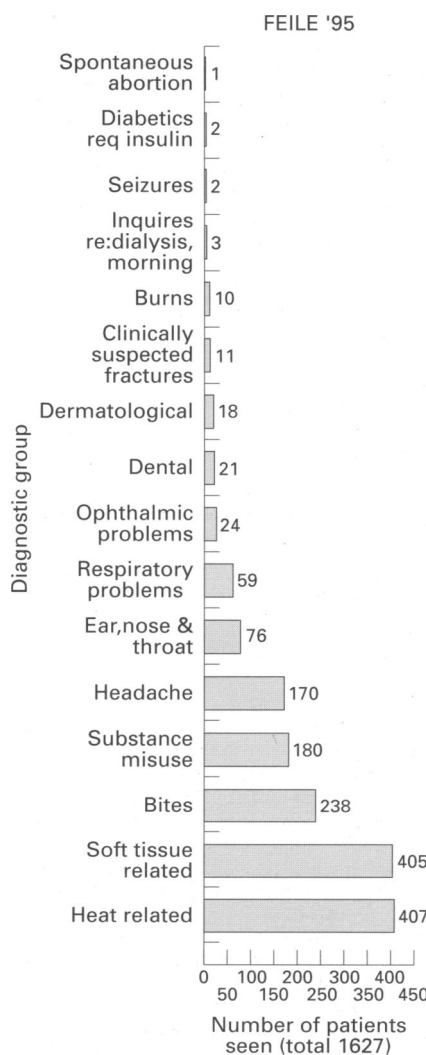
EDITOR,—While the recent paper on thrower's fractures of the humerus from Evans *et al* was most informative, we cannot agree with the explanation offered for the aetiology of the fractures.<sup>1</sup> The forces used by the individual patients were different as evidenced by the case histories and the two differing fracture patterns.

We have treated a 19 year old fit athlete who presented with a fracture identical to that described in case 2, who, after open reduction and secure internal fixation, returned with a fracture of the same configuration six weeks later. It had occurred through the most proximal screw hole of the longer of the reconstruction plates used for fixation. The mechanism of injury was identical on both occasions (a gentle overarm throwing action of a light piece of clothing) and similar to the type of throwing action described in case 2. He had not suffered prodromal symptoms of any type.

The mechanism of injury is related, we believe, to the more proximal attachment of the triceps relative to the biceps, resulting in an extreme form of avulsion injury affecting the whole distal humerus. This explains the oblique anteroposterior fracture pattern without a significant spiral component. The proposed fracture development of Tullos and King may explain fractures where the overarm throwing action is more strenuous and more complex.<sup>2</sup> The pathogenesis of radial head fractures from high level falls complements their theory but is not relevant to Evans' second case or our patient.<sup>3</sup>

We would also emphasise to readers the risk of refracture in patients with seemingly strong humeral bone fixed in the standard fashion using either standard 4.5 mm dynamic compression or reconstruction plates.

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Diagnoses of medical encounters at *Feile '95*.