The management of minor head injuries by non-specialists

Editor,—The management of patients with a minor head injury (MHI)—that is, a Glasgow coma scale score of 13–15—once the decision has been made to admit them, is relatively simple and straightforward. The value of having a neurosurgical specialist input could be looked upon as a luxury. In Nottingham there is a co-located accident and emergency (A&E) department with a regional neurosurgical unit. It is often the case that the A&E beds for observation become full and the local arranger may then refer the regional neurosurgical unit to admit the patient under their care. This case for this resource has been questioned and a retrospective review of patients with a MHI admitted to this hospital was undertaken to examine the actual involvement of neurosurgery in the management of these cases in a typical teaching hospital.

For the calendar year of 1996, 618 adults (>16 years of age) were admitted with a diagnosis of MHI for observation, of whom 89 (14.4%) were referred to the regional neurosurgical unit (M:F = 63:26; 70.8%:29.2%). Thirty-seven (42%) had other injuries, some of which required admission in any case, for example maxillofacial or spinal fracture in eight (9%), their MHI being truly minor.

The A&E referral was made because of no A&E beds in 47 (53%), was not stated at all on the admission card in 22 (25%), was for “social reasons” in four (4%), and in two (2%) because they had been under a neurosurgical surgeon previously for unrelated conditions, for example spina bifida. Thirty-two (38%) had been under the care of a general practitioner or a minor head injury clinic, 17 with follow-up at a specialist unit (Table 1). Twenty (24%) patients who had a computed tomography during their admission had anything abnormal detected, neither of whom needed any intervention beyond simple observation.

The same survey carried out in the same hospital in 1992 revealed, using a randomly acquired sample of 90 patients with MHI, that eight (9%) were referred to the regional neurosurgical unit, none of whom needed any active intervention.

One of the authors (NB) carried out a similar review of patients admitted under general surgeons with MHI for the year 1991 in a different large general hospital with a co-located A&E department (at that time a trial trauma centre) and subregional neurosurgical unit. Of 53 patients admitted with MHI only four (7.5%) required a neurosurgical opinion and none required active intervention.

These three temporally separate studies in two different, but similar, hospitals found a total of 761 patients admitted with MHI, none of whom required neurosurgery. It is our contention that no patients with MHI need be admitted under the care of neurosurgeons in this country and that patients who need specialist neurosurgical input can be identified by neurological observations in a non-specialist setting and referred for advice or action accordingly.

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Visual assessment of blood loss by accident and emergency staff

Editor,—Birkinshaw et al have recently demonstrated that in reconstructed scenarios using manikins, 80% of estimates of blood loss by paramedics and technicians were underestimated, and for a blood loss of 3 litres the mean underestimate was 60%. It is also important that staff in the accident and emergency (A&E) department can assess blood loss that is continuing within the department and also assess loss in clothing as it is removed, as stressed in Advanced Trauma Life Support courses.

We undertook a study whereby a measured volume (450 ml) of expired human whole blood was spilt over some clothing on a non-absorbent surface. After five minutes this scene was photographed. The photograph was shown to staff of the A&E department and they were asked to estimate the volume of blood shown in the photograph.

Table 1 A&E staff’s estimate of volume of a measured 450 ml blood loss

<table>
<thead>
<tr>
<th>Nurse</th>
<th>Mean</th>
<th>Maximum</th>
<th>Minimum</th>
<th>1st quartile</th>
<th>3rd quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>577.6</td>
<td>3000</td>
<td>50</td>
<td>200</td>
<td>681</td>
</tr>
<tr>
<td>SHO</td>
<td>18</td>
<td>633.9</td>
<td>2500</td>
<td>30</td>
<td>250</td>
</tr>
</tbody>
</table>

The editors have been able to incorporate the estimated volume of blood loss using a large volume of blood following both the 1st and 3rd quartiles for 18 years of practice at this hospital by paramedics and technicians.

This technique has not been tried in clinical practice and it is possible that the expiratory phase could become obstructed by tracheal mucosa, blood, or mucus. However, in the situation of a completely obstructed airway where a satisfactory needle cricothyroidotomy for tracheal jet ventilation has been performed incorporation of an active expiratory phase may allow a clinically useful minute ventilation and would remove to some degree the time pressure before a satisfactory definitive airway (for example surgical cricoidotomy) is achieved.