A total of 372 (72%) patients with head injury attended ED between Monday and Friday. Out of these 173 attended between 8.00 am and 5.00 pm and 199 between 5.00 pm and 8.00 am. A total of 148 (28%) patients with head injury attended on Saturday and Sunday. Out of these 61 attended between 8.00 am and 5.00 pm and 87 between 5.00 pm and 8.00 am.

Of 520 patients with head injury 59 (11.5%) had skull radiographs and 12 (2.3%) had CT scan of head done within existing head injury guidelines. Three patients had both CT scan and skull radiographs done. To comply with the new NICE guidelines for head injury no patient would have required skull radiography and 26 patients would have required CT scan of head including the 12 who had scan within existing guidelines (see table 1).

The study suggests that in a medium size semi-urban area district general hospital the number of CT scans of the head for head injury would increase from four to eight or nine a month. Most of these would not happen during normal working hours. This will increase the on-call workload by about two to three scans per month particularly as NICE expects them to be done within one hour of request for many indications. As skull radiographs are only indicated when CT is unavailable there would be a saving of about 20 skull radiographs per month.

### Table 1: Twenty six patients who would have required CT scan of head to comply with the NICE guidelines for head injury

<table>
<thead>
<tr>
<th>Age</th>
<th>Arrival day</th>
<th>Arrival time</th>
<th>GCS</th>
<th>Risk factors</th>
<th>Radiography of skull done</th>
<th>CT done</th>
<th>Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>Mon–Fri</td>
<td>8 am–5 pm</td>
<td>15</td>
<td>Dangerous mechanism of injury and LOC</td>
<td>Yes</td>
<td>No</td>
<td>Discharged</td>
</tr>
<tr>
<td>43</td>
<td>Mon–Fri</td>
<td>8 am–5 pm</td>
<td>15</td>
<td>Dangerous mechanism of injury and amnesia</td>
<td>No</td>
<td>No</td>
<td>Discharged</td>
</tr>
<tr>
<td>1</td>
<td>Mon–Fri</td>
<td>8 am–5 pm</td>
<td>15</td>
<td>Dangerous mechanism of injury and age under 5 years</td>
<td>No</td>
<td>Yes</td>
<td>Admitted</td>
</tr>
<tr>
<td>49</td>
<td>Weekend</td>
<td>5 pm–8 am</td>
<td>15</td>
<td>Dangerous mechanism of injury and LOC</td>
<td>Yes</td>
<td>No</td>
<td>Discharged</td>
</tr>
<tr>
<td>18</td>
<td>Mon–Fri</td>
<td>8 am–5 pm</td>
<td>15</td>
<td>Dangerous mechanism of injury and LOC</td>
<td>Yes</td>
<td>No</td>
<td>Discharged</td>
</tr>
<tr>
<td>30</td>
<td>Weekend</td>
<td>5 pm–8 am</td>
<td>15</td>
<td>Dangerous mechanism of injury and amnesia</td>
<td>No</td>
<td>No</td>
<td>Discharged</td>
</tr>
<tr>
<td>19</td>
<td>Weekend</td>
<td>8 am–5 pm</td>
<td>15</td>
<td>Dangerous mechanism of injury and amnesia</td>
<td>No</td>
<td>No</td>
<td>Transferred*</td>
</tr>
<tr>
<td>19</td>
<td>Mon–Fri</td>
<td>5 pm–8 am</td>
<td>15</td>
<td>Dangerous mechanism of injury and amnesia</td>
<td>Yes</td>
<td>No</td>
<td>Admitted</td>
</tr>
<tr>
<td>7</td>
<td>Weekend</td>
<td>5 pm–8 am</td>
<td>15</td>
<td>More than one episode of vomiting</td>
<td>No</td>
<td>No</td>
<td>Admitted</td>
</tr>
<tr>
<td>46</td>
<td>Weekend</td>
<td>5 pm–8 am</td>
<td>15</td>
<td>Dangerous mechanism of injury and LOC</td>
<td>Yes</td>
<td>No</td>
<td>Discharged</td>
</tr>
<tr>
<td>11</td>
<td>Weekend</td>
<td>8 am–5 pm</td>
<td>15</td>
<td>Dangerous mechanism of injury and LOC</td>
<td>No</td>
<td>No</td>
<td>Admitted</td>
</tr>
<tr>
<td>18</td>
<td>Weekend</td>
<td>8 am–5 pm</td>
<td>15</td>
<td>Dangerous mechanism of injury and LOC</td>
<td>Yes</td>
<td>No</td>
<td>Discharged</td>
</tr>
<tr>
<td>5</td>
<td>Weekend</td>
<td>5 pm–8 am</td>
<td>15</td>
<td>Dangerous mechanism of injury and age under 5 years</td>
<td>Yes</td>
<td>No</td>
<td>Admitted</td>
</tr>
<tr>
<td>56</td>
<td>Mon–Fri</td>
<td>8 am–5 pm</td>
<td>15</td>
<td>Dangerous mechanism of injury and LOC</td>
<td>No</td>
<td>No</td>
<td>Observation in A&amp;E</td>
</tr>
<tr>
<td>80</td>
<td>Mon–Fri</td>
<td>5 pm–8 am</td>
<td>15</td>
<td>Amnesia and age greater to 65 years</td>
<td>No</td>
<td>Yes</td>
<td>Admitted</td>
</tr>
<tr>
<td>6</td>
<td>Mon–Fri</td>
<td>8 am–5 pm</td>
<td>15</td>
<td>Dangerous mechanism of injury and LOC</td>
<td>Yes</td>
<td>No</td>
<td>Admitted</td>
</tr>
<tr>
<td>27</td>
<td>Mon–Fri</td>
<td>8 am–5 pm</td>
<td>15</td>
<td>Dangerous mechanism of injury and LOC</td>
<td>No</td>
<td>No</td>
<td>Admitted</td>
</tr>
<tr>
<td>76</td>
<td>Weekend</td>
<td>5 pm–8 am</td>
<td>14</td>
<td>GCS 13 or 14 at two hours after injury</td>
<td>No</td>
<td>Yes</td>
<td>Admitted</td>
</tr>
<tr>
<td>39</td>
<td>Mon–Fri</td>
<td>5 pm–8 am</td>
<td>14</td>
<td>GCS 13 or 14 at two hours after injury</td>
<td>No</td>
<td>Yes</td>
<td>Admitted</td>
</tr>
<tr>
<td>72</td>
<td>Mon–Fri</td>
<td>8 am–5 pm</td>
<td>14</td>
<td>GCS 13 or 14 at two hours after injury</td>
<td>Yes</td>
<td>No</td>
<td>Admitted</td>
</tr>
<tr>
<td>43</td>
<td>Mon–Fri</td>
<td>8 am–5 pm</td>
<td>13</td>
<td>GCS 13 or 14 at two hours after injury</td>
<td>Yes</td>
<td>Yes</td>
<td>Admitted</td>
</tr>
<tr>
<td>37</td>
<td>Mon–Fri</td>
<td>8 am–5 pm</td>
<td>13</td>
<td>Dangerous mechanism of injury and LOC</td>
<td>No</td>
<td>Yes</td>
<td>Admitted</td>
</tr>
<tr>
<td>26</td>
<td>Mon–Fri</td>
<td>5 pm–8 am</td>
<td>13</td>
<td>GCS 13 or 14 at two hours after injury</td>
<td>Yes</td>
<td>Yes</td>
<td>Admitted</td>
</tr>
<tr>
<td>95</td>
<td>Mon–Fri</td>
<td>5 pm–8 am</td>
<td>12</td>
<td>GCS less than 13</td>
<td>No</td>
<td>Yes</td>
<td>Admitted</td>
</tr>
<tr>
<td>43</td>
<td>Mon–Fri</td>
<td>5 pm–8 am</td>
<td>11</td>
<td>GCS less than 13</td>
<td>No</td>
<td>Yes</td>
<td>Admitted</td>
</tr>
<tr>
<td>27</td>
<td>Mon–Fri</td>
<td>5 pm–8 am</td>
<td>10</td>
<td>GCS less than 13</td>
<td>No</td>
<td>Yes</td>
<td>Admitted</td>
</tr>
</tbody>
</table>

LOC, loss of consciousness. *Transferred to specialist centre.
Vasopressin or adrenaline in cardiac resuscitation

The best evidence topic report (BET) by Hogg and Mahu raises a number of concerns, both with the article itself and the BETs process as a whole. The relative efficacy of adrenaline and vasopressin in the management of cardiac arrest is an important subject of relevance to all who work in emergency medicine. For this BET to only include those papers directly comparing vasopressin and adrenaline is to dismiss a large amount of potentially relevant papers. This included the two published studies comparing vasopressin and adrenaline to dismiss a large amount of potentially relevant papers. The decision to publish this BET is an accurate and reproducible formal review. It addresses the question posed by the authors and clearly summarises the relevant published literature.

K Hogg, R Mahu, I Crawford
Emergency Department, Manchester Royal Infirmary, Oxford Road, Manchester M13 9WL, UK; kersinhogg@hotmail.com

Vasopressin—the continuing evidence. 2 February 2004

On the 8th of this month, the large multicentre European Resuscitation Council study comparing the effects of adrenaline and vasopressin in out of hospital cardiac arrest was published. This was a multicentre study conducted between 1999 and 2002 in Austria, Germany, and Switzerland. It included all patients presenting out of hospital cardiac arrest requiring cardiopulmonary resuscitation and intravenous vasopressor therapy were included. The study shows no statistically significant benefit in primary (overall survival to hospital) or secondary (overall survival to discharge) end points. The study did not include those who did not respond to two doses of research drug and went on to be given adrenaline, significantly more patients in the vasopressin group reached both end points.

This is the largest study addressing the question whether vasopressin should be used in an arrest. As normal practice, the BET comparing these two entities has been updated to include this evidence.

K Hogg
Emergency Department, Manchester Royal Infirmary, Oxford Road, Manchester M13 9WL, UK; kersinhogg@hotmail.com

BETs—Should they be published in the journal?

I agree with Dr Locker’s concerns regarding the publication of BETs in a peer reviewed journal. BETs are useful for introducing people to the theory of literature searching, and appraisal of published evidence, ideal skills for SPRs working towards their clinical topic review. However, this does not necessarily warrant their publication in a peer reviewed journal. They occupy valuable space within a journal that is only published bimonthly, which could instead be used by studies with more rigorous methodology. If the EMJ is to become a leading worldwide journal in the field of emergency medicine, should it be including BETs within its pages? I don’t see the Lancet or the BMJ publishing six to seven pages of Medline searches each edition. Although Dr Hogg does explain that she has carried out a rigorous search and this checked, this in itself does deviate from the initial aims of BETs as something a clinician could do in a short period of time.

References


Authors’ reply

We read with interest the comments on our best evidence topic review on vasopressin or adrenaline in cardiac resuscitation and are happy to explain the process entailed in producing the BET. This literature search was first conducted in March 2002. Our initial and specific question was: Is vasopressin more effective than adrenaline in achieving return of circulation and long term survival, in human cardiac arrest? A full and sensitive search strategy was compiled. The search strategy was checked by two independent doctors who cross checked their own strategies to maximise the sensitivity. The titles and abstracts were appraised initially by the two authors and before publication by the third independent author. The relevant original studies and review articles were sourced in full text (18 in total). All review articles were cross referenced.

These 18 papers were reduced to four potentially relevant papers. This included the two published studies comparing vasopressin and adrenaline to dismiss a large amount of potentially relevant papers. The sub-analysis further showed that of those who did not respond to two doses of research drug and went on to be given adrenaline, significantly more patients in the vasopressin group reached both end points.

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BestBETs reply from the BestBETs group

Two critical letters from the Sheffield Deanery have been posted on the EMJ online web site. The first was written about a particular BET (vasopressin versus adrenaline (epinephrine) in cardiac arrest) and challenged the completeness of the search—claiming that a brief search of Medline had uncovered recent reviews that had been missed. It also called into question the whole peer review process for BETs. The letter was erroneous, and a robust defence of the search and selection strategy for the BET in question was posted by the author (Kerstin Hogg) pointing out that finding papers was a first step and that the alleged “missed” papers had in fact been found and added nothing in that they had found no additional primary papers. The issue of the peer review process was left as the argument that the review process for this BET had failed (which underlay the complaint) had been disproved. Dr Webster raised a number of points in addition to those raised by Dr Locker earlier in this correspondence. I feel the BestBETs team needs to answer three of them:

Methodological quality

The BETs are not of low methodological quality—rather they are of lower methodological quality than a systematic review. They are in fact of much higher quality than almost all of the literature reviews contained in the original articles that are mooted to replace them. They have a clear aim (three part question), a clear methods section (search and clear results (evidence table), discussion (conclusions) and comments (clinical bottom line). The main problem (in that the method is not overt) lies in the selection strategy for the papers (that is, why they had found no additional primary papers). The BestBETs web editors group is currently working towards posting selection algorithms on the BestBETs web site—but in the mean time is set out in the original paper in JAE that is referenced in every BestBETs set published. My opinion is that it would take a huge amount of space to publish an overt selection section individually for each BET (listing the papers rejected and why) for no real gain.

Waste of space

Best BETs are also published in Archives of Disease in Childhood and Interactive Cardiovascular and Vascular Surgery. Emergency Nurse is also likely to begin publication this year. Papers that are published as RMJ publish POEMS and extracts from Clinical Evidence, and the ACP Journal Club is entirely based on such articles. Best BETs have been reviewed both on the ACP Journal Club and Annals of Emergency Medicine and are regarded as the best way to answer real time questions in the specialty. Furthermore, at the time of writing four BETs are in the top 10 hits (January) so we are clearly giving most readers something they want.

Review process

The BestBETs are specialist articles (shortcut reviews) and require peer review by expert reviewers. BestBETs are all dual authored—one reporter and one checker. This is the first review. The BestBETs team have set up a system whereby all BETs in emergency medicine (whether generated internally or externally) are brought to the weekly evidence based journal club at the Manchester Royal Infirmary for group review. At this meeting the construction of the question, the search strategy, the data extraction, and the veracity of the clinical bottom line are discussed. This is the second review. Internally generated BETs are sent back for reconstruction by their original author and brought back for further discussion once this has been done. Externally generated BETs are allocated to a club member and brought back for further discussion once required changes have been made. This is the third review. Each BET is then allocated to a web editor who independently reviews the search strategy, paper selection, data extraction, and clinical bottom line. This is the fourth review. Finally, just before publication, the search is rechecked—another external information officer (as MESH terms may have changed) and any new papers obtained. The table and conclusions are updated by a senior editor and the article submitted to EMJ. This is the fifth and final review. I suspect this process stands up well to the peer review process (judging from what we see on the hanging committee). I would term it specialist peer review and I believe it to be eminently defensible.

In summary the BestBETs are not low quality—but lower quality than the highest possible quality (systematic reviews). If this were a reason not to publish then EMJ would be easy to edit (blank pages every month) as we very rarely receive papers of the highest quality. They are popular with the readership. The peer review system is probably more rigorous than that for other articles.

Good BETs

As editors we seldom get feedback on the EMJ. It is good to have questions raised about the journal and its contents. Avid readers of the letters section in emjonline may have been following correspondence that has questioned the “BETS” section and whether it is a good use of journal space and the editorial processes that underpin the BETs process.

We have to declare a conflict of interest in that one of the editorial team is heavily involved in BETs process. However, we, as the editors of the journal, have long formed the opinion that BETs is one of the “jewels in the crown” of the EMJ. Initially started using authors from Manchester, the system now allows online submission from any one with the enthusiasm to undertake work required to produce a BET. The editors have been impressed by the quality, expertise, and professionalism that goes into the production of BETs and we do not have concerns about the rigour of this process.
Paediatric education for prehospital professionals

Edited by R Dieckman, D Brownstein, and M Gausche-Hill. Published by Jones and Bartlett, 2000, pp 344. ISBN 0-7637-1219-1

This book from the USA is a companion to the course of the same name. The book is crammed with gems that have clearly come from years of paediatric experience and the photography and drawings are outstanding. The chapters are fairly uniformly constructed and most of them contain a section on when to transport. The text is comprehensive and some of our paediatric and emergency medicine trainees would learn much from it. I personally found the “Tips” and “Blips” in the margins irritating but they may appeal to some. The highlighted “Controversy” points were a different matter—an excellent way of emphasising the confusion and ignorance surrounding the prehospital care of children, they were topical and up to date.

I totally agree one should analyse the overall severity of illness of the child on arrival, but I was very disappointed in the patient assessment triangle or “PAT”, which receives much emphasis throughout the book. It seems to be nothing more than a rapid initial assessment of ABCD, which is certainly taught as part of the approach to any child on most of the major resuscitation courses in the UK. To give it a special new name left me mystified.

Treatment is divided into basic life support (BLS) and advanced life support (ALS). The BLS was clear and well presented at ambulance technician level, but some of the ALS interventions would be in the realm of the paediatric intensivist in the UK. I can only assume American paramedics have good “on line” medical support if they are really giving inotropes and adenosine to children and babies in the field! I was disappointed that a number of less high powered problems I have trouble dealing with in practice (like when to move in cardiopulmonary arrest when there are only two of you and how to best protect the neck of a hysterical head injured toddler) were neatly avoided. Maybe they don’t know either!

I was worried from the start that the text might confuse rather than clarify matters for British readers because the UK and North American EMS systems are so different. Generally this was not the case, but there were certainly some glaring discrepancies as well as a lot of minor ones. For example, we would almost never use neat 50% dextrose in any child to treat hypoglycaemia—neither would we usually head straight for adrenaline if nebulised salbutamol failed to improve asthma.

In conclusion, I thought the book beautifully presented (except for the paper, which was poor quality) and the BLS sections good value for all. I would recommend that UK paramedics follow the ALS sections only under the guidance of a doctor experienced in UK prehospital paediatrics who could “pick out the wood from the trees” for them—defeating the object of using it for personal study. Prehospital doctors, however, would, I’m sure, find it a useful read providing they had enough paediatric background knowledge to recognise the transatlantic differences.

F E Jewkes
Vasopressin or adrenaline in cardiac resuscitation

T E Locker


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