BEST EVIDENCE TOPIC REPORTS

Towards evidence based emergency medicine: best BETs from the Manchester Royal Infirmary

Edited by K Mackway-Jones

Best evidence topic reports (BETs) summarise the evidence pertaining to particular clinical questions. They are not systematic reviews, but rather contain the best (highest level) evidence that can be practically obtained by busy practising clinicians. The search strategies used to find the best evidence are reported in detail in order to allow clinicians to update searches whenever necessary.

The BETs published below were first reported at the Critical Appraisal Journal Club at the Manchester Royal Infirmary. Each BET has been constructed in the four stages that have been described elsewhere. The four topics covered in this issue of the journal are:

- Pelvic radiography in severe blunt trauma
- The management of anterior epistaxis
- Topical analgesia in corneal abrasions
- Wound cleaning solutions

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Pelvic radiography in severe blunt trauma
Report by Terry Gilpin, Specialist Registrar
Search checked by Kevin Mackway-Jones, Consultant

Clinical scenario
A 40 year old male is admitted into the resuscitation area of the emergency department after a high speed road traffic accident. He tells you he has not injured his head and has no pain in his pelvic area. He is alert and orientated, he is not under the influence of any alcohol or drugs, and is neurologically intact. You cannot find any major injuries, his pulse is 94, and blood pressure 145/90 mm Hg. He has no pain on flexing his pelvis. You wonder if it is necessary to perform a pelvic x ray.

Table 1

<table>
<thead>
<tr>
<th>Author, date, and country</th>
<th>Patient group</th>
<th>Study type (level of evidence)</th>
<th>Outcomes</th>
<th>Key results</th>
<th>Study weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Civil et al, 1988, USA¹</td>
<td>265 patients with possible major trauma</td>
<td>Prospective survey</td>
<td>Fracture rates by clinical group</td>
<td>Unconscious (GCS&lt;8) 19%</td>
<td>Retrospective. Small numbers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Obtunded (8&lt; GCS&lt;15) 11%</td>
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<tr>
<td></td>
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<td></td>
<td></td>
<td>Pelvic symptoms GCS=153%</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>No pelvic symptoms GCS=150%</td>
<td></td>
</tr>
<tr>
<td>Salvino et al, 1992, USA¹</td>
<td>810 blunt trauma patients. 12 year old with GCS &gt;13</td>
<td>Prospective survey</td>
<td>Fracture rates by clinical findings (pelvic symptoms and/or signs)</td>
<td>Positive 56.3% Negative 0.04%</td>
<td></td>
</tr>
<tr>
<td>Yugerros et al, 1995, Colombia¹</td>
<td>608 haemodynamically stable adults with GCS &gt;10 and no spinal involvement</td>
<td>Prospective survey</td>
<td>Fracture rates by clinical findings</td>
<td>Positive 96.6% Negative 0.004%</td>
<td></td>
</tr>
<tr>
<td>Ersoy et al, 1995, Turkey¹</td>
<td>65 conscious, non-intoxicated, orientated patients</td>
<td>Retrospective survey</td>
<td>Fracture rates by clinical findings</td>
<td>Positive 43.8% Negative 0%</td>
<td></td>
</tr>
<tr>
<td>Heath et al, 1997, USA¹</td>
<td>82 adult, awake, alert blunt trauma victims</td>
<td>Prospective survey</td>
<td>Fracture rates by clinical findings</td>
<td>Positive 38.9% Negative 3.13%</td>
<td></td>
</tr>
</tbody>
</table>

GCS=Glasgow coma score.


Three part question
In [adults who have experienced severe blunt trauma who are fully conscious and asymptomatic] is [pelvic x-ray] necessary to exclude [significant bony pelvic damage]?

Search strategy
Medline 1966 to 1098 using the OVID interface. {}([exp x-rays OR pelvis$$.ti,ab,rv,sh$$] AND [exp wounds and injuries$$.ti,ab,rv,sh$$ OR radiograph$$.ti,ab,rv,sh$$] AND [exp "wounds and injuries" OR injur$$.ti,ab,rv,sh$$ OR trauma$$.ti,ab,rv,sh$$] AND blunt$$.ti,ab,rv,sh$$] LIMIT to human and english).

Search outcome
Thirty two papers found of which 27 were irrelevant; the remaining papers are shown in table 1.

Comment
The studies above include 1699 awake patients. Aggregated figures show that clinical symptoms and signs predict pelvic fracture with a sensitivity of 95.45% and a specificity of 95.53%. Furthermore the absence of clinical symptoms and signs has a negative predictive value of 99.6% in this group of patients.

Clinical bottom line
Adult trauma patients who are awake with normal sensation and who have no pelvic symptoms or signs do not need a pelvic x-ray.

The management of anterior epistaxis
Report by Kevin Mackway-Jones, Consultant
Search checked by Rosemary Morton, Consultant

Clinical scenario
An adult patient presents to the emergency department with a nosebleed that came on spontaneously and which has not responded to simple first aid measures. The bleed appears to be from the front of the nose and the patient has no underlying disease. You wonder whether packing or cautery is the best method of obtaining haemostasis.

Three part question
In [adult patients with spontaneous epistaxis and no underlying disease] is [cautery or packing] more effective at [stopping bleeding]?

Table 2

<table>
<thead>
<tr>
<th>Author, date, and country</th>
<th>Patient group</th>
<th>Study type (level of evidence)</th>
<th>Outcomes</th>
<th>Key results</th>
<th>Study weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toner and Walby, 1990, UK</td>
<td>97 consecutive patients with anterior epistaxis attending the emergency department Randomised to either electrocautery or cautery with silver nitrate</td>
<td>PRCT</td>
<td>Number having further epistaxis</td>
<td>No statistical difference</td>
<td>Low power study</td>
</tr>
<tr>
<td>Nicolaides et al, 1991, UK</td>
<td>30 consecutive patients with acute epistaxis in the control v 33 consecutive patients in the intervention group Intervention group had visualisation using the operating microscope and hot wire cautery</td>
<td>Controlled clinical trial</td>
<td>Complete control of bleeding by cautery</td>
<td>82% v 23%</td>
<td>Not randomised</td>
</tr>
<tr>
<td>McGlashan et al, 1992, UK</td>
<td>40 consecutive adult (&gt;16 years) patients with significant epistaxis of at least 2 hours' duration Kalostat v xeroform packs</td>
<td>PRCT</td>
<td>Discomfort of insertion</td>
<td>NS</td>
<td>No power calculation</td>
</tr>
<tr>
<td>Quine et al, 1994, UK</td>
<td>100 consecutive adult (&gt;16y) patients with acute epistaxis All hot wire cauterised</td>
<td>Observational</td>
<td>Patients sent home immediately</td>
<td>80%</td>
<td>Uncontrolled</td>
</tr>
<tr>
<td>Pringle et al, 1996, UK</td>
<td>83 patients packed with merocel out of 149 patients with epistaxis presenting over 1 year</td>
<td>Observational</td>
<td>Control of epistaxis</td>
<td>91.5%</td>
<td>Uncontrolled</td>
</tr>
</tbody>
</table>

PRCT = prospective randomised controlled trial; VAS = visual analogue scale.
Towards evidence based emergency medicine: best BETs from the Manchester Royal Infirmary. Pelvic radiography in severe blunt trauma.
T Gilpin

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