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

Edited by K Mackway-Jones, Consultant

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. Three topics covered in this issue of the journal are:

- Eye patches and corneal abrasion
- Paracetamol or ibuprofen in febrile children
- Alkalisation and tricyclic antidepressant overdose

In addition three clinical questions are presented for which no relevant evidence could be found (negative BETs):

- Collar and cuff or sling after fracture of the clavicle
- Curettage or silver nitrate for pyogenic granulomas on the hand
- Support for uncomplicated shaft of humerus fractures

Eye patches and corneal abrasion

Report by Kevin Mackway-Jones, Consultant

Search checked by Simon Carley, Clinical Fellow

Clinical scenario

A young woman attends the emergency department with pain in her right eye. Her infant son has inadvertently put his hand in her eye. Examination reveals a corneal abrasion. You wonder whether an eye patch should be applied to protect the cornea.

Three part question

In [patients with superficial corneal abrasions] is [an eye patch better than no eye patch] at reducing [pain and time to healing]?

Search strategy

Medline 1966 to 12/98 using the OVID interface. (exp eye injuries OR exp eye foreign bodies OR corneal abrasions.mp) AND (exp bandages OR eye patch$.mp OR patch$.mp) AND [maximally sensitive RCT filter].

Search outcome

Forty one papers were found of which 30 were irrelevant and five of insufficient quality for inclusion; the remaining papers are shown in table 1.

Comment

There are six prospective randomised controlled trials of varying quality and power in this area. All show no benefit from patching and the largest shows positive benefit from no patch.

Clinical bottom line

Patients with corneal abrasion should not have an eye patch.

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>Hulbert, 1991, UK&lt;sup&gt;1&lt;/sup&gt;</td>
<td>30 patients with corneal abrasion after foreign body removal Chloramphenicol and eye patch v chloramphenicol alone</td>
<td>PRCT</td>
<td>Discomfort</td>
<td>Greater at 24 hours</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time to healing</td>
<td>No difference</td>
<td></td>
</tr>
<tr>
<td>Kirkpatrick et al, 1994, UK&lt;sup&gt;2&lt;/sup&gt;</td>
<td>Patients with simple traumatic corneal abrasions Antibiotic, mydriatic, and eye patch v antibiotic and mydriatic alone</td>
<td>PRCT</td>
<td>Time to healing</td>
<td>Significantly (&lt;0.05) better in antibiotic alone group</td>
<td></td>
</tr>
<tr>
<td>Patterson et al, 1996, USA&lt;sup&gt;3&lt;/sup&gt;</td>
<td>33 patients with eye pain and corneal abrasion Eye patch v no eye patch</td>
<td>PRCT</td>
<td>Pain score</td>
<td>No difference</td>
<td>Small study, low power</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Analgesic use</td>
<td>No difference</td>
<td></td>
</tr>
<tr>
<td>Kaiser, 1997, USA&lt;sup&gt;4&lt;/sup&gt;</td>
<td>201 patients with non-infected non-contact lens related traumatic (120) or after foreign body removal (81) corneal abrasions Antibiotic, mydriatic, and eye patch v antibiotic and mydriatic alone</td>
<td>PRCT</td>
<td>Pain</td>
<td>Significantly less in antibiotic/mydriatic alone group</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time to healing</td>
<td>Significantly less in antibiotic/mydriatic alone group</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Blurred vision</td>
<td>No difference</td>
<td></td>
</tr>
<tr>
<td>Campanile et al, 1997, USA</td>
<td>64 patients with traumatic corneal abrasion Patched v unpatched</td>
<td>PRCT</td>
<td>Rate of healing at day 1</td>
<td>Significantly faster in unpatched group</td>
<td>Only recorded at 1 day</td>
</tr>
<tr>
<td>Arbour et al, 1997, Canada</td>
<td>48 eyes (46 patients) with corneal erosion Patching v no patching</td>
<td>PRCT</td>
<td>Linear and surface speed of re-epithelialisation Pain Insomnia</td>
<td>No significant difference</td>
<td>No significant difference</td>
</tr>
</tbody>
</table>

PRCT = prospective randomised controlled trial.

Paracetamol or ibuprofen in febrile children

Report by Simon Carley, Clinical Fellow
Search checked by Martin Thomas, Research Fellow

Clinical scenario
A 3 year old girl presents to the emergency department after a convulsion. She has a three day history of sore throat, cough, and fever. She has had two previous febrile convulsions. She is still hot and irritable. You wish to reduce the temperature, provide symptomatic improvement, and wonder whether Calpol (paracetamol syrup) or Junifen (ibuprofen syrup) would be more effective.

Three part question
[In children with a significant fever] is [paracetamol better than ibuprofen] at [reducing fever and reducing fever induced irritability]?

Search strategy

Search outcome
Fifty five papers were found of which 33 were irrelevant and seven of insufficient quality for inclusion; the remaining papers are shown in table 2.

Comment
While a number of well designed studies show ibuprofen to be more effective than paracetamol at reducing temperature in febrile children, a number of others show no difference in effect. Some of the studies do not follow up the subjects for the length of time between treatment doses, their findings must therefore be interpreted with caution. A formal meta-analysis of these studies would be of value.

Clinical bottom line
Both paracetamol and ibuprofen are effective antipyratics in children. Ibuprofen would appear to cause the most rapid and prolonged reduction in temperature.

Towards evidence based emergency medicine: best BETs from the Manchester Royal Infirmary. Eye patches and corneal abrasion.

K Mackway-Jones

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