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## BEST EVIDENCE TOPIC REPORTS

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# 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.<sup>1</sup> Each BET has been constructed in the four stages that have been described elsewhere.<sup>2</sup> The three topics covered in this issue of the journal are:

- Eye patches and corneal abrasion
- Paracetamol or ibuprofen in febrile children
- Alkalinisation 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

1 Carley SD, Mackway-Jones K, Jones A, *et al.* Moving towards evidence based emergency medicine: use of a structured critical appraisal journal club. *J Accid Emerg Med* 1998;15:220-2.

2 Mackway-Jones K, Carley SD, Morton RJ, *et al.* The best evidence topic report: a modified CAT for summarising the available evidence in emergency medicine. *J Accid Emerg Med* 1998;15:222-6.

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### 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 abrasion\$.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.

- 1 Hulbert MF. Efficacy of eye pad in corneal healing after corneal foreign body removal. *Lancet* 1991;337:1170-1.
- 2 Kirkpatrick JN, Hoh HB, Cook SD. No eye pad for corneal abrasion. *Eye* 1993;7:468-71.
- 3 Patterson J, Fetzter D, Krall J, *et al.* Eye patch treatment for the pain of corneal abrasion. *South Med J* 1996;89:227-9.
- 4 Kaiser PK. A comparison of pressure patching versus no patching for corneal abrasions due to trauma or foreign body removal. *Ophthalmology* 1995;102:1936-42.
- 5 Campanile TM, St Clair DA, Benaim M. The evaluation of eye patching in the treatment of traumatic corneal epithelial defects. *J Emerg Med* 1997;15:769-74.
- 6 Arbour JD, Brunette I, Boisjoly HM, *et al.* Should we patch corneal abrasions? *Arch Ophthalmol* 1997;115:313-17.

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Table 1

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

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

Medline 1966 to 12/98 using the OVID interface. {[exp acetaminophen OR acetaminophen.mp OR paracetamol.mp] AND [child.mp OR children\$.mp] AND [exp anti-inflammatory agents, non-steroidal OR non-steroidal anti-inflammatory agents.mp OR exp ibuprofen OR ibuprofen.mp] AND [exp fever

OR fever\$.mp OR febrile.mp] AND [maximally sensitive RCT filter]} LIMIT to human AND english language.

#### 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 antipyretics in children. Ibuprofen would appear to cause the most rapid and prolonged reduction in temperature.

1 Amdekar YK, Desai RZ. Antipyretic activity of ibuprofen and paracetamol in children with pyrexia. *Br J Clin Pract* 1985;39:140-3.

2 Walson PD, Galletta G, Bradem NJ, *et al*. Ibuprofen, acetaminophen, and placebo treatment of febrile children. *Clin Pharmacol Ther* 1989;46:9-17.