

BEST EVIDENCE TOPIC REPORTS

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

Edited by K Mackway-Jones

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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 Infirmary¹ or placed on the BestBETs web site. Each BET has been constructed in the four stages that have been described elsewhere.² The BETs shown here together with those published previously and those currently under construction can be seen at the bestbets web site (<http://www.bestbets.org>).³ Ten BETs are included in this issue of the journal.

- ▶ Investigating microscopic haematuria in blunt abdominal trauma
- ▶ How to remove a tick
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- ▶ Perimortem caesarean section
- ▶ Topical antibiotics in acute bacterial conjunctivitis
- ▶ Bell's palsy and acyclovir
- ▶ Tape stripping the stratum corneum and the effectiveness of EMLA
- ▶ Staples or sutures for repair of scalp laceration in adults
- ▶ Staples or sutures in children with scalp lacerations
- ▶ Tangential views or computed tomography in suspected depressed skull fracture

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- 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.
- 3 **Mackway-Jones K**, Carley SD. bestbets.org: Odds on favourite for evidence in emergency medicine reaches the worldwide web. *J Accid Emerg Med* 2000;17:235–6.

Investigating microscopic haematuria in blunt abdominal trauma

Report by **Fiona Saunders**, *Specialist Registrar*
Search checked by **Jon Argall**, *Senior Clinical Fellow*

Abstract

A short cut review was carried out to establish whether it is necessary to carry out further imaging in order to identify clinically

significant renal injury in patients with microscopic haematuria after blunt abdominal trauma. Altogether 57 papers were found using the reported search, of which 10 presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of these best papers are tabulated. A clinical bottom line is stated.

Clinical scenario

A patient presents to the emergency department following a road traffic accident. He is found to have loin pain and tenderness and microscopic haematuria on dipstick testing. He is not hypotensive and has no other major injuries. You wonder whether radiological imaging is necessary to exclude significant injury to the renal tract?

Three part question

[In adults with microscopic haematuria after blunt abdominal trauma] is [radiological imaging necessary] to [identify clinically significant renal injury]?

Search strategy

Medline 1966–10/01 using the OVID interface, Embase 1988–10/01. [exp haematuria OR haematuria.mp] AND microscopic.mp AND trauma\$.mp

Search outcome

Altogether 55 publications identified, 15 of these have direct relevance to the three part question. A further two relevant papers were referenced in these. Of these 17 papers 10 were of sufficient quality for inclusion (see table 1).

Comment(s)

Numerous retrospective and prospective diagnostic cohort studies attempt to answer the same question. Many are of a high standard and large size. Only those in which the whole cohort underwent diagnostic imaging have been included. Most measured the same variables and used comparable definitions of significant renal injury. Combining the data from the included studies there are 2302 cases of microscopic haematuria after blunt abdominal trauma, in patients who were not shocked and had no major associated injuries. Of these one had a clinically significant renal injury.

▶ CLINICAL BOTTOM LINE

Radiological imaging of the renal tract is not indicated in adults with microscopic haematuria after blunt abdominal trauma, provided they are not shocked and have no major associated injuries.

Guice K, Oldham K, *et al.* Hematuria after blunt trauma: when is pyelography useful? *J Trauma* 1983;23:305–11.

Nicolaisen GS, McAninch JW, *et al.* Renal trauma: re-evaluation of the indications for radiographic assessment. *J Urol* 1985;133:183–7.

Fortune JB, Brahme J, *et al.* Emergency intravenous pyelography in the trauma patient. A reexamination of the indications. *Arch Surg* 1985;120:1056–9.

Table 1

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Guice K <i>et al</i> , 1983, USA	156 patients having IVP for haematuria following trauma	Retrospective diagnostic cohort study	Number with significant renal injury	0/123 patients with microscopic haematuria	Presence of shock or other injuries not addressed Includes children
Nicolaisen GS <i>et al</i> , 1985, USA	306 patients with blunt renal trauma	Prospective diagnostic cohort study	Number with significant renal injury	0/221 patients with blunt trauma, microscopic haematuria and no shock	
Fortune JB <i>et al</i> , 1985, USA	195 patients having IVP following blunt trauma	Retrospective diagnostic cohort study	Number with significant renal injury	0/116 patients with microscopic haematuria	
Kisa E <i>et al</i> , 1986, USA	50 patients having IVP for blunt abdominal trauma	Retrospective diagnostic cohort study	Number with significant renal injury	0/43 patients with microscopic haematuria	Advocate imaging for patients whose microscopic haematuria does not resolve in 24 hours - ? rationale for this
Cass AS <i>et al</i> , 1986, USA	831 patients with haematuria following blunt trauma	Retrospective diagnostic cohort study	Number with significant renal injury	1/494 patients with microscopic haematuria and no shock	
Hardeman SW <i>et al</i> , 1987, USA	506 patients with blunt trauma and haematuria	Prospective diagnostic cohort study	Number with significant renal injury	0/365 with microscopic haematuria, no shock and no major injuries	
Thomason RB <i>et al</i> , 1988, USA	102 patients undergoing IVP after blunt trauma	Retrospective diagnostic cohort study	Number with significant renal injury	0/76 patients with microscopic haematuria	
Eastham JA <i>et al</i> , 1992, USA	317 patients with blunt trauma, microscopic haematuria and no shock	Retrospective diagnostic cohort study	Number with significant renal injury	0/28 patients with renal contusions	
McAndrew JD <i>et al</i> , 1994, USA	1103 patients undergoing radiographic evaluation of the renal tract for suspected renal trauma	Retrospective diagnostic cohort study	Number with significant renal injury	0/605 patients with blunt trauma, microscopic haematuria and no shock - 1 had a significant renal injury, but also associated lethal head injury	
Moller CM <i>et al</i> , 1995, Denmark	114 patients suspected of having renal trauma	Retrospective diagnostic cohort study	Number with significant renal injury	0/65 patients with microscopic haematuria	Includes children

Kisa E, Schenk WG. Indications for emergency intravenous pyelography in blunt abdominal trauma: a reappraisal. *J Trauma* 1986;**26**:1086-9.

Cass AS, Luxenberg M, *et al*. Clinical indications for radiographic evaluation of blunt renal trauma. *J Urol* 1986;**136**:370-1.

Hardeman SW, Husmann DA, *et al*. Blunt urinary tract trauma: identifying those patients who require radiological diagnostic studies. *J Urol* 1987;**138**:99-101.

Thomason RB, Julian JS, *et al*. Microscopic haematuria after blunt trauma. Is pyelography necessary? *Am Surg* 1989;**55**:145-50.

Eastham JA, Wilson TG, *et al*. Radiographic evaluation of adult patients with blunt renal trauma. *J Urol* 1992;**148**(2 Pt 1):266-7.

McAndrew JD, Corriere JN Jr. Radiographic evaluation of renal trauma: evaluation of 1103 consecutive patients. *Br J Urol* 1994;**73**:352-4.

Moller CM, Mommsen S, *et al*. The role of haematuria in the diagnosis of blunt trauma. *Scand J Urol Nephrol* 1995;**172**:99-101.

How to remove a tick

Report by Stewart Teece, *Clinical Research Fellow*

Search checked by Ian Crawford, *Clinical Research Fellow*

Abstract

A short cut review was carried out to establish whether there was any evidence to decide between the various described methods of tick removal. Altogether 40 papers were found using the reported search, of which two presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of these best papers are tabulated. A clinical bottom line is stated.

Clinical scenario

A 27 year old hiker attends with what appears to be a tick in the skin of his right leg. You seek the advice of your colleagues on the best method of removal, the registrar advises you to pull it straight out, another registrar suggests to pull out anti-clockwise, the consultant denounces them as fools and says to pull clockwise. Sister suggests suffocating the tick with vaseline and a staff nurse thinks that nail varnish is better for this, a passing porter suggests burning it off with a lighted fag and the patient himself claims that his mother always recommended 70% isopropyl alcohol (for the removal of ticks). Confused you wonder whether there is any evidence for any of the suggested methods.

Three part question

In [patients with ticks attached to their skin] is [any of the popular methods better than the others] for [removal of an intact tick]?

Search strategy

Medline 1966-04/02 using the OVID interface. [exp ticks OR ticks.mp OR arachni\$.mp OR tick.mp OR acarines.mp OR ixodes.mp OR parasit\$ OR bloodsucker.mp OR dermacentor.mp OR amblyomma.mp OR ceratopogidae.mp] AND [exp "bites and stings" OR bite\$.mp] AND [exp foreign bodies OR removal.mp OR excis.mp]

Search outcome

Altogether 40 papers found of which 38 were irrelevant or of insufficient quality for inclusion. The remaining two are shown in table 2.

Table 2

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Needham GR, 1985, USA	29 American dog ticks and 22 lone star ticks attached to a female Dorset sheep	Experimental	Ease of removal and retained mouthparts. Testing with petroleum jelly, nail polish, 70% isopropyl alcohol and hot match (passive removal) and clockwise pull or straight pull with quick or steady even pressure (mechanical)	Failure of removal with passive methods. Removal with mechanical method steady even pressure most likely to give intact removal	Statistical significance not assessed
De Boer R and van den Bogaard AE, 1993, Netherlands	Ixodes Ricinus attached to the skin of pigs and sheep	Experimental	Ease of removal, retained mouthparts. Testing with gasoline, nail polish and methylated spirit or by straight pull or rotation around axis	Failure of removal by chemical methods within 30 minutes. Straight pull less likely to leave mouthparts than rotation (0.01 < p < 0.02)	

Comment(s)

Given that ticks have a respiratory rate of 3–15 breaths per hour suffocation would seem unlikely to work as the above studies showed, however anecdotal evidence suggests lignocaine gel may be efficacious in aiding removal.

► CLINICAL BOTTOM LINE

Current evidence suggests that a straight slow method is best for removal without leaving the mouthparts.

Needham GR. Evaluation of five popular methods of tick removal. *Pediatrics* 1985;75:997–1002.

De Boer R, van den Bogaard AE. Removal of attached nymphs and adults of *Ixodes ricinus* (Acari: Ixodidae). *J Med Entomol* 1993;30:748–52.

Plaster or functional splint in gamekeepers thumb

Report by Steve Jones, Specialist Registrar
Search checked by Ian Crawford, Clinical Research Fellow

Abstract

A short cut review was carried out to establish whether a plaster of Paris or functional splint was better for treatment of ulnar collateral ligament rupture. Altogether 50 papers were found using the reported search, of which one presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of this paper are tabulated. A clinical bottom line is stated.

Clinical scenario

A young poacher comes into the emergency department complaining of a sore thumb after a night pillaging the local squire's estate. He smells strongly of game birds and clinically he has a rupture of the ulnar collateral ligament of his thumb. You wonder whether to plaster him or place him in a functional splint in the first instance?

Three part question

In a [rupture of the ulnar collateral ligament of the thumb] is [plaster immobilisation better than functional splintage of spica] at [reducing instability, arthrosis and pain]?

Search strategy

Medline 1966–04/02 using the OVID interface. {(exp Collateral ligaments OR exp ligaments OR exp ligaments, articular OR ligament\$.af) AND (exp Thumb OR thumb.af)} OR (gamekeeper\$.af OR skier\$.af)] AND [exp Immobilization OR exp Casts, surgical OR exp Splints OR plaster.af OR splint.af OR spica.af] LIMIT to human AND English.

Search outcome

Altogether 50 papers were found of which only one was of sufficient quality for inclusion (see table 3).

Comment(s)

In this single study immobilisation of the thumb with a moveable splint was strongly preferred by the patients and the functional results of this technique were equal to plaster cast immobilisation after both surgical and non-surgical treatment.

► CLINICAL BOTTOM LINE

Functional splintage should be used in this group of patients rather than plaster casts.

Sollerman C, Abrahamsson SO, Lundborg G, et al. Functional splinting versus plaster cast for ruptures of the ulnar collateral ligament of the thumb. A prospective randomized study of 63 cases. *Acta Orthop Scand* 1991;62:524–6.

Perimortem caesarean section

Report by Russell Boyd, Consultant
Search checked by Stewart Teece, Clinical Research Fellow

Abstract

A short cut review was carried out to establish whether there is any evidence to show that perimortem caesarean section in

Table 3

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Sollerman C <i>et al</i> , 1991, Denmark	Total of 63 patients with acute injuries 23 patients had surgical repair (10 in casts v 13 in splints) 40 did not require surgical repair (21 in casts v 19 in splints)	PRCT	Stability Range of motion Strength Length of sick leave Patient preference	At the follow-up examination after 15 (11–41) months, there was no difference between the treatment groups as regards any of the outcomes	

Table 4

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Katz VL <i>et al</i> , 1986, USA	Reported cases of maternal deaths with perimortem caesarean section.	Literature review	Fetal survival	188 fetal survivors from 269 sections	Maternal survival not documented Strong reporting bias

the third trimester can save the life of the child or mother. Altogether 1210 papers were found using the reported search, of which one presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of this paper are tabulated. A clinical bottom line is stated

Clinical scenario

A 35 year old pregnant woman is brought into the resuscitation room of the emergency department in established cardiac arrest of three minutes duration. Full basic life support has been present since arrest; initial application of advanced protocols has not re-established circulation. You wonder whether emergency caesarean section could be life saving for either fetus or mother.

Three part question

In [a third trimester pregnant female in cardiac arrest] is [emergency caesarean section effective] at [improving outcome for mother or fetus]?

Search strategy

Medline 1966–04/02 using the OVID interface. [{exp heart arrest OR exp cardiopulmonary resuscitation OR exp resuscitation OR cardiac arrest.mp OR resuscitation.mp OR perimortem.mp} AND {exp cesarean section OR cesarean.mp OR caesarean.mp OR cesarian.mp OR pregnan\$.mp OR gravid\$.mp OR uterine.mp}] LIMIT to human AND English Language

Search outcome

Altogether 1210 articles were identified, one of which was a summary of case reports up to 1985. This is summarised in table 4. Thirteen were case reports after 1985. The remaining 1196 reports were excluded as they were either case reports pre-1985 or failed to answer the three part question.

Comment(s)

Of the 15 cases reported after 1985 there were six maternal and 11 fetal survivors (including one set of twins), four of these cases had survival of both parties. Success rates seem high but reporting bias will be strongly influential in cases of this type, with only two of the 13 papers reporting loss of both mother and child in three cases. Although there is no quality evidence in this field, and there is no chance of controlled trials.

Katz VL, Dotters DJ, Droegemueller W. Perimortem cesarean delivery. *Obstet Gynecol* 1986;68:571–6.

Topical antibiotics in acute bacterial conjunctivitis

Report by Ian Crawford, *Clinical Research Fellow*

Search checked by Don Othoro, *Senior House Officer*

Abstract

A short cut review was carried out to establish whether there is any evidence to show if topical antibiotic therapy reduces

time to remission in acute bacterial conjunctivitis. Altogether 1231 papers were found using the reported search, of which one presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of this paper are tabulated. A clinical bottom line is stated.

Clinical scenario

One evening after the emergency eye centre has closed you assess a patient and diagnose acute bacterial conjunctivitis. Your usual practice is to prescribe topical antibiotic therapy. Having recently attended a BestBETs course you wonder if this has been shown to reduce the time to clinical remission.

Three part question

In [patients with acute bacterial conjunctivitis] is [the use of topical antibiotic therapy better than placebo] at [reducing the time to clinical remission]?

Search strategy

Medline 1966–04/02 using the OVID interface, Cochrane Library Issue 1, 2002. Medline: (exp Chloramphenicol OR chloramphenicol.af OR exp Chlortetracycline OR chlortetracycline.af OR exp Ciprofloxacin OR ciprofloxacin.af OR exp Framycetin OR framycetin.af OR exp Fusidic acid OR fusidic acid.af OR exp Gentamicins OR gentamicin.af OR exp Neomycin OR neomycin.af OR exp Ofloxacin OR ofloxacin.af OR exp Polymyxin B OR polymyxin.af OR lomefloxacin.af OR propamidine.af OR exp Anti-Infective agents OR anti-infective agent\$.af OR antib\$.af) AND (exp Conjunctivitis OR conjunctiv\$.af) AND maximally sensitive RCT filter AND (LIMIT to human AND English). Cochrane: (CONJUNCTIVITIS, BACTERIAL) AND (ANTIBIOTICS)

Search outcome

Altogether 1231 papers were found of which three were relevant and had been meta-analysed by the Cochrane Eyes and Vision Group. This review was last updated on the 27 October 1999. No further relevant papers were identified after this date. This paper is shown in table 5.

Comment(s)

The meta-analysis indicates that acute bacterial conjunctivitis is frequently a self limiting condition, as early (days 2–5) clinical remission occurred in 64% (95% CI 57% to 71%) of those treated with placebo.

► CLINICAL BOTTOM LINE

The use of topical antibiotic therapy does reduce the time to clinical remission in patients with acute bacterial conjunctivitis.

Sheikh A, Hurwitz B, Cave J. Antibiotics versus placebo for acute bacterial conjunctivitis (Cochrane Review). *The Cochrane Library Issue 1*. Oxford: Update Software, 2002.

Table 5

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Sheikh A <i>et al</i> , 1999, UK	527 patients, from 3 studies, with acute bacterial conjunctivitis randomised to receive either topical antibiotic preparation or placebo	Meta-analysis	Early (days 2–5) clinical remission Late (days 6–10) clinical remission	RR 1.31 (99% CI 1.11 to 1.55) RR 1.27 (99% CI 0.92 to 1.74)	Inclusion criteria of swab proven acute bacterial conjunctivitis in only 2 of the 3 studies Different topical antibiotic preparations in each of the 3 studies Selected specialist care patient populations

Bell's palsy and acyclovir

Report by Man-Cheuk Yuen, Senior Medical Officer, Kwong Wah Hospital, Hong Kong

Search checked by Ian Crawford, Clinical Research Fellow

Abstract

A short cut review was carried out to establish whether acyclovir improves functional recovery in Bell's palsy. Altogether 49 papers were found using the reported search, of which two presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of these papers are tabulated. A clinical bottom line is stated.

Clinical scenario

A 45 year old man presents to the emergency department with a one day history of left side facial weakness. Physical examination confirms that the patient has an incomplete left sided Bell's palsy. As prednisone has a limited role in improving the recovery of incomplete Bell's palsy and medical literature postulates a viral aetiology in Bell's palsy, you wonder whether acyclovir would improve the outcome for this patient.

Three part question

In [an adult patient with Bell's palsy] does [acyclovir] improve [functional recovery]?

Search strategy

Medline 1966–04/02 using the OVID interface. Cochrane Library, Issue 1 2002. Medline: [exp Bell palsy or exp Facial

paralysis OR exp Facial nerve OR bell palsy.af OR bells palsy.af OR (facial adj5 palsy).af OR (facial adj5 paralysis).af OR (facial adj5 weakness).af] AND [exp Acyclovir or acyclovir.af OR zovirax.af] LIMIT to Human AND English language. Cochrane: (Bell palsy)

Search outcome

Altogether 49 papers were found of which two were relevant and had been included in a systematic review by the Cochrane Neuromuscular Disease Group.¹ A meta-analysis was not performed, as the two studies were not directly compatible. This review was last updated on the 19 November 2001. No further relevant papers were identified after this date. These papers are shown in table 6.

Comment(s)

The results from the Adour trial suggest that treatment with acyclovir and prednisolone is more effective than treatment with prednisolone alone. However, the results from the De Diego trial suggest that treatment with prednisolone alone is more effective than treatment with acyclovir alone. Both studies are small and a significant number of patients were lost to follow up in each. A large PRCT with a real placebo control group is needed to clarify the effectiveness of acyclovir in the treatment of Bell's palsy.

► CLINICAL BOTTOM LINE

Current evidence does not support the use of acyclovir alone in Bell's palsy. The combination of acyclovir and prednisone may have a small benefit in the final functional recovery.

Adour KK, Ruboyanes JM, Von Doersten PG, *et al*. Bell's palsy treatment with acyclovir and prednisone compared with prednisone alone: A double-blind, randomized, controlled trial. *Ann Otol Rhinol Laryngol* 1996;**105**:371–8.

Table 6

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Adour KK <i>et al</i> , 1996, USA	119 patients presented within the first 72 hours Acyclovir and prednisolone v placebo and prednisolone Acyclovir 2000 mg per day for 10 days Prednisolone 1 mg/kg for 5 days tapered to 10 mg/day for next 5 days	PRCT	Visual assessment of motor recovery by FPRP & FPR1 Electrical testing	Small treatment effect was demonstrated in the acyclovir and prednisolone group (p=0.04) Acyclovir and prednisolone group had less partial nerve degeneration (p=0.05)	Small study 20% patients (16.8%) were lost to follow up No intention to treat analysis
De Diego JI <i>et al</i> , 1998, Spain	113 patients presenting within the first 96 hours Acyclovir alone v prednisolone alone Acyclovir 2400 mg per day for 10 days Prednisolone 1 mg/kg for 10 days tapered to zero over the next 6 days	PRCT	Visual assessment of motor recovery by FPRP Electrical testing	Prednisone was beneficial (p=0.0338) Prednisone had less degeneration of marginal branch of facial nerve (p=0.02)	Small study No real placebo control group 12 patients (10.6%) were lost to follow up No intention to treat analysis

Table 7

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Singer AJ <i>et al</i> , 1998, USA	68 alert adult patients requiring intravenous cannulation in the ED. Patients were randomised to receive tape stripping. All measurements made on 100 mm VAS. Scotch tape was applied and stripped 20 times to remove the stratum corneum.	PRCT	Pain during cannulation Pain during tape stripping Success rate for cannulation	Less with tape stripping 29.7 mm v 39 mm p=0.017 4.8 mm +/-7.4 mm 91% for tape stripping v 74% without p=0.056	Adult patients No blinding of person performing IV cannulation Convenience sample rather than sequential Only small differences in VAS scores found

De Diego JI, Prim MP, De Sarría MJ, *et al*. Idiopathic facial paralysis: A randomized, prospective and controlled study using single-dose prednisone versus acyclovir three times daily. *Laryngoscope* 1998;**108**:573–5.

1 **Sipe J**, Dunn L. Aciclovir for Bell's palsy (idiopathic facial paralysis) (Cochrane Review). In: *The Cochrane Library Issue 1*. Oxford: Update Software, 2002.

Tape stripping the stratum corneum and the effectiveness of EMLA

Report by Simon Carley, Specialist Registrar
Checked by Kerstin Hogg, Clinical Research Fellow

Abstract

A short cut review was carried out to establish whether there is any evidence to show that stripping the stratum corneum with adhesive tape reduces time to analgesia after application of EMLA in children undergoing venepuncture. Altogether 43 papers were found using the reported search, of which one presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of this paper are tabulated. A clinical bottom line is stated

Clinical scenario

A 2 year old child presents to the emergency department with a limp. The child is mildly feverish and has some limitation of movement. You decide to take blood as part of your diagnostic strategy to exclude septic arthritis. The parents are keen to get on with the tests and are disappointed that the EMLA cream you intend to use takes so long to work. The paediatric emergency nurse suggests using tape to “clean” the skin before application to get the EMLA to work faster. You have no idea what she is talking about but wonder whether there is any evidence to show that she is right.

Three part question

In [children undergoing venepuncture after EMLA cream] does [stripping the stratum corneum with adhesive tape] reduce [time of onset, pain and distress of the procedure]?

Search strategy

Medline 1966–04/02 using the OVID interface. [EMLA.mp OR eutectic.mp OR ({exp anesthesia, local OR exp anesthetics, local OR exp Lidocaine OR local anaesthetic\$.mp OR local anesthetic\$.mp}) AND {exp administration, topical OR topical.mp}]] AND [exp adhesives OR exp bandages OR TAPE.mp] LIMIT to human AND English.

Search outcome

Altogether 47 papers were found of which one was relevant to the three part question. This paper is shown in table 7.

Comment(s)

The single study found shows a small benefit to tape stripping, but only involves adult patients undergoing venepuncture. It is debatable whether the small differences in VAS seen are clinically important (normally at least a change of 10 mm would be considered significant). In our practice EMLA is almost exclusively used in children. There is an amount of pain that is attributable to the tape stripping procedure, though this is a low value. However, applying the tape and stripping it 20 times is likely to be distressing for many children. This adult study does not investigate the probable difficulties in applying this technique in children. It is our perception that they would find the tape stripping distressing. For this reason we do not feel that it is possible to extrapolate the results of this study to children.

► CLINICAL BOTTOM LINE

Tape stripping the stratum corneum increases the effectiveness of EMLA in adults by a small degree. Its effectiveness in children is unknown.

Singer AJ, Shallat J, Valentine SM, *et al*. Cutaneous tape stripping to accelerate the anesthetic effects of EMLA cream: a randomized, controlled trial. *Acad Emerg Med* 1998;**5**:1051–6.

Staples or sutures for repair of scalp laceration in adults

Report by Kerstin Hogg, Clinical Research Fellow

Search checked by Simon Carley, Specialist Registrar

Abstract

A short cut review was carried out to establish whether staples are better than sutures for scalp wound repair in adults. Altogether 42 papers were found using the reported search, of which four presented the best evidence to answer the clinical question. The author, date and country of publication, patient group studied, study type, relevant outcomes, results and study weaknesses of these best papers are tabulated. A clinical bottom line is stated.

Clinical scenario

An elderly lady is admitted to the emergency department after collapsing in the street. She has a 3 cm laceration in the left parietal area. Neurological examination and skull radiograph

Table 9

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Kanegaye JT <i>et al</i> , 1997, USA	88 patients age 13 months to 16 years, attending emergency department with scalp lacerations	Prospective randomised study	Patient pain (self reported) Patient restraint Speed of repair Parental satisfaction Cost of repair Wound complications at 7 days Needlestick injuries	No statistical difference between scores. Some form of immobilisation used in 49% staple group and 60% suture group. Staples were 6 times faster than sutures per wound, and 8 times faster per cm wound repaired. Taking into account skin preparation time, stapling was twice as fast. Fellows were one and a half times faster at stapling than residents. No difference between groups Staples cost 39% less than sutures per wound closure, even when paying a fellow rather than a resident. None One glove punctured during staple repair, and two needles lost during suturing.	No fixed protocol for local anaesthetic administration Costs assume repair by a physician Group size too small to effectively establish rate of wound complications

edge. He has a 2 cm laceration over the occipital region. You examine the wound and wonder whether staples might be an easier alternative to sutures.

Three part question

In [children with scalp lacerations] are [staples better than sutures] for [ease of application and patient comfort]?

Search strategy

Medline 1966–04/02 using the OVID interface and Cochrane Library, Issue 1 2002. Medline:[(exp Sutures OR sutur\$.mp OR exp Suture Techniques OR stitch\$.mp) AND (exp Surgical Staplers OR exp Surgical Stapling OR stapl\$.mp) AND (exp Scalp OR scalp.mp OR exp Craniocerebral Trauma OR head.mp OR head injur\$.mp) AND (exp child OR exp adolescence OR exp child, abandoned OR exp child, exceptional OR exp child, hospitalized OR exp child, institutionalized OR exp child of impaired parents OR exp child, preschool OR exp child, unwanted OR exp disabled children OR exp homeless youth OR exp infant OR exp only child OR child\$.mp OR exp pediatrics OR pediatric\$.mp OR paediatric\$.mp)]. Cochrane: SURGICAL-STAPLERS*:ME AND SUTURES*:ME AND CHILD*:ME

Search outcome

Medline: eight papers were found of which seven were irrelevant. The remaining paper was also found in Cochrane (three papers found, two irrelevant). The paper is shown in table 9.

Comment(s)

The evidence seems encouraging that staples are a cheaper, faster and effective way of closing scalp wounds in children, but larger studies are required to confirm this.

► CLINICAL BOTTOM LINE

Staples may turn out to be more effective at scalp wound closure in children, but further research is awaited.

Kanegaye JT, Vance CW, Chan L, *et al*. Comparison of skin stapling devices and standard sutures for pediatric scalp lacerations: a randomised study of cost and time benefits. *J Pediatr* 1997;**130**:808–13.

Tangential views or computed tomography in suspected depressed skull fracture

Report by Magnus Harrison, *Specialist Registrar*

Search checked by Steve Jones, *Specialist Registrar*

Abstract

A short cut review was carried out to establish whether CT scans are better than tangential skull radiographs at detecting depressed skull fractures. No papers answering this question were found using the reported search.

Clinical scenario

A 35 year old man alleges that he has been assaulted. He claims that he was hit on the head with a hammer. He is only complaining of pain around the site of the injury. On examination there is haematoma present, but no laceration. Standard skull views reveal no bony injury. You suspect a depressed skull fracture and wonder whether a tangential radiograph of the site of the injury, or a CT scan would be better able to detect it.

Three part question

In [patients presenting with head injury and suspicion of depressed skull fracture] is [tangential radiograph or CT scan better] at [detecting depressed skull fracture].

Search strategy

Medline 1966–04/02 using the OVID interface. [exp skull fractures OR exp skull fracture, depressed OR ({skull.mp OR cranium.mp OR calvarium.mp}) AND {fracture.mp AND depressed.mp}]] AND [exp x-rays OR x-rays.mp OR roentgenogram.mp OR tangential.mp OR oblique.mp] AND [exp tomography, x-ray computed OR ct.mp OR tomography.mp OR ct scan\$.mp] LIMIT to human AND English.

Search outcome

Altogether 40 papers were found. None of the papers answered the three part question.

Comment(s)

Intuitively it would seem that CT scan is the best method

available to investigate such injuries. However, there is no evidence to show that it is better than tangential skull views.

► CLINICAL BOTTOM LINE

Local neurosurgical advice should be followed.