

BEST EVIDENCE TOPIC REPORTS

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

Edited by K Mackway-Jones

Emerg Med J 2003;20:61–67

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 practicing 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 <http://www.bestbets.org>³ Eight BETs are included in this issue of the journal.

- ▶ Reduction of pulled elbows
- ▶ Alternative treatments for neck sprain
- ▶ Tetanus prophylaxis in superficial corneal abrasions
- ▶ Gastric lavage in tricyclic antidepressant overdose
- ▶ Treatment of uncomplicated subungual haematoma
- ▶ Use of sterile gloves in the treatment of simple wounds
- ▶ Antibiotics in orbital floor fractures
- ▶ Contraindications to thrombolysis in patients on coumarins

K Mackway Jones, Department of Emergency Medicine, Manchester Royal Infirmary, Oxford Road, Manchester M13 9WL, UK; kevin.mackway-jones@man.ac.uk

- 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.

Reduction of pulled elbows

Report by David Lewis, *East Anglian Trainees*

Checked by Jon Argall, *Senior Clinical Fellow*

Abstract

A short cut review was carried out to establish whether a pronation manoeuvre is better than a supination manoeuvre for first time reduction of pulled elbow. Altogether 57 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 2 year old child is brought into the emergency department by her parents. They tell you that she has not used her left arm since tripping over while holding her older sister's hand. The child is holding her left arm flexed at the elbow and semi-prone. The diagnosis is clearly a pulled elbow. You have heard various colleagues arguing vehemently for pronation and supination manoeuvres, and wonder which is actually the best method for reduction?

Three part question

In [a patient with a pulled elbow] is [a pronation manoeuvre better than a supination manoeuvre] at achieving [reduction and return to function at the first attempt]?

Search strategy

Medline 1966–10/02 using the OVID interface. [exp Elbow OR exp Elbow joint OR elbow.mp] AND [exp adolescence OR exp child OR exp child of impaired parents OR exp child, abandoned OR exp child, exceptional OR exp child, hospitalized OR exp child, institutionalized 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] AND [exp Dislocations OR dislocation.mp OR subluxation.mp] AND [exp Manipulation, orthopedic OR manipulation.mp OR exp Pronation OR pronation.mp OR exp Supination OR supination.mp] LIMIT to human AND English.

Table 1

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Macias CG <i>et al</i> , 1998, USA	90 patients with pulled elbow over 12 months Pronation v supination	PRCT	Success rate	95% v 77%	Not blinded
McDonald J <i>et al</i> , 1999, USA	148 patients with pulled elbow over 16 months Pronation v supination	PRCT	Success rate Left arm only Pain	80% v 69% (NS) 89% v 71% less with pronation (NS)	Not blinded

Search outcome

Altogether 57 papers were found of which 54 were irrelevant or of insufficient quality. The remaining three were all randomised controlled trials. One of these was looking at supination with flexion compared with extension. The remaining two papers are shown in table 1.

Comment(s)

The classic method for reduction of pulled elbows is supination at the wrist followed by flexion at the elbow. There has been no difference demonstrated between flexion and extension during this manoeuvre. When studying a practical procedure it is impossible to exclude all bias and this may weaken these results.

► CLINICAL BOTTOM LINE

Pronation with or without elbow flexion is the first line method of reduction for pulled elbows.

Macias CG, Bothner J, Wiebe R. A comparison of supination/flexion to hyperpronation in reduction of radial head subluxations. *Pediatrics* 1998;**102**:e10.

McDonald J, Whitelaw C, Goldsmith U. Radial head subluxation: comparing two methods of reduction. *Acad Emerg Med* 1999;**6**:15–18.

Alternative treatments for neck sprain

Report by Kerstin Hogg, *Clinical Research Fellow*

Checked by Rosemary Morton, *Consultant Abstract*

A short cut review was carried out to establish whether osteopathy or chiropractic treatments improve outcome in patients with neck sprain. Altogether 206 papers were found using the reported search, of which nine 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 25 year old woman attends the emergency department having been in a rear end shunt. She complains of pain in her neck. On examination she has right sternomastoid tenderness and restricted movement. You diagnose a neck sprain and advise physiotherapy, exercise and anti-inflammatory drugs. She asks you whether she should go and see an osteopath or a chiropractor. You wonder whether there is any evidence for these alternative treatments.

Three part question

In [adults with neck sprain] does [osteopathy or chiropractic] improve [outcome]?

Search strategy

Medline using the OVID interface 1966–10/02, Cochrane Library 2002 Issue 3 and hand search of paper references. [(exp Neck injuries OR exp Neck pain OR neck.mp OR whiplash.mp) AND (exp Osteopathic medicine OR osteopath\$.mp OR chirop\$.mp)] LIMIT to human AND English.

Search outcome

Altogether 206 papers were found, of which 13 were relevant. One literature review is not included in table 2 as all the papers are either represented in another review or described separately. Three papers were excluded on the basis of having 10 or fewer patients. The remaining nine papers are shown in table 2.

Many of the studies also include patients with lower back pain—only the neck pain patients are described in table 2.

Comments

Virtually all of these studies are flawed and the numbers tiny. In particular there are no powerful studies comparing best conventional treatment with best alternative treatments. There were no papers relating directly to osteopathy.

► CLINICAL BOTTOM LINE

Chiropractic therapy is associated with improvement in neck symptoms but there is no evidence to show whether this improvement is greater or worse than that obtained with conventional treatment.

Koes BW, Assendlft WJJ, van der Heijden GJMG, *et al.* Spinal manipulation and mobilisation for back and neck pain: a blinded review. *BMJ* 1991;**303**:1298–303.

Cassidy JD, Lopes AA, Yong-Hing K. The immediate effect of manipulation versus mobilisation on pain and range of motion in the cervical spine: a randomised controlled trial. *J Manipulative Physiol Ther* 1992;**15**:570–5.

Koes BW, Bouter LM, van Mameren H, *et al.* A randomised clinical trial of manual therapy and physiotherapy for persistent back and neck complaints: subgroup analysis and relationship between outcome measures. *J Manipulative Physiol Ther* 1993;**16**:211–19.

Skargren EI, Oberg BE, Carlsson PG, *et al.* Cost effectiveness analysis of chiropractic and physiotherapy treatment for low back and neck pain. *Spine* 1998;**22**:2167–77.

Verhoef MJ, Page SA, Waddell SC. The chiropractic outcome study: pain, functional ability and Satisfaction with care. *J Manipulative Physiol Ther* 1997;**20**:235–40.

Woodward MN, Cook JCH, Gargan MF, *et al.* Chiropractic treatment of chronic whiplash injuries. *Injury* 1996;**27**:643–5.

Jordan A, Bendrix T, Nielsen H, *et al.* Intensive training, physiotherapy, or manipulation for patients with chronic neck pain. *Spine* 1998;**23**:311–19.

Giles LGF, Muller R. Chronic spinal pain syndromes: a clinical pilot trial comparing acupuncture, a non-steroidal anti-inflammatory drug and spinal manipulation. *J Manipulative Physiol Ther* 1999;**22**:376–81.

McMorland G, Suter E. Chiropractic management of mechanical neck and low-back pain: a retrospective, outcome-based analysis. *J Manipulative Physiol Ther* 1999;**23**:307–11.

Tetanus prophylaxis in superficial corneal abrasions

Report by Prodeep Mukherjee, *Specialist Registrar*

Checked by A Sivakumar, *Consultant Abstract*

A short cut review was carried out to establish whether tetanus prophylaxis is indicated after non-penetrating corneal abrasion. Altogether 30 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 best paper are tabulated. A clinical bottom line is stated.

Clinical scenario

A 44 year old man presents to the emergency department with a foreign body sensation in his right eye. Fluorescein examination reveals a piece of grit. After removal there is a small corneal abrasion with no evidence of perforation. The patient has had a primary course of tetanus antitoxin and thinks his only tetanus booster was less than 10 years ago but is not sure. You wonder whether the patient requires a tetanus booster to reduce any risk from the abrasion.

Three part question

In [patients with non penetrating corneal abrasion] is [tetanus toxoid booster] necessary to [prevent clinical tetanus infection]?

Search strategy

Medline 1966–10/02 using the OVID interface. [(exp tetanus OR exp tetanus antitoxin OR exp tetanus toxin OR exp tetanus toxoid OR tetanus.mp) AND (exp Cornea OR corneal abrasion.mp OR exp Eye Injuries OR exp Eye Foreign Bodies OR exp Wounds, Nonpenetrating)].

Search outcome

Altogether 31 papers found of which 21 were irrelevant or of insufficient quality for inclusion. Five papers on cases of tetanus

following penetrating eye injuries, one paper on tetanus from an eyelid injury, and three papers on treatment of ocular animal bite injuries were excluded as not directly relevant. The remaining paper is shown in table 3.

Comment(s)

The only relevant paper found was an experimental animal study. Unlike skin, corneal epithelium does not have an underlying blood supply (receiving nutrients from the aqueous humor) and often shows substantial healing within six hours of

Table 2

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Koes BW <i>et al</i> , Netherlands, 1991	5 RCTs all comparing cervical manipulation to a control Total number of patients combined 111	Review	Recovery	3 studies concluded manipulation better than collar and analgesics. 2 studies showed no significant difference between manipulation and diazepam, a collar and transcutaneous nerve stimulation	Studies rated poor-moderate on methodology scoring
Cassidy JD <i>et al</i> , Canada, 1992	100 patients with mechanical neck pain, One manipulation v mobilization	RCT	Mean improvement in pain as measured by visual analogue scale	17.3 (SD19.5) v 10.5 (SD14.8)	Only one treatment with pain score repeated immediately afterwards No long term follow up Manipulation was not carried out by an osteopath or chiropractor
Koes BW <i>et al</i> , Netherlands, 1993	29 patient with neck pain physiotherapy (n=17) v manual therapy n=12 (manipulation and mobilisation)	RCT	Subjective pain measurement and physical function over 12 months	Both groups improved without any statistical difference between groups	Patients were also assigned to receive treatment by their GP and placebo. These results were not reported Small numbers
Skargren EI <i>et al</i> , Sweden, 1996	70 patients with neck pain physiotherapy (n=29) v chiropractic (n=41)	RCT	Subjective pain; Function, general health Sick leave Fulfillment of patient expectation. All measured until 6 months	Significant improvement in pain, function and general health in both groups No difference 41% of chiropractic group v 24% physiotherapy group	No breakdown of results between back and neck pain patients given for the last 2 outcomes
Verhoef MJ <i>et al</i> , Canada, 1997	106 patients with neck pain and 88 with neck and back pain. All had chiropractic manipulation	Prospective cohort	Disability (Neck Disability Index)	Baseline mean score 23.5, mean score at 6 weeks 13.3 p<0.001	No control group
Woodward MN <i>et al</i> , UK, 1996	28 patients with chronic "whiplash" syndrome. All had chiropractic manipulation	Retrospective cohort	Disability at baseline and following treatment	26/28 patients had reduction in disability	Follow-up time period not specified Disability classified by either a chiropractor or by an orthopaedic doctor over the phone No control group
Jordan A <i>et al</i> , Denmark, 1998	119 patients with neck pain for more than 3 months intensive training physiotherapy v chiropractic treatment	RCT	Self reported pain and disability Medication use All of above measured until 12 months.	All treatment modality groups had improved pain levels and disability scores All groups progressively reduced analgesic intake	All groups underwent intervention. No comparison with natural progression of injury
Giles LGF and Muller R, Australia, 1999	33 patients with neck pain for at least 13 weeks, chiropractor manipulation (n=18), acupuncture (n=7) or medication (n=7)	RCT	Disability (Neck Disability Index) Measured at 4 weeks Pain as measured by visual analogue scale	Manipulation group median index score reduced by 10 points p=0.001 No statistically significant reduction in acupuncture or medication group Manipulation group median pain score reduced by 1.5 points p=0.002 No statistically significant reduction in acupuncture or medication groups	Very small numbers particularly in acupuncture and medication groups Numbers within table referring to number of patient with neck pain do not add up
McMorland G and Suter E, Canada, 1999	61 patients presenting to chiropractic with neck pain. All received chiropractic manipulation	Retrospective cohort	Neck Disability Index score	Reduction in score after 4 weeks of treatment	No statistics displayed 244 patients who did not complete therapy because they got better or worse were excluded! No control group

Table 3

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Benson WH <i>et al</i> , 1993, USA	Unimmunised mice Animal model surgically injecting live C tetani or tetanus toxin into mice cornea	(Prospective) Experimental animal model	Incidence of clinical tetanus following: - corneal abrasion - corneal penetration - corneal perforation Incidence in immunised mice	0/9 0/9 10/27 0/42	Animal model C tetani organisms and toxin used pure – not representative of usual clinical mixed flora

injury. Criteria for deciding if a corneal abrasion is tetanus prone or not should therefore probably be different than that for standard skin abrasions. Finally there are no case reports in the literature of clinical tetanus developing from a simple corneal abrasion. In clinical practice it should be remembered that there may be public health benefits in encouraging tetanus prophylaxis whenever the opportunity arises.

► CLINICAL BOTTOM LINE

There is no clinical reason to provide tetanus prophylaxis in the emergency department following superficial corneal abrasions with no evidence of perforation, infection, or devitalised tissue.

Benson WH, Snyder IS, Granus V, *et al*. Tetanus prophylaxis following ocular injuries. *J Emerg Med* 1993;11:677–83.

Gastric lavage in tricyclic antidepressant overdose

Report by Stewart Teece, *Clinical Research Fellow*

Checked by Kirsten Hogg, *Clinical Research Fellow*

Abstract

A short cut review was carried out to establish whether gastric lavage is indicated after tricyclic antidepressant overdose. Altogether 82 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 best paper are tabulated. A clinical bottom line is stated.

Clinical scenario

A 23 year old air hostess is brought into the emergency department having been found collapsed next to an empty bottle of

amitriptyline. She has a Glasgow Coma Scale score of 7/15, is tachycardic and twitchy. After a rapid sequence induction and intubation you wonder whether there is any benefit from gastric lavage.

Three part question

[In overdose of tricyclic antidepressant] is [gastric lavage better than charcoal or nothing] at [reducing toxicity]?

Search strategy

Medline 1966–10/02 using the Ovid interface. [(exp gastric lavage OR gastric lavage.mp OR washout.mp OR exp irrigation or lavage.mp OR gastric emptying.mp) AND (exp disipramine OR exp antidepressive agents, tricyclic OR exp antidepressive agents OR exp amitriptyline OR exp imipramine OR tricyc\$.mp OR amitriptyline.mp) AND (exp poisoning OR poisoning.mp OR exp overdose OR overdose.mp)] LIMIT to human AND English Language.

Search outcome

Altogether 82 papers found, 81 of which were not relevant to the question. The remaining paper is shown in table 4.

Comment(s)

This study shows no statistically significant difference between the three groups. Although it seems small it has 80% power for showing a change of ITU admission time of 12 hours at $p=0.05$. Furthermore, a study by Watson *et al* showed that only 8.7% (95% C.I. 0.4 to 21.7%) of the estimated dose of tricyclic was recovered by gastric lavage.

► CLINICAL BOTTOM LINE

There is no evidence for gastric lavage in tricyclic antidepressant overdose.

Bosse GM, Barefoot JA, Pfeifer MP, *et al*. Comparison of three methods of gut decontamination in tricyclic antidepressant overdose. *J Emerg Med* 1995;13:203–9.

Watson WA, Leighton H, Guy J, *et al*. Recovery of cyclic depressants with gastric lavage. *J Emerg Med* 1989;7:373–7.

Table 4

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Bosse GM <i>et al</i> , 1995, USA	51 patients presenting with tricyclic overdose. Charcoal only (n=22) v charcoal then lavage (n=14) v charcoal then lavage then charcoal (n=15) 39 intubated	RCT	Mean length of stay Mean length ICU stay Mean mechanical ventilation time Aspiration	93.3 (+/- 94.3) hours v 107.2 (+/- 106.8) hours v 66.7 (+/- 41.7) hours (p=0.473) 66.9 (+/- 96.0) hours v 54.1 (+/- 34.3) hours v 34.4 (+/- 27.3) hours (p=0.436) 43.4 (+/- 17.7) hours v 24.1 (+/- 18.3) hours v 17.8 (+/- 14.0) hrs (p=0.321) 2/22 v 3/14 v 3/15 (p=0.501)	Not blinded Small numbers Variations between presenting GCS and drug levels between groups

Treatment of uncomplicated subungual haematoma

Report by Nicola Batrick, *Specialist Registrar*
Checked by Kambiz Hashemi and Ramzi Freij, *Consultants*

Abstract

A short cut review was carried out to establish whether nail removal and nail bed repair is better than simple trephining in patients with significant subungual haematoma. Altogether 312 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

A patient attends the emergency department having sustained a crush injury to the tip of their right index finger. This has resulted in a painful subungual haematoma but no other significant fingertip injury.

Three part question

In [a patient presenting with a sizeable uncomplicated subungual haematoma] is [removing the nail and repairing the nail bed laceration better than simple trephining] at [providing the best cosmetic and functional result]?

Search strategy

Medline 1966–10/02 using the OVID interface. [subungual hematoma.mp OR nail bed laceration.mp OR nail bed injuries.mp OR exp NAILS/su] LIMIT to human AND English.

Search outcome

Altogether 312 papers were identified of which 308 were considered to be irrelevant or of insufficient quality for inclusion. The other four papers are shown in table 5.

Comment(s)

It has been suggested that for subungual haematomas greater than 50% of the nail bed, the nail should be removed and the associated nail bed laceration repaired to ensure optimal cosmetic and functional results. However, there are insufficient clinical studies comparing treatment modalities to support this. It seems from the studies quoted that simple trephining of the nail in an uncomplicated subungual haematoma with no other significant finger tip injury gives good cosmetic and functional results.

► CLINICAL BOTTOM LINE

In both adults and children with a subungual haematoma with no other significant finger tip injury, treatment by trephining gives a good cosmetic and functional result.

Simon RR, Wolgin M. Subungual hematoma: Association with laceration requiring repair. *Am J Emerg Med* 1987;5:302–4.

Seaberg DC, Angelos WJ, Paris PM. Treatment of subungual hematomas with nail trephination: A prospective study. *Am J Emerg Med* 1991;9:209–10.

Meek S, White M. Subungual haematomas: is simple trephining enough? *J Accid Emerg Med* 1998;15:269–71.

Roser SE, Gellman H. Comparison of nail bed repair versus nail trephination for subungual hematomas in children. *J Hand Surg [Am]* 1999;24:1166–70.

Table 5

Author, date and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Simon RR and Wolgin M, 1987, USA	47 consecutive patients presenting to an emergency department with subungual haematoma >25% nail bed. +/- fracture of distal phalanx Digital block, nail removed and lacerations of nail bed greater than 2–3 mm repaired using vicryl and nail replaced	Prospective observational study	Association of SUH size and repairable laceration.	16/27 patients with haematoma >50% had nail bed laceration requiring repair	Often quoted paper but no follow up of patients and no control group
Seaberg DC <i>et al</i> , 1991, USA	48 patients presenting to an emergency department with subungual haematoma Nail and nail margin intact. +/- distal phalanx fracture Electrocautery nail trephination Follow up at least 6/12	Prospective observational study	Pain relief, infection and cosmetic appearance	94% follow up. All reported a reduction in pain. No infective complications or major nail deformities regardless of SUH size or fracture	Major nail deformities not clearly defined No control group
Meeks S and White M, 1997, UK	123 patients presenting to emergency departments treated by simple trephining 94 followed up for 5–13 months	Retrospective	Functional and cosmetic appearances Infection	Excellent ie no residual abnormality or very good in 85% of those followed up. 2% poor outcome caused by nail splitting. Major nail abnormality defined by Zook's criteria occurred in 11% Infection in 5 patients. No correlation between adverse outcome and haematoma size, presence of fracture or infection	Retrospective Coding inadequate No control group Loss of patients to FU
Roser SE and Gellman H, 1999, USA	53 finger injuries in children with intact nail and nail margin, +/- tuft fracture. Formal nail bed repair v simple trephining/conservative. FU at least 4/12	Sequential study	Cosmetic deformity of nail and functional deficit Infective complications Costs	Operative and non-operative- nil at long term FU No infective complications in either group Costs significantly higher in operative group	No randomisation

Use of sterile gloves in the treatment of simple wounds

Report by Derek Keith Sage, *East Anglian Trainees*

Checked by Jon Argall, *Senior Clinical Fellow*

Abstract

A short cut review was carried out to establish whether the use of sterile gloves during the treatment of simple wounds reduces infections. Altogether 48 papers were found using the reported search, but none presented any evidence to answer the clinical question. More research is needed in this area and, in the mean time, local advice should be followed.

Clinical scenario

A patient presents to the emergency department with a laceration to his left hand. The wound needs cleaning and suturing. You wonder whether sterile gloves are really necessary in the treatment of simple wounds.

Three part question

In [patients with simple wounds] does the use of [sterile gloves rather than clean non-sterile gloves] produce less [wound infections]?

Search strategy

Medline 1966–10/02 using the OVID interface. [exp “wounds and injuries” OR exp wounds, penetrating OR exp lacerations OR laceration.mp] AND [exp gloves, surgical OR exp gloves, protective OR glove.mp] AND [exp infection OR infection.mp OR exp focal infection OR exp surgical wound infection OR exp wound infection] LIMIT to human AND English.

Search outcome

Altogether 48 papers were found none of which directly answered the question.

Comment(s)

There seems to be no available evidence for the use of sterile gloves over clean non-sterile gloves in the treatment of simple traumatic wounds.

► CLINICAL BOTTOM LINE

It is arguably unethical to start using non-sterile gloves where the tradition has been to use sterile gloves but this is an area for potential research.

Antibiotics in orbital floor fractures

Report by Bruce Martin, *Specialist Registrar*

Checked by Angaj Ghosh, *Senior Clinical Fellow*

Abstract

A short cut review was carried out to establish whether prophylactic antibiotics are indicated in patients with undisplaced maxillary or orbital floor fractures. Altogether 214 papers were found using the reported search, but none presented any evidence to answer the clinical question. More research is needed in this area and, in the mean time, local advice should be followed.

Clinical scenario

A 28 year old man presents to the emergency department with a punch injury to the left side of his face after a fracas. Clinical examination reveals no wound, but tenderness, bruising and

swelling over the left infraorbital area. Radiological examination confirms the presence of fluid within the maxillary sinus, suggesting an undisplaced fracture of the orbital floor. You wonder whether you should prescribe him oral antibiotics to reduce the incidence of infection.

Three part question

In [patients with undisplaced maxillary or orbital floor fractures] are [antibiotics better than no antibiotics] at [preventing infective complications]?

Search strategy

Medline 1966–10/02 using the OVID interface. [(exp facial bones OR exp facial injuries OR facial.mp) AND (exp fractures OR exp maxillary fractures OR exp orbital fractures OR exp zygomatic fractures OR fracture\$.mp) AND (exp antibiotics OR antibiotic\$.mp)] LIMIT to human AND English.

Search outcome

Altogether 214 papers were found of which all were of irrelevant or of insufficient quality.

Comment(s)

The evidence in this field is clearly lacking. There are no trials of any kind looking at the incidence of infection in patients with undisplaced orbital floor fractures. There is clearly a need for further investigation into this area.

► CLINICAL BOTTOM LINE

Local advice should be followed.

Contraindications to thrombolysis in patients taking coumarins

Report by Andy Ashton, *Senior Clinical Fellow*

Checked by Stewart Teece, *Clinical Research Fellow*

Abstract

A short cut review was carried out to establish what level of INR was a contraindication to thrombolysis in patients taking warfarins. Altogether 296 papers were found using the reported search, but none presented any evidence to answer the clinical question. More research is needed in this area and, in the mean time, local advice should be followed.

Clinical scenario

A 73 year old woman presents to the emergency department with chest pain. Her ECG shows left bundle branch block. She is taking warfarin for recurrent pulmonary emboli. Her INR is 2.7. While you look for her old notes to see if her left bundle branch block is new or not, you try to find out at what INR thrombolysis is contraindicated. Everyone gives you an answer, but the answers are all different. You wonder if there is any evidence to support any of the recommendations.

Three part question

In [a patient with myocardial infarction who is anticoagulated] at what [INR] is [thrombolysis contraindicated]?

Search strategy

Medline 1966–10/02 using the OVID interface. [exp urinary plasminogen activator OR exp thrombolytic therapy OR exp fibrinolysis OR exp tissue plasminogen activator OR exp fibrinolytic agents OR exp streptokinase OR thromboly\$.af OR streptokinase.af OR urokinase.af OR TPA.af OR (tissue adj5

plasminogen adj5 activator).af OR fibrinoly\$.af OR plasminogen activator.af] AND [exp International Normalized Ratio OR INR.af OR exp warfarin OR cumarin.af OR (International adj5 normalized adj5 ratio).af OR (International adj5 normalised adj5 ratio).af OR coumarin.af OR BSR.af OR (British adj 5 standardised adj5 ratio).af OR (British adj5 standardized adj5 ratio).af OR prothrombin.af] AND [exp myocardial infarction OR (myocard\$ adj5 infarct\$).af OR (heart adj5 attack).af OR stenocardia.af] LIMIT to human AND English.

Search outcome

Altogether 96 papers were found none of which were relevant to the three part question.

Comment(s)

Although various guidelines exist for thrombolysis in a patient who is anticoagulated, there does not seem to be any research evidence base for this.

► CLINICAL BOTTOM LINE

Local advice should be followed.