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 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 Infirmary[1] 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 supeficial 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

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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.

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 *et al*, 1998, USA	90 patients with pulled elbow over 12 months Pronation *v* supination	PRCT	Success rate	95% *v* 77%	Not blinded
McDonald J *et al*, 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 LJ. 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]?