

BEST EVIDENCE TOPIC REPORTS

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

Edited by K Mackway-Jones

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

- Treatment of ruptured Achilles tendon
- Treating avulsion fractures of the base of the fifth metatarsal
- Magnetic resonance imaging in acute knee haemarthrosis
- Mobilisation of lateral ligament ankle sprains

- 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.

Treatment of ruptured Achilles tendon

Report by Terry Gilpin, *Specialist Registrar*
 Search checked by Steve Southworth, *Consultant*

Clinical scenario

A 35 year old man presents with acute onset of difficulty walking which came on while playing sport. He describes sudden onset of pain at the back of the ankle. Clinical examination reveals complete rupture of the Achilles tendon. You wonder whether operative treatment is better than conservative management in this case.

Three part question

In [active patients with complete achilles tendon rupture] is [operative treatment better than conservative management] in [speeding time to recovery and improving functional outcome]?

Search strategy

Medline 1966 to 12/98 using the OVID interface. [(exp achilles tendon OR achilles tendon\$.mp OR tendoachilles.mp) AND (exp rupture OR rupture\$.mp) AND (exp emergency treatment OR exp treatment outcome OR exp treatment failure OR treat\$.mp OR treatment\$.mp)] AND maximally sensitive RCT filter;} LIMIT to human and english language.

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Table 1

Author, date, and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Nistor, 1981, USA ¹	105 consecutive patients with closed acute rupture of the Achilles tendon Surgical v non-surgical treatment	PRCT	Plantar flexion measured when static and dynamic Infection Rerupture	No statistical significance 2 (operative) v 0 (conservative) 2 (operative) v 5 (conservative)	No power study
Cetti <i>et al</i> , 1993, Denmark ²	111 patients with acute rupture of the Achilles tendon Operative v non-operative treatment Assessed at 4 months and 1 year	PRCT	Rate of resuming sports activities Calf atrophy Ankle movement Complication rate	Operative significantly higher rate Operative significantly less Operative significantly better 3 reruptures (operative) v 7 (conservative)	
Lo <i>et al</i> , 1997, Canada ³	19 English language studies 1953-97 comparing operative and non-operative treatments for tendoachilles rupture (including the RCTs above) Result pooling and analysis	Review	Time to return to work Time to return to sport Rerupture rate Complication rate	No significant difference No significant difference (Significantly) higher in non-operative Moderate and minor complications significantly higher in operative group	Reviews both randomised and non-randomised studies. No formal meta-analysis was possible

PRCT=prospective randomised controlled trial.

Search outcome

Seventy eight papers found of which 70 were irrelevant and five were of insufficient quality for inclusion; the remaining papers are shown in table 1.

Comment

Two randomised controlled trials (RCTs) and one review have been listed. The better evidence is from the RCTs since both the study selection and the statistical analysis of pooled results in the quantitative review are open to criticism. Although minor complications were more common in operatively treated patients this did not affect later outcome, whereas

repeat rupture and tendon lengthening occurred more often in the conservatively treated patients.

Clinical bottom line

On current evidence operative repair is preferable.

- 1 Nistor L. Surgical and non-surgical treatment of Achilles tendon rupture. A prospective randomized study. *J Bone Joint Surg Am* 1981;63:394-9.
- 2 Cetti R, Christensen SE, Ejsted R, *et al.* Operative vs nonoperative treatment of Achilles tendon rupture. A prospective randomized study and review of the literature. *Am J Sports Med* 1993;21:791-9.
- 3 Lo IKY, Kirkley A, Nonweiler B, *et al.* Operative versus nonoperative treatment of acute Achilles tendon rupture: a quantitative review. *Clin J Sports Med* 1997;7:207-11.

Treating avulsion fractures of the base of the fifth metatarsal

Report by Bruce Martin, *Clinical Fellow*

Search checked by Kevin Mackway-Jones, *Consultant*

Clinical scenario

A 38 year old woman presents to the emergency department after an inversion injury of the right ankle. Clinical examination and radiography confirm that there is an avulsion fracture at the base of the fifth metatarsal. You wonder whether immobilisation in a plaster cast is better than simple support bandaging.

Three part question

In [an adult with an avulsion fracture at the base of the fifth metatarsal] is [immobilisation in a below knee cast better than simple support bandaging] in [controlling symptoms and speeding time to functional recovery]?

Search strategy

Medline 1966 to 12/98 using the OVID interface. [{metatars\$.mp AND fifth.mp} AND {exp fractures OR fracture\$.mp}] LIMIT to human and english language.

Search outcome

Eighty two papers found of which 77 were irrelevant to the study question and four were of insufficient quality for inclusion; the remaining paper is shown in table 2.

Comment

This is the only trial identified in this area and it has a number of weaknesses. Further well designed and executed studies are warranted.

Clinical bottom line

On current evidence simple support bandages are the treatment of choice.

- 1 Wiener BD, Linder JF, Giattini JF. Treatment of fractures of the fifth metatarsal: a prospective study. *Foot Ankle Int* 1997;18:267-9.

Table 2

Author, date, and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Wiener <i>et al</i> , 1997, USA ¹	89 consecutive patients with avulsion fractures of the base of the fifth metatarsal Short leg cast <i>v</i> soft (Jones) dressing Followed up at 2, 4, 8, and 12 weeks	PRCT	Time in support Modified foot score (pain, gait, function, walking distance) Time to full activity Time to bony healing	No significant difference No significant difference Significantly shorter in soft dressing group 33 <i>v</i> 46 days ($p < 0.05$) No significant difference	No power study Not blinded. 33% drop out rate

PRCT=prospective randomised controlled trial.

Magnetic resonance imaging in acute knee haemarthrosis

Report by Ashes Mukerjee, *Research Fellow*

Search checked by Kevin Mackway-Jones, *Consultant*

Clinical scenario

A young man comes into the emergency department after sustaining a knee injury while playing football. Examination reveals a tense

haemarthrosis; there is no evidence of fracture on radiography. You wonder whether magnetic resonance imaging (MRI) would be better than an arthroscopy to establish a diagnosis.

Three part question

In [young adults with acute knee haemarthrosis with no obvious fracture] is [early MRI better than arthroscopy] in [diagnosing intra-articular pathology]?