

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. Each BET is based on a clinical scenario and ends with a clinical bottom line which indicates, in the light of the evidence found, what the reporting clinician would do if faced with the same scenario again. The BETs published below were first reported at the Critical Appraisal Journal Club at the Manchester Royal Infirmary¹ or placed on the BestBETs website. 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 4 BETs are included in this issue of the journal.

- ▶ Ultrasound scanning in the diagnosis of acute appendicitis in pregnancy
- ▶ Buscopan for oesophageal food bolus impaction
- ▶ U cast or functional bracing following fractures of the shaft of humerus
- ▶ Atropine: Re-evaluating its use during paediatric RSI

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**:220–222.
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**:222–226.
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.

Ultrasound scanning in the diagnosis of acute appendicitis in pregnancy

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A short cut review was carried out to establish whether ultrasonography has valuable clinical utility in pregnant women with suspected appendicitis. Ten papers were found using the reported searches, of which three 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. It is concluded that while a positive scan might be a useful indicator, a negative scan is not.

Clinical scenario

A 28-year-old woman presents to the emergency department with a 4-hour history of right iliac fossa pain, and an examination suggestive of acute appendicitis. You are aware that an isolated blood count is neither specific nor sensitive in the diagnosis of appendicitis, and the on-call surgeon suggests that an ultrasound scan may be helpful.

Three-part question

In [women with possible appendicitis in pregnancy] is [abdominal ultrasonography] good at [ruling in or ruling out appendicular disease]?

Search strategy

The Cochrane Library Issue 1 2007. Appendicitis[MeSH explode all trees] AND Pregnancy [MeSH explode all trees] 0 results. Medline 1950 to February Week 2 2007. Embase 1980 to 2007 Week 08. Using the OVID interface [appendicitis.mp. or exp Appendicitis/] OR [exp Ultrasonography/or ultrasonography.mp. OR ultrasound.mp. OR sonography.mp.] AND [exp Pregnancy/OR exp Pregnancy Complications/OR exp Pregnancy, Abdominal/OR pregnancy.mp.] Limit to English language and Human. Diagnosis Clinical Query filter (specificity)

Outcome

Ten papers were found, of which seven were irrelevant or of insufficient quality for inclusion. The three remaining papers are shown in table 1.

Comments

The results of these studies need to be viewed with caution. All suffer from the handicap of small numbers, likely selection biases and the absence of a gold standard. The analysis of the third study is seriously flawed in that indeterminate scans are not included.

▶ CLINICAL BOTTOM LINE

A positive USS may be useful in the diagnosis of acute appendicitis during pregnancy. Those patients with a negative scan should be further investigated and observed until the symptoms resolve or an alternative diagnosis is reached.

Lim HK, Bae SH, Seo GS. Diagnosis of acute appendicitis in pregnant women: value of sonography. *American Journal of Roentgenology* 1992;**159**(3):539–542.

Barloon TJ, Brown BP, Abu-Yousef MM, *et al*. Sonography of acute appendicitis in pregnancy. *Abdominal Imaging* 1995;**20**(2):149–151.

Mullins ME, Rhea JT, Greene MF, *et al*. Diagnostic imaging of suspected appendicitis in pregnant women: comparison of CT to ultrasonography. *Emerg Radiol* 2001;**8**:262–6.

Table 1

Author, country, date	Patient group	Study type	Outcomes	Key results	Study weaknesses
Lim <i>et al</i> , 1992, Korea	42 pregnant women with clinically suspected appendicitis. Gold standard operative finding (22) or observation for a median of 3 weeks (23)	Diagnostic test study	Sensitivity of USS Specificity of USS Likelihood ratios	100%, 96%, Positive 27.0 Negative 0.060	Small numbers Unclear selection Varying trimesters 3 women in third trimester excluded as uterus too large
Barloon <i>et al</i> , 1995, USA	22 pregnant women with clinically suspected acute appendicitis.. Gold standard operative finding or clinical follow up for a mean period of 19 months (6 to 36 months)	Diagnostic test study	Sensitivity of USS Specificity of USS Likelihood ratios	67%, 95%, Positive 12.6 Negative 0.35	Those not presenting with 'classical acute appendicitis' were not scanned Small numbers Varying trimesters scanned
Mullins <i>et al</i> , 2001, USA	29 women with suspected appendicitis who had ultrasound scans performed over a 12 year period Gold standard operative findings or record review	Retrospective cohort	Sensitivity of USS Specificity of USS	100% 83.3%	22 indeterminate scans not included in analysis thus reported clinical utility is for 7 scans

Buscopan for oesophageal food bolus impaction

Report by R Anderson, *Senior House Officer*
 Search checked by Jason Lee, *Specialist Registrar*
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 doi: 10.1136/emj.2007.048496

A short cut review was carried out to establish whether buscopan is effective at inducing early resolution and minimising the need for surgery in patients with oesophageal food bolus impaction. Twenty-five papers were found using the reported searches, 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. It is concluded that there is no good evidence that buscopan is effective. A properly powered RCT is needed.

Clinical scenario

A 21-year-old male attends the emergency department with "something stuck" after eating a donner kebab. You diagnose oesophageal food bolus impaction. You have heard that there are a number of non-operative early options in management and wonder if one of them, the anti-spasmodic, buscopan, would be an effective treatment.

Three-part question

In [a patient with oesophageal food bolus impaction] is [buscopan] effective at [inducing early resolution and minimising the need for operative intervention]?

Search strategy

The Cochrane Library Issue 1 2007 buscopan (ti, ab.kw.) 48 records—none relevant. Medline 1966- to February Week 2 2007 Embase 1980 to 2007 Week 08 using the OVID interface [buscopan.mp. OR exp Butylscopolammonium Bromide/] AND [oesophag\$.mp. OR esophag\$.mp. OR exp Esophagus/] AND [exp Foreign Bodies/OR bolus\$.mp. OR impact\$.mp. OR obstruct\$.mp. OR dysphagia.mp. OR foreign bod\$.mp. OR meat.mp.] Limit to English language and Human.

Outcome

Twenty-five unique papers were found employing the stated search strategy, only two of which were relevant to the question posed. These are shown in table 2.

Comments

The two studies shown show there is no difference in the spontaneous dislodgement rate in patients who receive buscopan when compared to those who do not. However the studies are both retrospective, non-randomised and small. A power calculation performed by the authors of the second study based on their data indicates that a randomised trial would

Table 2

Author, country, date	Patient group	Study type	Outcomes	Key results	Study weaknesses
Basavaraj S <i>et al</i> , 2005, UK	43 patients with food bolus obstruction treated over a 6 year period 35 treated with buscopan, 8 without	Retrospective survey	Spontaneous dislodgement	68% vs 62.5% (P=0.37)	Retrospective Not randomised Small numbers
Thomas L <i>et al</i> , 2005, UK	29 patients (31 episodes) presenting to an Emergency Department over 16 years with meat bolus obstruction 22 episodes treated with buscopan, 9 without	Retrospective survey	Spontaneous dislodgement	82% vs 78% (P=0.577)	Retrospective Not randomised Small numbers