

BEST EVIDENCE TOPIC REPORTS

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

Edited by S D Carley

Emerg Med J 2006;23:61–66. doi: 10.1136/emj.2005.032581

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. 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 Four BETs are included in this issue of the journal.

- ▶ Use of intravenous cyclizine in cardiac chest pain
- ▶ Rapid sequence induction in the emergency department by emergency medicine personnel
- ▶ Absorbable sutures in paediatric lacerations
- ▶ Smectite for acute diarrhoea in children

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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](http://www.bestbets.org): odds on favourite for evidence in emergency medicine reaches the worldwide web. *J Accid Emerg Med* 2000;17:235–6.

Use of intravenous cyclizine in cardiac chest pain

Report by Gabby May, *Clinical Fellow*
Checked by Ricky Kumar, *Clinical Fellow*
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doi: 10.1136/emj.2005.032599

Abstract

A short cut review was carried out to establish whether cyclizine adversely affected haemodynamic parameters in patients with cardiac disease. A total of 70 papers were found 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. The

clinical bottom line is that cyclizine should be avoided in patients with acute coronary events.

Three part question

[In patients with symptoms compatible with myocardial ischaemia] is [the use of intravenous cyclizine] associated with [increased myocardial work, morbidity, or mortality]?

Clinical scenario

A 52 year old man presents to the emergency department with a history suggestive of myocardial ischaemia. He requires intravenous opioids for pain and is feeling nauseous so you decide to give him an intravenous antiemetic. However, your consultant tells you not to use cyclizine as it can increase the heart rate, and thus myocardial oxygen demand, in already ischaemic muscle. You wonder whether this is true, or just more evidence of his eccentricity?

Search strategy

Medline 1966–Week 1, September 2005, using the OVID interface: {[exp Myocardial Infarction/or MI.mp or myocardial infarction.mp. or exp Myocardial Infarction/or exp Coronary Disease/or heart attack.mp or chest pain.mp. or exp Chest Pain/or angina.mp. or exp Angina Pectoris/or acute coronary syndrome.mp. or exp Angina, Unstable/or exp Myocardial Ischemia/or myocardial ischaemia.mp. or myocardial ischemia.mp. or ACS.mp. or exp Coronary Thrombosis/or exp Coronary Disease/or acute coronary\$.mp.} AND {cyclizine.mp. or exp CYCLIZINE/or valoid.mp. or antihistamine.mp. or exp Histamine H1 Antagonists/or antihistamine\$.mp.}] Limit to humans and English language; *Cochrane Database of Systematic Reviews* and the Cochrane Central Register of Controlled Trials: [cyclizine]

Search outcome

Medline: 70 articles found of which one was relevant to the three part question (table 1). Cochrane: 66 citations. No new papers found.

Comment(s)

Although intravenous cyclizine is used regularly as an antiemetic in patients with cardiac chest pain concerns have been expressed about its potential effects on myocardial work/ischaemia. This well controlled but small study demonstrated significant changes in haemodynamic parameters with cyclizine, which appeared to be independent of the effects of diamorphine. In theory, raised vent filling pressures and an increase in afterload described in this study and confirmed by a reduction in cardiac output could lead to reduction of coronary artery flow and increase in myocardial oxygen consumption.

The major limitation of this study is the patient group studied and whether the results can be translated to the emergency department patient. In addition the effects of other antiemetics have not been studied so no comparative

Table 1

Author, date, and country	Patient group	Study type (level of evidence)	Outcomes	Key results	Study weaknesses
Tan LB <i>et al</i> , 1988, UK	11 patients (9 male; 2 female) with severe heart failure (New York Heart Association grade 4). Patients had invasive haemodynamic monitoring. All patients were given 50 mg intravenous cyclizine, monitored for 30 min, then given 10 mg intravenous diamorphine. Parameters were measured at baseline, and 10 min and 30 min after administration of cyclizine	Observational study	Heart rate (beats/min) Right atrial pressure (mm Hg) Mean pulmonary artery pressure (mm Hg) Pulmonary artery wedge pressure (mm Hg) Mean blood pressure (mm Hg) Cardiac output (l/min) Systemic vascular resistance (dyne/cm ²) Change in parameters after diamorphine	99.9 at baseline; 107 at 10 min (p<0.05); 107 at 30 min 10.1 at baseline; 12.7 at 10 min (p<0.01); 13.1 at 30 min (p<0.01) 37.9 at baseline; 43.8 at 10 min (p<0.01); 43.1 at 30 min (p<0.01) 21.9 at baseline; 27.7 at 10 min (p<0.01); 27.0 at 30 min (p<0.01) 82.5 at baseline; 91.5 at 10 min (p<0.01); 90.9 at 30 min (p<0.01) 4.5 at baseline; 4.3 at 10 min; 4.1 at 30 min (p<0.01) 1352 at baseline; 1576 at 10 min (p<0.05); 1608 at 30 min All returned to within 1 SEM 10 min after diamorphine administration (except for persistent elevation of right atrial and mean pulmonary pressures)	Small study in a very specific group of patients

data are available, although cyclizine, as an antihistamine, is in a different group than most other commonly prescribed antiemetics. However, as it is often difficult to predict the clinical course of a patient when first assessed, it may be advisable to avoid cyclizine as a first line antiemetic.

► CLINICAL BOTTOM LINE

Cyclizine should be avoided in patients with acute coronary events.

Tan LB, Bryant S, Murray RG. Detrimental haemodynamic effects of cyclizine in heart failure. *Lancet* 1988;1:560-1.

Rapid sequence induction in the emergency department by emergency medicine personnel

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doi: 10.1136/emj.2005.032607

Abstract

A short cut review was carried out to establish whether there are significant differences in the performance of emergency physicians and anaesthetists when carrying out rapid sequence intubation (RSI) in the emergency department. A total of 407 papers were found of which 12 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. The clinical bottom line is that there is little or no difference in the rates of success and complications between emergency department clinicians and anaesthetists performing RSI.

Three part question

[In an emergency department RSI] are [emergency medicine clinicians as effective as anaesthetists] with regard to [complications and success rates]?

Clinical scenario

You are in the resuscitation room and are faced with a combative head injury requiring a computed tomography (CT) scan. The patient needs to be intubated via RSI and you wonder whether you should do this, as you have previous

anaesthetic training, or whether you should call the anaesthetist and wait for them to do it for you.

Search strategy

Medline 1966-2 August 2005 via Ovid interface: {exp Intubation, Intratracheal/ OR (rapid sequence induction).mp OR rsi.mp OR intubation.mp OR (crash induction).mp OR airway management.mp} AND {exp Medical Staff, Hospital/ or exp Emergency Medical Services/ or exp Emergency Service, Hospital/ or (emergency department).mp OR A&E.mp OR (accident and emergency).mp OR casualty.mp} AND {safety.mp. or exp SAFETY/ OR efficacy.mp OR complications.mp OR success.mp}

Search outcome

Of 407 papers found, 304 were irrelevant and one of which was relevant was a review article. This left 12 papers for analysis (table 2).

Comment(s)

Although many papers looked only at the performance of emergency physicians, there appeared to be ample evidence that emergency physicians can perform RSI and endotracheal intubation at least as well as anaesthetists, and overall there is a high rate of success with a low rate of complications. Emergency physicians themselves must have had training in the field. Among the papers examined in this BET, several mention a trend to call an anaesthetist when a difficult airway is anticipated. In our experience, the use of anaesthetists is variable between departments and is often influenced by the skills available within the emergency department. It would appear that the absolute need for anaesthetists in the resuscitation room is diminishing. It is our belief that endotracheal intubation and RSI in the emergency department should be part of an emergency physician's core skill.

► CLINICAL BOTTOM LINE

There is little or no difference in the rates of success and complications seen between emergency department clinicians and anaesthetists performing RSI.

Addendum



An updated version of this Best evidence topic report is available at <http://emj.bmjournals.com/> supplemental