

## 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 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<sup>1</sup> or placed on the BestBETs web site. Each BET has been constructed in the four stages that have been described elsewhere.<sup>2</sup> The BETs shown here together with those published previously and those currently under construction can be seen at <http://www.bestbets.org>.<sup>3</sup> Five BETs are included in this issue of the journal.

- ▶ Amiodarone or flecainide for cardioversion in acute onset atrial fibrillation
- ▶ The sensitivity of a normal chest radiograph in ruling out aortic dissection
- ▶ Antibiotics in acute exacerbations of chronic obstructive pulmonary disease
- ▶ Intravenous magnesium in chronic obstructive pulmonary disease
- ▶ Intra-articular corticosteroid injections in acute rheumatoid monoarthritides

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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.

## Amiodarone or flecainide for cardioversion in acute onset atrial fibrillation

Report by **Jon Argall**, Senior Clinical Fellow  
Checked by **Ian Crawford**, Clinical Research Fellow

A short cut review was carried out to establish whether amiodarone is better than flecainide at restoring sinus rhythm in patients with atrial fibrillation. Altogether 42 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 50 year old woman presents to the emergency department with acute onset of palpitations of less than two hours duration. She does not have chest pain, her heart rate is about 140–160 with a good systolic blood pressure, and respiratory examination is normal. An ECG confirms the rhythm to be atrial fibrillation. You consider which method of pharmacological cardioversion would be most suitable as the medical and cardiological opinions differ between amiodarone and flecainide.

### Three part question

In [acute onset atrial fibrillation] is [amiodarone better than flecainide] at [restoring normal sinus rhythm]?

### Search strategy

Medline 1966-11/03 using the Ovid interface. [exp Atrial Fibrillation OR (atrial adj5 fibrillation).af OR af.af] AND [exp Amiodarone OR amiodarone.af OR cordarone.af] AND [exp Flecainide OR flecainide.af OR tambacor.af] AND [Maximally Sensitive RCT Filter] LIMIT to human AND English.

### Search outcome

Altogether 42 papers were found of which four were directly relevant to the three part question (see table 1).

### Comment(s)

There were no significant differences in the patient groups or adverse effects in all studies. Most adverse effects were mild and self limiting, with no fatal events reported.

### ▶ CLINICAL BOTTOM LINE

In the stable patient with acute onset atrial fibrillation and uncompromised left ventricular function, flecainide is the most efficacious drug at restoring normal sinus rhythm expediently. However about 60% of patients will revert with no treatment.

**Capucci A**, Lenzi T, Boriani G, *et al.* Effectiveness of loading oral flecainide for converting recent-onset atrial fibrillation to sinus rhythm in patients without organic heart disease or with only systemic hypertension. *Am J Cardiol* 1992;70:69–72.

**Donovan KD**, Power BM, Hockings BE, *et al.* Intravenous flecainide versus amiodarone for recent-onset atrial fibrillation. *Am J Cardiol* 1995;75:693–7.

**Boriani G**, Biffi M, Capucci A, *et al.* Conversion of recent-onset atrial fibrillation to sinus rhythm: effects of different drug protocols. *Pacing Clin Electrophysiol* 1998;21:2470–4.

**Martinez-Marcos FJ**, Garcia-Garmendia JL, Ortega-Carpio A, *et al.* Comparison of intravenous flecainide, propafenone, and amiodarone for conversion of acute atrial fibrillation to sinus rhythm. *Am J Cardiol* 2000;86:950–3.

## The sensitivity of a normal chest radiograph in ruling out aortic dissection

Report by **Kerstin Hogg**, Clinical Research Fellow  
Checked by **Stewart Teece**, Clinical Research Fellow

A short cut review was carried out to establish the sensitivity of a normal chest radiograph as a rule out test for aortic

Table 1

Author, date and country	Patient group	Study type (level of evidence)	Key results	Outcomes	Study weaknesses
Capucci A <i>et al</i> , 1992, Italy	62 patients with recent onset atrial fibrillation ( $\leq 7$ days), placebo versus amiodarone iv bolus followed by infusion or flecainide po	Randomised single blind trial	Conversion to sinus rhythm	as a percentage	Small numbers
			at 3 hours	placebo 29, amiodarone 16, flecainide 68	Placebo group discontinued monitoring after 8 hours
			at 8 hours	placebo 48, amiodarone 37, flecainide 91	
			at 12 hours	amiodarone 47, flecainide 91	
			at 24 hours	amiodarone 89, flecainide 95	
Donovan KD <i>et al</i> , 1995, Australia	98 patients with acute onset atrial fibrillation ( $\leq 72$ h), placebo versus amiodarone iv or flecainide iv	RCT	Conversion to sinus rhythm	placebo 7/32, amiodarone 11/32, flecainide 20/34	Small numbers
			<2 hours	placebo 18/32, amiodarone 19/32, flecainide 23/34	Power not shown
			>2 and <8 hours		
Boriani G <i>et al</i> , 1998, Italy	417 patients with recent onset atrial fibrillation ( $\leq 7$ days), placebo versus amiodarone iv, flecainide po, propafenone iv or propafenone po	Cohort	Conversion to sinus rhythm	as a percentage	
			at 1 hour	placebo 9, amiodarone 6, flecainide 13	
			at 3 hours	placebo 18, amiodarone 25, flecainide 57	
			at 8 hours	placebo 37, amiodarone 57, flecainide 75	
Martinez-Marcos FJ <i>et al</i> , 2000, Spain	150 patients with acute onset atrial fibrillation ( $\leq 48$ hrs). Amiodarone iv versus flecainide iv or propafenone iv	Randomised single blind trial	Conversion to sinus rhythm	as a percentage	
			at 1 hour	amiodarone 14, flecainide 29	
			at 8 hours	amiodarone 42, flecainide 82	
			at 12 hours	amiodarone 64, flecainide 90	

aneurysm. Altogether 557 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 52 year old man attends the emergency department with central chest tightness and left arm heaviness. ECG shows anterior ST elevation of 3 mm in three consecutive leads. He has a normal mediastinum on chest radiograph, but as you administer the thrombolytic agent, you wonder just how sensitive this investigation is in ruling out an aortic dissection.

### Three part question

In a [patient with chest pain] what is the [sensitivity of a normal chest radiograph] in ruling out [aortic dissection]?

### Search strategy

Medline 1966-11/03 using the OVID interface. [exp Aneurysm, Dissecting OR dissecti\$.mp OR aneurysm.mp] AND [exp AORTA OR exp AORTA, THORACIC OR aort\$.mp.] AND [X-ray.mp OR exp X-Rays OR exp Radiography, Thoracic OR radiograph\$.mp] LIMIT to human AND English.

### Search outcome

Altogether 557 papers were found. One recent literature review included the relevant papers with the exception of three additional papers (see table 2).

### Comment(s)

All these studies are of poor quality. There is an enormous lack of quality prospective studies recruiting consecutive patients presenting to the emergency department with chest pain.

### ► CLINICAL BOTTOM LINE

The classic chest radiological findings of a wide mediastinum or abnormal aortic contour do not seem sufficiently sensitive to rule out aortic dissection in a patient with chest pain.

Hartnell GG, Wakeley CJ, Tottle A, *et al*. Limitations of chest radiography in discriminating between aortic dissection and myocardial infarction: implications for thrombolysis. *J Thorac Imaging* 1993;8:152-5.

Vu KH, Young N, Soo YS. Imaging of thoracic aortic dissection. *Australas Radiol* 1994;38:170-5.

Hennessey TG, Smith D, McCann HA, *et al*. Thoracic aortic dissection or aneurysm: clinical presentation, diagnostic imaging and initial management in a tertiary referral centre. *Ir J Med Sci* 1996;165:259-62.

Klompas M. Does this patient have an acute thoracic aortic dissection? *JAMA* 2002;287:2262-72.

## Antibiotics in acute exacerbations of chronic obstructive pulmonary disease

Report by Ross Murphy, *Specialist Registrar*  
Checked by Martin McKechnie, *Specialist Registrar*,  
Joel Dunning, *RCS Fellow*