BEST EVIDENCE TOPIC REPORTS

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

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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 Infirmary[1] 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.

- ▶ Chest drains in traumatic occult pneumothorax
- ▶ Urine dipsticks in screening for Diabetes Mellitus
- ▶ Clopidogrel plus aspirin or aspirin alone in unstable angina
- ▶ Administration of steroids in acute exacerbations of COPD

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.

Chest drains in traumatic occult pneumothorax

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A short cut review was carried out to establish whether tube thoracostomy was indicated in trauma patients who have an occult pneumothorax discovered on CT scanning. 279 papers were found using the reported searches, of which six 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 minimal occult pneumothoraces can be observed but that there is no evidence to show that this is a safe approach if the pneumothorax is larger.

Clinical scenario

A 30 year old man is brought into the Emergency Department after a road traffic accident. A chest x-ray taken as part of the ATLS trauma series is normal and he has no clinical signs of chest injury. He has an abdominal CT for investigation of blunt abdominal trauma. This reveals an occult pneumothorax. You wonder whether you should insert a chest drain.

Three-part question

In [a patient who has sustained blunt trauma who is found to have an occult pneumothorax on CT scan] is [tube thoracostomy better than observation] at reducing [morbidity and mortality]?

Search strategy

Medline 1966 to October Week 4 2005 using the OVID interface. [exp pneumothorax/ or pneumothorax.mp] AND ([exp "wounds and injuries"/OR trauma.mp] OR chest drain.mp OR exp chest tubes/ OR exp thoracostomy)) AND ([exp Tomography, X-ray computed OR CT.mp] OR occult.mp) LIMIT to human AND English

Embase 1980 to 2005 week 47. [exp pneumothorax/or pneumothorax.mp.] AND [exp injury/or exp wound/ or trauma.mp. or exp thorax drainage/or chest drain.mp. or thoracostomy.mp.] AND [exp computer assisted tomography/ or CT.mp. or exp occult blood/] Limit to human and English, Age groups - All adult 18–64 years and 64 years >

The Cochrane Library Issue 4 2005. Chest drains [MeSH] AND pneumothorax [MeSH] 23 hits

Outcome

Altogether 279 papers were found of which 273 were irrelevant or of insufficient quality for inclusion

Comments

All the papers report small numbers. There are conflicting results. Some classify occult pneumothoraces into size but different techniques are used

▶ CLINICAL BOTTOM LINE

It appears reasonable to treat minimal occult pneumothoraces with observation, there is no evidence whether it is safe to extend this to larger occult pneumothoraces

Garramone RR Jr, Jacobs LM, Sahdev P. An objective method to measure and manage occult pneumothorax. *Surg Gynecol Obs* 1991;173:257–261.

Collins JC, Levine G, Waxman K. Occult traumatic pneumothorax : immediate tube thoracostomy vs expectant management. *Am Surg* 1992;58:743–6.

Anderson BL, Abdalla R, Frame SB, *et al*. Gould H, Maull KI. Tube Thoracostomy for occult pneumothorax: a prospective randomized study of its use. *J Trauma Injury Infection Criti Care* 1993;35:726–30.

Table 1

Author, country, date	Patient group	Study type	Outcomes	Key results	Study weaknesses
Garramone <i>et al</i> , 1991, USA	26 trauma patients aged 14–65 with occult pneumothorax (OPTX) on abdominal CT. Classified as <5×80 mm or ≥5×80 mm	Retrospective chart review	Complications of OPTX, respiratory or haemodynamic compromise	No patient had haemodynamic or respiratory complications. Of 18 with small OPTX: 2 had chest drains for increasing subcutaneous emphysema, 1 for increasing PTX. Of 13 patients with larger OPTX 4 had prophylactic chest drains, 3 for increasing subcutaneous emphysema 2 for increasing effusion	Retrospective Small numbers
Collins <i>et al</i> , 1992, USA	23 patients aged 18–82 with occult pneumothorax Immediate chest tube (n=12) vs observation (n=11)	Retrospective chart review	Length of hospital stay (mean) Length if ICU stay Complications	13.4 days vs 8.8 days 6.3 days vs 3.3 days 1 pt in immediate chest tube group: had laceration of intercostal artery. 2 observed pts had eventual chest tubes for enlarging pneumothorax or haemothorax	Small study Retrospective Not randomised
Anderson <i>et al</i> 1993 USA	40 adult trauma patients Randomized to immediate chest tube (n=19) or observation (n=21)	PRCT	Length of hospital stay Length of ICU stay Complications	12.9 vs 17.6 days 2.8 vs 3.2 days Immediate chest tube: 1 pneumonia, 8 atelectasis. Observation group 3 tension pneumothorax, 5 progression pneumothorax, 1 pneumonia, 1 empyema, 3 atelectasis	Small study
Wolfman <i>et al</i> 1998, USA	44 pts aged 17 months–70 yrs with occult pneumothorax, classified according to size into miniscule, anterior or anterolateral. Chest tube inserted dependent on size and at trauma surgeons discretion	Prospective non-randomized	Complications	15/16 with miniscule observed, 2 had delayed chest drain for pneumothorax progression. 12/20 anterior observed 1 developed tension pneumothorax. 8 with anterolateral had immediate chest drain, no complications	Small numbers Both adults and children
Brasel <i>et al</i> 1999, USA	39 adult patients with occult pneumothorax randomised to chest tube (n=18) or observation (n=21)	PRCT	Respiratory distress	1 pt with chest tube was intubated for stridor. 3 observed pts had resp distress with pneumothorax progression	Only 39 of 86 eligible pts recruited
Holmes <i>et al</i> 2000, USA	11 children <16yrs with occult pneumothorax presenting to level 1 trauma centre. 1 had chest tube, 10 observed	Prospective observational cohort study	Complications	No haemodynamic or respiratory complications	Small numbers paediatric population

Wolfman NT, Myers WS, Glauser SJ, *et al*. Validity of CT classification on management of occult pneumothorax. *Am J Roent* 1998;**171**:1317–20.

Brasel KJ, Stafford RE, Weigelt JA, *et al*. Treatment of Occult Pneumothoraces from blunt trauma. *The J Trauma Injury Infection Criti Care* 1999;**46**:987–990.

Holmes JF, Brant WE, Bogren HG, *et al*. Prevalence and Importance of Pneumothoraces Visualised on Abdominal CT scan in children with blunt trauma. *J Trauma Injury Infection Crit Care* 2000;**50**:516–520.

Urine dipsticks in screening for diabetes mellitus

Report by Ooi Yau Wei, Medical Officer
Search checked by Stewart Teece, Specialist Registrar

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A short cut review was carried out to establish whether urine dipstick testing for glycosuria was useful as a screening tool in asymptomatic patients. 178 papers were found using the reported searches, of which five 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 dipstick testing for urinary glucose is insufficiently sensitive to be used as a screening tool for diabetes mellitus.

Clinical Scenario

An asymptomatic conscript walks into the Medical Centre and provides a urine sample for testing for glycosuria as part of a screening procedure for Diabetes Mellitus. You wonder how useful a urine dipstick is in screening for this condition.

Three-part question

In [asymptomatic individuals] is [urine dipstick testing for glucose] sensitive enough to be used as [a screening tool for diabetes mellitus]

Search Strategy

Ovid MEDLINE 1966 to October Week 4 2005

{ { exp diabetes mellitus/OR diabetes mellitus.mp OR diabet\$.mp OR IDDM.mp OR NIDDM.mp } AND { exp urine/OR urin\$.mp } AND { exp reagent strips/OR exp glycosuria/OR exp "indicators and reagents/" OR stix.mp OR glucostix.mp OR stick.mp } AND { screen\$.mp OR diagnos\$.mp }] LIMIT to human and English language.

Embase 1980 to 2005 week 47. [exp diabetes mellitus/OR diabetes mellitus.mp. OR diabet\$.mp. OR IDDM.mp. OR