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

Singapore Armed Force

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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

Table 2

Author, country, date	Patient group	Study type	Outcomes	Key results	Study weaknesses
West KM & Kalbfleisch JM 1971 USA	4262 subjects (including 50 known diabetics) in 10 countries	Prospective diagnostic study	+ve urine clinitest. DM diagnosed by blood glucose 2 h after glucose load	Sensitivity 35.3% (fasting) 38.9% (2–4 h after food) 67.0% (after 1 g/kg oral glucose) Specificity 99.7% (fasting) 97.6% (2–4 h after food) 94.4% (after oral glucose)	Diagnostic blood glucose lower than current WHO criteria False negative rate not extrapolated to whole population in sensitivity calculation Statistical significance/ 95% C.I. not assessed Subject selection not discussed
Davidson JK <i>et al</i> , 1978, USA	1952 patients aged 16–76 not known to have DM presenting to medical clinic	Prospective diagnostic study	+ve urine clinitest. DM diagnosed in 20 of 25 +ve patients by fasting glucose or OGTT. 25 normoglycosuric patients underwent OGTT	Sensitivity 74% Specificity 86% ($p < 0.05$)	Diagnostic blood glucose lower than current WHO criteria False negative rate not extrapolated to whole population in sensitivity calculation
Anderson DKG <i>et al</i> , 1992, Sweden	3201 patients aged 35–79 not known to have DM presenting to GP	Prospective diagnostic study	+ve re dia urine test. DM diagnosed by fasting glucose or OGTT. All patients 3 year follow up	Sensitivity 18.1% Specificity 99.1%	3 year follow up may overestimate false negatives Statistical significance/ 95% C.I. not assessed
Davies MJ <i>et al</i> , 1993, UK	442 consecutive patients aged 40–65 not known to be diabetic in larger postal study	Prospective diagnostic study	+ve urine test. All had OGTT	Sensitivity 44% Specificity 98%	Statistical significance/ 95% C.I. not assessed for sensitivity Selection criteria not clear
Friderichsen B & Maunsbach M, 1997, Denmark	1530 patients aged 45–76 responding to postal survey of 3041.	Prospective diagnostic study	+ve urine glukotest R. DM diagnosed by fasting blood glucose	Sensitivity 20.80% (95% C.I. 8.14–52.81%) Specificity 99.14% (95% 98.54–99.59%)	

NIDDM.mp.] AND [exp urine/OR urin\$.mp.] AND [exp test strip/OR exp glucosuria/OR stix.mp. OR glucostix.mp. OR stick.mp.] AND [screen\$.mp. OR diagnos\$] LIMIT to human and English Language

The Cochrane Library Issue 4 2005. Diabetes mellitus [MeSH] AND (Reagent strips [MeSH] OR reagent kits, diagnostic [MeSH] 20 hits

Outcome

178 papers found, of which 173 either did not answer the three part question or were review articles with no original data. The remaining five are shown below.

Comments

If the sensitivity of the first two studies are recalculated, extrapolating the documented prevalence of diabetes in each group to the patients who were considered true negative with no further tests, then the resultant sensitivities are 34.1% and 50.4% respectively. This is a reflection of the chances of finding glycosuria in a diabetic rather than the quality of urine dipsticks. Specificities are high, however low sensitivities preclude their use as a screening tool.

► CLINICAL BOTTOM LINE

Urine dipsticks are of insufficient sensitivity to be used as a screening tool in an asymptomatic population.

West KM, Kalbfleisch JM. Sensitivity and specificity of five screening tests for diabetes in ten countries. *Diabetes* 1971;**20**(5):289–96.

Davidson JK, Reuben D, Sternberg JC, *et al*. Diabetes screening using a quantitative urine glucose method. *Diabetes* 1978;**27**(8):810–6.

Andersson DK, Lundblad E, Svardudd K. A model for early diagnosis of type 2 diabetes mellitus in primary health care. *Diabetic Medicine* 1993;**10**(2):167–73.

Davies MJ, Williams DR, Metcalfe J, *et al*. Community screening for non-insulin-dependent diabetes mellitus: self-testing for post-prandial glycosuria. *Quarterly Journal of Medicine* 1993;**86**(10):677–84.

Friderichsen B, Maunsbach M. Glycosuric tests should not be employed in population screenings for NIDDM. *J Public Health Med* 1997;**19**(1):55–60.

Clopidogrel plus aspirin or aspirin alone in unstable angina

Report by Shweta Gidwani, *Clinical Effectiveness Fellow*

Search checked by Richard Body, *Clinical Research Fellow*

Manchester Royal Infirmary

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A short cut review was carried out to establish whether clopidogrel and aspirin is better than aspirin alone in improving cardiovascular outcome in patients with unstable angina. 676 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 clopidogrel together with aspirin gives a better cardiovascular outcome than aspirin alone in patients with unstable angina.

Clinical scenario

A 55 year old man, known to have angina, presents to the Emergency Department with new-onset typical ischaemic rest pain that is not relieved by his nitrate spray at home. His ECG shows ST depression in V3–V6. He is haemodynamically stable. You treat him with oxygen, aspirin, nitrates, beta-blockers and heparin, after which he becomes pain free. You also give him clopidogrel 300 mg because you have heard that patients with unstable angina and non ST-elevation MI have a better cardiovascular outcome when treated with a