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## Ischaemic heart disease

**Off-pump CABG after carotid surgery is safe** ▶ Patients with combined coronary and carotid artery disease are at high risk of perioperative stroke and myocardial infarction. Of 2556 patients scheduled for off-pump bypass surgery (CABG), 82 patients with > 70% carotid stenosis were found by screening with duplex scanning (3% of the group). The mean age of the patients was 63 years. Carotid endarterectomy was immediately followed by off-pump CABG. There was no hospital mortality. One patient had perioperative myocardial infarction and another a transient ischaemic attack. It seems that, in the correct hands, combined procedures can be safe.

▲ **Meharwal ZS**, Mishra A, Trehan N. Safety and efficacy of one stage off-pump coronary artery operation and carotid endarterectomy. *Ann Thorac Surg* 2002;**73**:793–7.

**β Blockers as anti-inflammatory agents?** ▶ Aspirin and pravastatin lower C reactive protein (CRP) concentrations and reduce vascular risk, underlining the importance of inflammation in destabilising coronary plaques. β Blockers are thought to work by reducing arrhythmia related deaths in patients with heart failure and ischaemic heart disease (IHD). Even excluding patients with contraindications to β blockers, a survey of 333 consecutive patients with IHD showed CRP concentrations 40% lower in those on β blocker treatment. How they lower CRP is not clear.

▲ **Jenkins NP**, Keevil BG, Hutchinson IV, Brooks NH. Beta-blockers are associated with lower C-reactive protein concentrations in patients with coronary artery disease. *Am J Med* 2002;**112**:269–74.

**Statins improve bone density** ▶ As well being good for your heart, statins were found to increase bone density and reduce fracture risk by 40%. This effect was independent of height, weight, lifestyle, and other medication. Coupled with the fact that coronary heart disease (CHD) risk is lowered on a statin even if your initial cholesterol is normal, perhaps all patients over 65 should be on one.

▲ **Pasco JA**, Kotowicz MA, Henry MJ, Sanders KM, Nicholson GC. Statin use, bone mineral density, and fracture risk: Geelong osteoporosis study. *Arch Intern Med* 2002;**162**:537–40.

**Difficult treatment of MI in the > 75 age group** ▶ In a cohort of over 2000 patients > 75 years old who had a myocardial infarction (MI), only 63% of eligible patients got thrombolysis while 27% of thrombolysis recipients had what are regarded as absolute contraindications to the treatment. The odds ratio of death was 1.57 (95% confidence interval (CI) 1.03 to 2.40,  $p = 0.04$ ) in those patients with contraindications versus those who did not receive lytic treatment. If aged < 80, thrombolysis was associated with reduced mortality, but at age 80–90, the predicted odds of death among thrombolysis recipients versus non-recipients was 1.4.

▲ **Soumerai SB**, McLaughlin TJ, Ross-Degnan D, Christiansen CL, Gurwitz JH. Effectiveness of thrombolytic therapy for acute myocardial infarction in the elderly. Cause for concern in the old-old. *Arch Intern Med* 2002;**161**:561–8.

**Asian children show insulin resistance** ▶ Early atherosclerotic changes can be seen at postmortem examination in children of all races. Indian Asians in the UK as adults have a much higher risk of CHD death than UK whites. The cause for this is still not clear, but insulin resistance may play a part. This insulin resistance appears early in childhood, as shown by this study. Mean insulin

concentrations were higher in Asians (percentage difference was 53% (95% CI 14% to 106%) after fasting and 54% (95% CI 19% to 99%) after glucose load), though glucose concentrations were similar. In addition triglycerides concentrations were higher and high density lipoprotein (HDL) cholesterol lower. The relation between insulin concentrations and adiposity was much stronger in Asians, suggesting a tendency to truncal obesity and a worsening insulin resistance.

▲ **Whincup PH**, Gilg JA, Papacosta O, Seymour C, Miller GJ, Alberti KGMM, Cook DG. Early evidence of ethnic differences in cardiovascular risk: cross sectional comparison of British South Asian and white children. *BMJ* 2002;**324**:635.

**Stent after primary angioplasty for acute MI** ▶ Stenting after coronary angioplasty (PTCA) for acute MI has previously been shown to be associated with a paradoxical reduction in coronary flow. This may have been caused by distal embolisation, which could be reduced by treating with abciximab. Therefore, 2082 patients with acute myocardial infarction underwent PTCA alone (518 patients), PTCA plus abciximab treatment (528), stenting alone with the MultiLink stent (512), or stenting plus abciximab treatment (524). About 95% of patients achieved normal flow, with all treatments equally good. However, at six months, the primary end point—a composite of death, reinfarction, disabling stroke, and ischaemia driven revascularisation of the target vessel—had occurred in 20.0% of patients after PTCA, 16.5% after PTCA plus abciximab, 11.5% after stenting, and 10.2% after stenting plus abciximab ( $p < 0.001$ ). The difference was due to repeat revascularisation rates being 15.7% after PTCA versus 5.2% after stent plus abciximab. This was caused by a 40% stenosis rate after PTCA versus 22% after stenting ( $p < 0.001$ ) independent of the use of abciximab.

▲ **Stone GW**, Grines CL, Cox DA, Garcia E, Tchong JE, Griffin JJ, Guagliumi G, Stuckey T, Turco M, Carroll JD, Rutherford BD, Lansky AJ, for the Controlled Abciximab and Device Investigation to Lower Late Angioplasty Complications (CADILLAC) Investigators. Comparison of angioplasty with stenting, with or without abciximab, in acute myocardial infarction. *N Engl J Med* 2002;**346**:957–66.

## Hypertension

**HOPE for stroke reduction** ▶ Reduction in blood pressure in the HOPE trial with ramipril 10 mg/day was modest (3.8 mm Hg systolic and 2.8 mm Hg diastolic). The relative risk of any stroke was reduced by 32% (156 v 226) in the ramipril group compared with the placebo group, and the relative risk of fatal stroke was reduced by 61% (17 v 44). Benefits were consistent across baseline blood pressures and all subgroups. Significantly fewer patients on ramipril had cognitive or functional impairment.

▲ **Bosch J**, Yusuf S, Pogue J, Sleight P, Lonn E, Rangoonwala B, Davies R, Ostergren J, Probstfield J. Use of ramipril in preventing stroke: double blind randomised trial. *BMJ* 2002;**324**:699.

**LIFE after HOPE** ▶ Thiazides and β blockers are the best assessed interventions in hypertension management. The HOPE trial suggested that angiotensin converting enzyme (ACE) inhibitors may have added benefits beyond blood pressure control. Most physicians would use an angiotensin II receptor blocker (ARB) if an ACE inhibitor was not tolerated. The LIFE trial of > 9000 patients with mild to moderate hypertension suggests that losartan (an ARB) reduces the risk of death/MI/cerebrovascular accident over 4.7 years follow up (23.8 per 1000 patient years in the losartan group v 27.9 per 1000 patient years in the atenolol group; relative risk (RR) 0.87, 95% CI 0.77 to 0.98,  $p = 0.021$ ). There was a significant reduction in stroke (0.75, 95% CI 0.63 to 0.89,  $p = 0.001$ ) but not MI. Blood pressure reductions were similar in both groups. As in the HOPE trial, the high risk diabetic group gained as much benefit if not more and showed a significant reduction in total mortality (RR 0.61, 95% CI 0.45 to 0.84,  $p = 0.002$ ) and MI.

▲ **Dahlöf B**, Devereux RB, Kjeldsen SE, Julius S, Beevers G, de Faire U, Fyhrquist F, Ibsen H, Kristiansson K, Lederballe-Pedersen O, Lindholm LH, Nieminen MS, Omvik P, Oparil S, Wedel H, for the LIFE Study Group. Cardiovascular morbidity and mortality in the losartan intervention for endpoint reduction in hypertension study (LIFE): a randomised trial against atenolol. *Lancet* 2002;**359**:1108–13.

▲ **Lindholm LH**, Ibsen H, Dahlöf B, Devereux RB, Beevers G, de Faire U, Fyhrquist F, Julius S, Kjeldsen SE, Kristiansson K, Lederballe-Pedersen O, Nieminen MS, Omvik P, Oparil S, Wedel H, Aurup P, Edelman J, Snapinn S, for the LIFE Study Group. Cardiovascular morbidity and mortality in patients with diabetes in the losartan intervention for endpoint reduction in hypertension study (LIFE): a randomised trial against atenolol. *Lancet* 2002;**359**:995–1003.

**Regular exercise lowers blood pressure** ▶ In 54 randomised, controlled trials (2419 participants) whose intervention and control groups differed only in aerobic exercise, exercise was associated with a significant reduction in mean systolic and diastolic blood pressure: 3.84 mm Hg (95% CI 4.97 to 2.72 mm Hg) and 2.58 mm Hg (95% CI 3.35 to 1.81 mm Hg), respectively. A reduction in blood pressure was seen in those with and without hypertension, and in obese and non-obese patients.

▲ **Whelton SP**, Chin A, Xin X, He J. Effect of aerobic exercise on blood pressure: a meta-analysis of randomized, controlled trials. *Ann Intern Med* 2002;**136**:493–503.

**Viagra to treat pulmonary hypertension** ▶ Intravenous prostacyclin has been shown to improve symptoms and prolong life in some patients with severe pulmonary hypertension. Pulmonary pressures may be lowered by nitric oxide donors (inhaled nitric oxide), elevation in cGMP, or elevations in cAMP. Sildenafil (Viagra) inhibits phosphodiesterase 5 and so raises cAMP concentrations. This study of 30 patients showed that sildenafil was as effective in lowering pulmonary vascular resistance as the use of the inhaled prostacyclin analogue iloprost, with the combination even more effective. Now long term data are needed on mortality benefits with this novel treatment.

▲ **Ghofrani HA**, Wiedemann R, Rose F, Olschewski H, Schermuly RT, Weissmann N, Seeger W, Grimminger F. Combination therapy with oral sildenafil and inhaled iloprost for severe pulmonary hypertension. *Ann Intern Med* 2002;**136**:515–22.

**Drinking water as a treatment for POTS syndrome** ▶ Water drinking increases blood pressure in a substantial proportion of patients who have severe orthostatic hypotension caused by autonomic failure. In 11 patients with autonomic failure and nine with the idiopathic POTS (postural orthostatic hypotension and tachycardia syndrome), half an hour after intake of 480 ml of water, blood pressure (on standing for one minute) was raised from 83/53 mm Hg to 114/66 mm Hg. Other treatments include mineralocorticoids and stockings.

▲ **Shannon JR**, Diedrich A, Biaggioni I, Tank J, Robertson RM, Robertson D, Jordan J. Water drinking as a treatment for orthostatic syndromes. *Am J Med* 2002;**112**:355–60.

**Systolic or diastolic blood pressure as the best predictor of cardiovascular risk?** ▶ Systolic blood pressure (SBP) is a better predictor of CHD and cardiovascular disease (CVD) risk than diastolic blood pressure (DBP), according to a follow up study of 4714 hypertensive men over 14 years. Despite treatment, 85% remained with a blood pressure > 140/90 mm Hg. After adjustment for age, associated risk factors, and DBP, compared with subjects with SBP under 140 mm Hg, the RR for CVD mortality was 1.81 (95% CI 1.04 to 3.13) in subjects with SBP 140–160 mm Hg, and 1.94 (95% CI 1.10 to 3.43) in subjects with SBP > 160 mm Hg. By contrast, after adjustment for SBP levels, DBP did not affect CVD risk.

▲ **Benetos A**, Thomas F, Bean K, Gautier S, Smulyan H, Guize L. Prognostic value of systolic and diastolic blood pressure in treated hypertensive men. *Arch Intern Med* 2002;**162**:577–81.

## General cardiology

**AICD without electrical testing?** ▶ Patients with reduced ejection fractions and ventricular arrhythmias on electrophysiological testing or abnormal signal averaged ECGs live longer with an automatic implantable cardioverter-defibrillator (AICD) than on medical treatment alone. What about putting the device into all

patients with a previous MI and poor left ventricular function, and thus avoid any testing? Death rates at 20 months were 19.8% in the conventional treatment group and 14.2% in the AICD group (RR 0.69, 95% CI 0.51 to 0.93,  $p = 0.016$ ). Although a positive trial, this is less impressive than previous trials using guided therapy (MADIT, AVID). In addition, the survivors went into hospital more often, presumably as they lived long enough to be admitted for heart failure. Further work needs to be done to reduce the cost of the devices and isolate which patients will benefit most for implantation.

▲ **Moss AJ**, Zareba W, Hall WJ, Klein H, Wilber D, Daubert JP, Higgins SL, Brown MW, Andrews ML, for the Multicenter Automatic Defibrillator Implantation Trial II Investigators. Prophylactic implantation of a defibrillator in patients with myocardial infarction and reduced ejection fraction. *N Engl J Med* 2002;**346**:877–83.

**Amiodarone is better than lidocaine in the cardiac arrest situation** ▶ Which drugs should be used to enhance the chance of conversion to SR in patients who have had the first cycle of advanced cardiac life support and are still in ventricular fibrillation? The answer seems to be amiodarone rather than lidocaine, as 22.8% of 180 patients survived to hospital admission, as compared with 12.0% of 167 patients treated with lidocaine (OR 2.17, 95% CI 1.21 to 3.83,  $p = 0.009$ ).

▲ **Dorian P**, Cass D, Schwartz B, Cooper R, Gelaznikas R, Barr A. Amiodarone as compared with lidocaine for shock-resistant ventricular fibrillation. *N Engl J Med* 2002;**346**:884–90.

**Absolute level of performance during an ETT is the best predictor of risk** ▶ Among 6213 patients referred for an exercise tolerance test (ETT), annual mortality was 2.6% over six years follow up. Roughly 60% had cardiovascular disease or an abnormal ETT. The peak exercise capacity was the strongest marker for risk for death after adjustment for age in both those with, or without CHD. Each 1 MET increase in exercise capacity conferred a 12% improvement in survival. The percentage of the age related target heart rate achieved was not as good a predictor.

▲ **Myers J**, Prakash M, Froelicher V, Partington S, Atwood JE. Exercise capacity and mortality among men referred for exercise testing. *N Engl J Med* 2002;**346**:793–801.

**Beware of hyperkalaemia that is not** ▶ This case report highlights a rare cause of spurious hyperkalaemia due to an inherited red cell membrane problem. Old blood samples will have lysed red cells and the serum potassium will be raised. In this condition, blood samples which cool to room temperature leak potassium from red cells giving spurious readings. A sample analysed immediately on a blood gas machine does not have this error. Inappropriate treatment would lead to dangerous hypokalaemia.

▲ **Vaidya B**, Chan K, Drury J, Connolly V. A race to the lab. *Lancet* 2002;**359**:848.

**Right heart thromboemboli: treat with thrombolysis?** ▶ Echo studies in patients with pulmonary emboli show right heart thromboembolism in between 3–23%, which significantly increases the mortality risk in patients with pulmonary embolism. The optimum management of such patients remains unclear, as no prospective randomised trials have been conducted to compare anticoagulation, thrombolysis, and surgical intervention. In this retrospective analysis of all reported cases from 1966 to 2000, 177 patients were identified with echo diagnosis of right heart thromboembolism. Overall, 20% were treated with anticoagulation, 35% with thrombolysis, and 35% with a surgical procedure (either surgical or percutaneous catheter embolectomy). Age and sex were not predictors of mortality. The mortality rate in patients receiving no treatment, anticoagulation, surgical procedure, and thrombolysis were 100%, 29%, 24%, and 11%, respectively. Although not randomised, these probably are the best data available to guide management.

▲ **Rose PS**, Punjabi NM, Pearse DB. Treatment of right heart thromboemboli. *Chest* 2002;**121**:806–14.

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### Journals scanned

American Journal of Medicine; American Journal of Physiology: Heart and Circulatory Physiology; Annals of Emergency Medicine; Annals of Thoracic Surgery; Archives of Internal Medicine; BMJ; Chest; European Journal of Cardiothoracic Surgery; Lancet; JAMA; Journal of Clinical Investigation; Journal of Diabetes and its Complications; Journal of Immunology; Journal of Thoracic and Cardiovascular Surgery;

Nature Medicine; New England Journal of Medicine; Pharmacoeconomics; Thorax

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C Baker, E Barnes, V Bhatia, R Desilva, M Earley, K Fox, D Gorog, G Jenkins, R Kaprilian, A Kapur, M Khan, P Lambiese, V Markides, M Poullis, P Ramrakha, J Strange, B Wasan, H Walker

## ELECTRONIC PAGES.....

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The following electronic only articles are published in conjunction with this issue of *Heart*.

### Beneficial effects of biventricular pacing in a patient with hypertrophic cardiomyopathy and intraventricular conduction delay

C A Rinaldi, C A Bucknall, J S Gill

The beneficial use of biventricular pacing is reported in a patient with hypertrophic cardiomyopathy and intraventricular conduction delay. This resulted in improvements in symptomatic status and exercise tolerance that may be related to cardiac resynchronisation. The improvement in symptoms by biventricular pacing in a patient with hypertrophic cardiomyopathy and intraventricular conduction delay is previously undocumented and requires further investigation.

(*Heart* 2002;**87**:e6) [www.heartjnl.com/cgi/content/full/87/6/e6](http://www.heartjnl.com/cgi/content/full/87/6/e6)

### Diagnosis of amyloidosis by histological examination of subcutaneous fat sampled at the time of pacemaker implantation

G M Gribbin, J A Gilbertson, P N Hawkins

Atrioventricular conduction disease may occur in a range of conditions. If echocardiography suggests the presence of an infiltrative cardiomyopathy the diagnosis of amyloidosis may be confirmed by subcutaneous fat sampling from the site of pacemaker implantation. This technique requires no additional invasive procedure and confers no extra risk for the patient. Confirmation of amyloidosis provides important prognostic information and may allow specific treatment.

(*Heart* 2002;**87**:e7) [www.heartjnl.com/cgi/content/full/87/6/e7](http://www.heartjnl.com/cgi/content/full/87/6/e7)

### Mitral valve endocarditis in hypertrophic cardiomyopathy: case report and literature review

G Morgan-Hughes, J Motwani

Mitral endocarditis complicating hypertrophic cardiomyopathy occurs predominantly on the left ventricular aspect of the anterior mitral valve leaflet in the presence of outflow tract obstruction. It is a rare condition and the estimated cumulative 10 year probability of developing endocarditis in patients with obstruction is < 5%. Combined mitral valve replacement and septal myectomy has been reported in this setting. A case of community acquired *Staphylococcus aureus* mitral valve endocarditis is reported in a previously asymptomatic young man with hypertrophic obstructive cardiomyopathy. The potential treatment options are discussed.

(*Heart* 2002;**87**:e8) [www.heartjnl.com/cgi/content/full/87/6/e8](http://www.heartjnl.com/cgi/content/full/87/6/e8)

## WEB TOP 10

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These articles scored the most hits on *Heart's* web site during March 2002



#### 1 Inflammation in acute coronary syndromes

T Mulvihill, J B Foley

March 2002;**87**:201-4. (Review)

#### 2 The medical management of valvar heart disease

NA Boon, P Bloomfield

April 2002;**87**:395-400. (Education in Heart)

#### 3 Joint British recommendations on prevention of coronary heart disease in clinical practice

December 1998;**80**(suppl 2):S1-29.

#### 4 New coronary imaging techniques: what to expect?

PJ de Feyter, K Nieman

March 2002;**87**:195-7. (Editorial)

#### 5 Which patient should be referred to an electrophysiologist: supraventricular tachycardia

RJ Schilling

March 2002;**87**:299-304. (Education in Heart)

#### 6 Myocardial molecular biology: an introduction

NJ Brand, PJR Barton

March 2002;**87**:284-93. (Education in Heart)

#### 7 Hypertrophic cardiomyopathy: management, risk stratification, and prevention of sudden death

WJ McKenna, ER Behr

February 2002;**87**:169-76. (Education in Heart)

#### 8 Virtual coronary angiography using multislice computed tomography

S Schroeder, AF Kopp, B Ohnesorge, H Loke-Gie, A Kueffner, A Baumbach, C Herdeg, CD Claussen, KR Karsch

March 2002;**87**:205-9. (Cardiovascular medicine)

#### 9 Arrhythmias in adults with congenital heart disease

JK Triedman

April 2002;**87**:383-9. (Education in Heart)

#### 10 Rapamycin eluting stent: the onset of a new era in interventional cardiology

P W Serruys, E Regar, A J Carter

April 2002;**87**:305-7. (Editorial)

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