Please visit the Heart website (www.heartjnl.com) for links to these articles – many to full text.

ISCHAEMIC HEART DISEASE

Perioperative β blockade for non-cardiac surgery

► Although suggestive small trials have been done, no large scale randomised trials have been undertaken to assess routine perioperative β blockade to reduce cardiovascular risk. This study of "real life" assessed 782 969 patients, of whom 663 635 (85%) had no recorded contraindications to β blockers, and 122 338 of whom (18%) received such treatment during the first two hospital days. High risk patients made up 44%, with a revised cardiac risk index (RCRI) score of 4 or higher. This index stratifies the risk of perioperative cardiac events according to the type of surgery and the presence or absence of a history of ischaemic heart disease, congestive heart failure, cerebrovascular disease, preoperative treatment with insulin, and a preoperative serum creatinine concentration > 2.0 mg/dl (176.8 μ mol/l). The relation between perioperative β blocker treatment and the risk of death varied directly with cardiac risk; among the 580 665 patients with an RCRI score of 0 or 1, treatment was associated with no benefit and possible harm, whereas among the patients with an RCRI score of 2, 3, or 4 or more, the adjusted odds ratios for death in the hospital were 0.88 (95% confidence interval (CI) 0.80 to 0.98), 0.71 (95% CI 0.63 to 0.80), and 0.58 (95% CI 0.50 to 0.67), respectively. This study suggests that all patients with above average cardiac risk should be treated with these drugs in the perioperative period. This would surely include all vascular surgery.

▲ Lindenauer PK, Pekow P, Wang K, *et al*. Perioperative beta-blocker therapy and mortality after major noncardiac surgery. *N Engl J Med* 2005;353:349–61.

Statins for all diabetics on dialysis? ► The recent collaborative atorvastatin diabetes study (CARDS) reported a decrease in deaths from cardiovascular causes among persons with type 2 diabetes mellitus in the absence of pronounced renal insufficiency. In a multicentre, randomised, double blind, prospective study of 1255 subjects with type 2 diabetes mellitus receiving maintenance haemodialysis, patients were randomly assigned to receive 20 mg of atorvastatin per day or matching placebo. The primary end point was a composite of death from cardiac causes, non-fatal myocardial infarction, and stroke. After four weeks of treatment, the median concentration of low density lipoprotein cholesterol was reduced by 42% among patients receiving atorvastatin, and among those receiving placebo it was reduced by 1.3%. During a median follow up period of four years, 469 patients (37%) reached the primary end point, of whom 226 were assigned to atorvastatin and 243 to placebo (relative risk (RR) 0.92, 95% CI 0.77 to 1.10; $p = 0.37$). Atorvastatin had no significant effect on the individual components of the primary end point, except that the relative risk of fatal stroke among those receiving the drug was 2.03 (95% CI 1.05 to 3.93; $p = 0.04$). Atorvastatin reduced the rate of all cardiac events combined (RR 0.82, 95% CI 0.68 to 0.99; $p = 0.03$, nominally significant) but not all cerebrovascular events combined (RR 1.12, 95% CI 0.81 to 1.55; $p = 0.49$) or total mortality (RR 0.93, 95% CI 0.79 to 1.08; $p = 0.33$). Why the difference from CARDS? It could be that patients were enrolled when their disease was advanced, and consequently other factors to do with renal failure, apart from cholesterol values, were more important in these patients.

▲ Wanner C, Krane V, März W, *et al* and Dialysis Study Investigators. Atorvastatin in patients with type 2 diabetes mellitus undergoing hemodialysis. *N Engl J Med* 2005;353:238–8.

HYPERTENSION

How good are we at controlling blood pressure in the elderly? ► Lloyd-Jones and colleagues used the Framingham heart study to look at the prevalence and control of hypertension across all age groups. Subjects were then followed for up to six years for cardiovascular disease incidents. Unsurprisingly, the prevalence of hypertension and the number of drugs used to treat it increased with advancing age. Overall blood pressure control (systolic < 140 mm Hg, diastolic < 90 mm Hg) was found to be worst in women over 80 years of age (23%), compared to women over 70 (28%) or 60 (38%). For men these figures were 38%, 36%, and 38%, for the over 60s, 70s, and 80s, respectively. This lack of control proved to be particularly important in those over 80; whereas major cardiovascular events occurred in 9.5% of the normal blood pressure group, this figure jumped to 19.8% in the pre-hypertensive group, and continued to rise according to the stage of hypertension.

▲ Lloyd-Jones DM, Evans JC, Levy D. Hypertension in adults across the age spectrum. *JAMA* 2005;294:466–72.

GENERAL CARDIOLOGY

Single chamber pacing is as good as dual in older patients with complete heart block

► In a multicentre, randomised, parallel group trial, 2021 patients 70 years of age or older who were undergoing their first pacemaker implant for high grade atrioventricular block were randomly assigned to receive a single chamber ventricular pacemaker (1009 patients) or a dual chamber pacemaker (1012 patients). In the single chamber group, patients were randomly assigned to receive either fixed rate pacing (504 patients) or rate adaptive pacing (505 patients). The primary outcome was death from all causes. Secondary outcomes included atrial fibrillation, heart failure, and a composite of stroke, transient ischaemic attack, or other thromboembolism. The median follow up period was 4.6 years for mortality and 3 years for other cardiovascular events. The mean annual mortality rate was 7.2% in the single chamber group and 7.4% in the dual chamber group (hazard ratio 0.96, 95% CI 0.83 to 1.11). There were no significant differences between the group with single chamber pacing and that with dual chamber pacing in the rates of atrial fibrillation, heart failure, or a composite of stroke, transient ischaemic attack, or other thromboembolism. However, quality of life was not examined. Patients seem to prefer dual chamber pacing, and so before abandoning this modality, this aspect needs to be assessed.

▲ Toff WD, Camm JA, Skehan DJ, for the United Kingdom Pacing and Cardiovascular Events (UKPACE) Trial Investigators. Single-chamber versus dual-chamber pacing for high-grade atrioventricular block. *N Engl J Med* 2005;353:145–55.

TC:HDL ratio and CRP as the best measures of risk?

► Current medical treatment of dyslipidaemia varies according to the way a lipid profile is interpreted. Should we be most concerned about abnormal total cholesterol (TC), low density lipoprotein cholesterol (LDL-C), high density lipoprotein cholesterol (HDL-C), or non-HDL-C? Perhaps looking more at other markers such as apolipoproteins A-I and B100, and high sensitivity C reactive protein (CRP) would be better? Which is the best predictor of future cardiovascular events? Ridker *et al* followed 15 632 women over the age of 45 years for a 10 year period. Overall the authors found that concentrations of non-HDL cholesterol, and the TC:HDL-C ratio, were as good as or better than apolipoprotein fractions for the prediction of future cardiovascular events. After adjustment for age, blood pressure, smoking, diabetes, and obesity, high sensitivity CRP added further prognostic information beyond that conveyed by the lipid measurements.

▲ Ridker PM, Rifai N, Cook R, *et al*. Non-HDL cholesterol, apolipoproteins A-I and B100, standard lipid measures, lipid ratios, and CRP as risk factors for cardiovascular disease in women. *JAMA* 2005;294:326–33.

N-acetylcysteine to protect against renal failure during CABG ► Burns and colleagues gave four doses of intravenous N-acetylcysteine (two intraoperative and two postoperative) to 295 high risk patients undergoing coronary bypass surgery (CABG). All patients had at least one of the selection criteria of pre-existing renal dysfunction, being older than 70 years, diabetes mellitus, impaired left ventricular function, or were undergoing concomitant valve or redo surgery. Postoperative renal dysfunction was defined as a serum creatinine concentration $> 44 \mu\text{mol/l}$ or 25% increase in the baseline within the first five postoperative days. No difference was found in the proportion of patients with postoperative renal dysfunction (29.7% v 29.0%, $p = 0.89$) between the two groups; however, non-significant differences in postoperative interventions and complications, the need for renal replacement therapy, serious adverse events, hospital mortality, and intensive care and hospital stay were seen. The authors suggest further research is needed to identify if there are specific situations in which N-acetylcysteine would be beneficial in patients undergoing CABG.

▲ Burns KEA, Chu MWA, Novick RJ, *et al.* Perioperative N-acetylcysteine to prevent renal dysfunction in high-risk patients undergoing CABG surgery. *JAMA* 2005;294:342–50.

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

Reviewers

Dr Diana Gorog, Dr Akhil Kapur, Dr Masood Khan, Dr Alistair Lindsay, Dr Andrew Sharp

IMAGES IN CARDIOLOGY

doi: 10.1136/hrt.2004.058131

Left subclavian artery stenosis presenting as unstable angina pectoris after coronary artery bypass grafting

A man aged 77 years with a medical history of first coronary artery bypass grafting (CABG) 18 years before and a redo bypass grafting three years before the present admission suffered from prolonged resting angina. Redo CABG had been performed for unstable angina and underlying three vessel disease with occlusion of two venous grafts and a critical stenosis of the venous graft to the left descending artery (LAD). The left internal mammal artery (LIMA) had been anastomosed onto the LAD while the right coronary artery and the left circumflex artery were bypassed using saphenous grafts.

Clinical examination was characterised by a significant difference in blood pressure between both arms (right 130/80 mm Hg and left 90/60 mm Hg). The ECG showed a sinus rhythm with a complete left bundle branch block. Serial cardiac enzyme and troponin measurements were normal. Diagnostic coronary angiography revealed patent bypass grafts but a critical stenosis of the left subclavian artery just

proximal to the origin of the LIMA was present (panel A, arrow).

A percutaneous coronary intervention session was planned using a direct stenting technique over a 0.035 inch wire without using a guiding catheter via a femoral access. The final result was angiographically perfect and the patient was free of angina or other complications afterwards (panel B, arrowhead).

Severe stenosis or total occlusion of the left subclavian artery may lead to myocardial ischaemia due to reduced or reversed blood flow through a LIMA bypass graft to the coronary artery. The frequency of this rare phenomenon called coronary subclavian steal syndrome is reported to be between 0.4–1.1% in CABG patients.

A Bol
L Missault
W Dewilde

abolabol@yahoo.com