JournalScan

Iqbal Malik, Editor

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Ischaemic heart disease

Spotting risk factors in diabetics ► Of 601 patients with type 2 diabetes mellitus, only 76% had cholesterol measured, compared to rates of 92% for HbA1c and 99% for blood pressure ($p < 0.0001$ for either comparison). When elevation was detected, Hba1c was more likely to be treated (92%) than raised blood pressure (BP) (78%) or raised low density lipoprotein (LDL) cholesterol (38%, $p < 0.001$ for comparison). Even in a tertiary centre, cardiovascular risk reduction in diabetics who are at very high cardiovascular risk is clearly not as aggressive as it should be.

▲ **Grant RW**, Cagliero E, Murphy-Sheehy P, Singer DE, Nathan DM, Meigs JB. Comparison of hyperglycemia, hypertension, and hypercholesterolemia management in patients with type 2 diabetes. *Am J Med* 2002;**112**:603–9.

How cost effective are BP lowering, glucose control and cholesterol control in diabetics? ► The UKPDS data suggest BP control is as important as glycaemic control in preventing cardiovascular complications in diabetes. Using a model, a US group has calculated that BP control using angiotensin converting enzyme (ACE) inhibitors and α blockers is cost saving (saving US$1959 per life-year gained), while glucose control was cost effective in the young ($9614 at age 25–34 years) but not in the elderly ($2.1 million at age 85–94 years). Cholesterol lowering was most effective in middle age. All models have assumptions built in, but at least the message that BP control is important is very strong.

▲ **The CDC Diabetes Cost-effectiveness Group**. Cost-effectiveness of intensive glycemic control, intensified hypertension control, and serum cholesterol level reduction for type 2 diabetes. *JAMA* 2002;**287**:2542–51.

Oral glycoprotein IIb/IIIa agents do more harm than good ► Oral glycoprotein IIb/IIIa agents were associated with 31% increased mortality (odds ratio (OR) 1.31, $p = 0.0001$) in a meta-analysis of 33 326 patients. Results were similar whether the agent was added to (OR 1.38, 95% confidence interval (CI) 1.15 to 1.67) or substituted for (OR 1.37, 95% CI 1.00 to 1.86) aspirin. Among patients with acute coronary syndromes, the incidence of myocardial infarction was increased (OR 1.16, 95% CI 1.03 to 1.29). The reason for this is unclear but it is clearly different from the situation with intravenous agents where the benefits seem well established.

▲ **Newby LK**, Califf RM, White HD, Harrington RA, Van de Werf F, Granger CB, Simes RJ, Hasselblad V, Armstrong PW. The failure of orally administered glycoprotein IIb/IIIa inhibitors to prevent recurrent cardiac events. *Am J Card* 2002;**112**:647–58.

How to reduce post-CABG atrial fibrillation ► The incidence of atrial fibrillation post-bypass graft (CABG) is 20–40%. A variety of means have been tried to reduce its incidence. Amiodarone is often used, but this meta-analysis suggests that it only reduces in-hospital stay if started a week before surgery.

▲ **Wurdeman RL**, Mooss AN, Mohiuddin SM, Lenz TL. Amiodarone vs sotalol as prophylaxis against atrial fibrillation/flutter after heart surgery: a meta-analysis. *Chest* 2002;**121**:1203–10.

Naproxen may prevent AMI ► Aspirin prevents acute myocardial infarction (AMI), but the other non-steroidal anti-inflammatory drugs (NSAIDs) do not. The one exception seems to be naproxen. In two case control studies, naproxen reduced the risk of AMI (adjusted ORs 0.84, 95% CI 0.72 to 0.98, $p = 0.03$, and 0.79, 95% CI 0.63 to 0.99). When choosing an NSAID, perhaps those patients with a higher vascular risk should have naproxen.

▲ **Solomon DH**, Glynn RJ, Evin R, Avorn J. Nonsteroidal anti-inflammatory drug use and acute myocardial infarction. *Arch Intern Med* 2002;**162**:1099–104.

▲ **Rahme E**, Pilote L, LeLorier J. Association between naproxen use and protection against acute myocardial infarction. *Arch Intern Med* 2002;**162**:1111–15.

Total cholesterol and its subfractions are risk factors for stroke ► In case there was doubt about the role of cholesterol in stroke risk, a large registry of over 11 000 patients has now shown that comparing top and bottom tertiles, total cholesterol (OR 1.43, 95% CI 1.20 to 1.70), LDL cholesterol (OR 1.52, 95% CI 1.27 to 1.81), and high density lipoprotein (HDL) cholesterol (OR 0.84, 95% CI 0.70 to 1.00) concentrations are predictive of stroke risk as well as coronary heart disease risk.

▲ **Morag K**, Tanne D, Graff E, Goldbourt U, for the Bezafibrate Infarction Prevention Study Group. Low- and high-density lipoprotein cholesterol and ischemic cerebrovascular disease. The bezafibrate infarction prevention registry. *Arch Intern Med* 2002;**162**:993–9.

Tissue plasminogen activator does not increase survival after EMD ► Pulseless electrical activity does not have as bad a prognosis as asystole, but the published literature still suggests only a 4% survival rate to discharge. A previous review by Newman *et al* of 67 cases treated with fibrinolytic therapy suggested a 75% survival rate. In the present study of over 200 patients only one person survived to discharge. The previous report may have suffered from publication bias, or may have selected cases with higher risk of AMI or pulmonary embolism, but the present report can reliably exclude a survival of greater than 5% at discharge.

▲ **Abu-Laban RB**, Christenson JM, Innes GD, van Beek CA, Wanger KP, McKnight RD, MacPhail IA, Puskaric J, Sadowski RP, Singer J, Schechter MT, Wood VM. Tissue plasminogen activator in cardiac arrest with pulseless electrical activity. *N Engl J Med* 2002;**346**:1522–8.

▲ **Newman DH**, Greenwald I, Callaway CW. Cardiac arrest and the role of thrombolytic agents. *Ann Emerg Med* 2000;**35**:472–80.

Heart failure

Heart failure may lead to pulmonary hypertension via IL-6 production in the lungs ► Inflammation may be important in the progression of heart failure. By measuring interleukin-6 (IL-6) concentrations in 50 patients with heart failure at the time of cardiac catheterisation, the authors have generated the hypothesis that heart failure causes pulmonary hypertension by causing sympathetic activation, which stimulates IL-6 production, which in turn stimulates smooth muscle proliferation and so causes the changes seen in pulmonary hypertension. They demonstrate that there is local IL-6 production in the lungs, and the concentrations are correlated to the degree of elevation in pulmonary vascular resistance.

▲ **Mabuchi N**, Tsutamoto T, Wada A, Ohnishi M, Maeda K, Hayashi M, Kinoshita M. Relationship between interleukin-6 production in the lungs and pulmonary vascular resistance in patients with congestive heart failure. *Chest* 2002;**121**:1195–202.

Breast cancer and cardiomyopathy: a link ► The ErbB2 receptor tyrosine kinase is important in the progression of breast cancer, and its blockade with a monoclonal antibody improves survival. However, cardiomyopathy occurs in 28% of patients co-prescribed anthracycline. Creation of an ErbB2 deficient mouse (with the deficiency only manifest in the ventricle) produced features of dilated cardiomyopathy and suggests that some patients with breast cancer may be particularly at risk from anthracycline induced cardiomyopathy.

▲ **Crone SA**, Zhao Y-Y, Fan L, Gu Y, Minamisawa S, Liu Y, Peterson KL, Chen J, Kahn R, Condorelli G, Chien KR, Lee K-F. ErbB2 is essential in the prevention of dilated cardiomyopathy. *Nature Med* 2002;**8**:459–65.

General cardiology

Lyme disease as a cause of 2:1 block ► A 55 year old man comes in for transurethral resection of the prostate (TURP) with 2:1 heart block and some vague chest pain. This case report shows an unusual cause—acute Lyme carditis, suggested by a history of a sore on the patient's hand. Although basic blood tests, ECG, an echocardiogram, and a coronary angiogram would have been performed in most centres, an RV biopsy may not have been. Antibiotics cured the heart block.

▲ **Hajjar J**, Kradin RL. Case 17, 2002—a 55-year-old man with second-degree atrioventricular block and chest pain. *N Engl J Med* 2002;**346**:1732–8.

Salmeterol as preventor of high altitude pulmonary oedema (HAPO) ► Prophylactic inhalation of the β adrenergic agonist salmeterol might reduce the incidence of HAPO, since the β agonist stimulates the clearance of fluid in animal models. Prophylactic inhalation of salmeterol in a randomised trial of 37 patients decreased the incidence of HAPO in susceptible subjects by more than 50%, from 74% with placebo to 33% (p = 0.02).

▲ **Sartori C**, Allemann Y, Duplain H, Lepori M, Egli M, Lipp E, Hutter D, Turini P, Hugli O, Cook S, Nicod P, Scherrer U. Salmeterol for the prevention of high-altitude pulmonary edema. *N Engl J Med* 2002;**346**:1631–6.

Leave small abdominal aortic aneurysms alone ► Incidental abdominal aortic aneurysms smaller than 5.5 cm are often found during abdominal ultrasound scanning (USS). Their natural history, and the appropriate treatment, are now known as a UK and a US trial have shown that conservative treatment, with USS monitoring, are as good as early surgery, even if operative mortality is less than 3%.

▲ **Lederle FA**, Wilson SE, Johnson GR, *et al* for the Aneurysm Detection and Management Veterans Affairs Cooperative Study Group. Immediate repair compared with surveillance of small abdominal aortic aneurysms. *N Engl J Med* 2002;**346**:1437–44.

▲ **The United Kingdom Small Aneurysm Trial Participants**. Long-term outcomes of immediate repair compared with surveillance of small abdominal aortic aneurysms. *N Engl J Med* 2002;**346**:1445–52.

Basic science

A mouse model of Printzmetal angina ► Mice lacking in the inwardly rectifying K^+ channel Kir6.1 have a high rate of sudden death associated with spontaneous ST elevation and subsequent atrioventricular block. They are more prone to coronary spasm than ordinary mice, and do not respond to potassium channel openers (of which nicorandil is the clinical equivalent). This new breed of mice may help investigate the causes of coronary spasm.

▲ **Miki T**, Suzuki M, Shibasaki T, Uemura H, Sato T, Yamaguchi K, Koseki H, Iwanaga T, Nakaya H, Seino S. Mouse model of Prinzmetal angina by disruption of the inward rectifier Kir6.1. *Nature Med* 2002;**8**:466–72.

High dose steroids to treat MI: rebirth of a defunct treatment? ► High dose corticosteroid treatment protects the myocardium from ischaemic injury. However, the subsequent development of cardiac rupture has limited the use of corticosteroids in acute myocardial infarction. How they help during AMI has been tested in this paper, which shows induction of endothelial nitric oxide synthase (eNOS). Mice lacking in eNOS do not show this protective effect. It may be that novel stimulators of eNOS may improve prognosis during AMI. It is, however, unlikely that steroid treatment in this situation will prove a viable option.

▲ **Hafezi-Moghadam A**, Simoncini T, Yang Z, Limbourg FP, Plumier J-C, Rebsamen MC, Hsieh C-M, Chui D-S, Thomas KL, Prorock AJ, Laubach VE, Moskowitz MA, French BA, Ley K, Liao JK. Acute cardiovascular protective effects of corticosteroids are mediated by non-transcriptional activation of endothelial nitric oxide synthase. *Nature Med* 2002;**8**:473–9.

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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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2 Joint British recommendations on prevention of coronary heart disease in clinical practice
December 1998;**80**(suppl 2):S1–29.

3 Choice of heart valve prosthesis
P Bloomfield
June 2002;**87**:583–9. (Education in Heart)

4 The medical management of valvar heart disease
NA Boon, P Bloomfield
April 2002;**87**:395–400. (Education in Heart)

5 Lipid lowering in patients with diabetes mellitus: what coronary heart disease risk threshold should we use?
K Rowland Yeo, WW Yeo
May 2002;**87**:423–7. (Cardiovascular medicine)

6 Meta-analysis of randomised controlled trials of the effectiveness of antiarrhythmic agents at promoting sinus rhythm in patients with atrial fibrillation
G Nichol, F McAlister, B Pham, A Laupacis, B Shea, M Green, A Tang, G Wells
June 2002;**87**:535–43. (Cardiovascular medicine)

7 Genetic polymorphisms in the renin-angiotensin-aldosterone system associated with expression of left ventricular hypertrophy in hypertrophic cardiomyopathy: a study of five polymorphic genes in a family with a disease causing mutation in the myosin binding protein C gene
JR Ortlepp, HP Vosberg, S Reith, F Ohme, NG Mahon, D Schroder, HG Klues, P Hanrath, WJ McKenna
March 2002;**87**:270–5. (Basic research)

8 Troponin T concentrations 72 hours after myocardial infarction as a serological estimate of infarct size
M Licka, R Zimmermann, J Zehelein, TJ Dengler, HA Katus, W Kubler
June 2002;**87**:520–4. (Cardiovascular medicine)

9 Apoptosis in the cardiovascular system
MR Bennett
May 2002;**87**:480-7. (Education in Heart)

10 Inflammation in acute coronary syndromes
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March 2002;**87**:201–4.

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