

JournalScan

Iqbal Malik, Editor



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Ischaemic heart disease

Multiple risk factor reduction in diabetes works ▶ One hundred and sixty patients with type 2 diabetes and microalbuminuria were randomly assigned to receive conventional care or intensive treatment. Patients in the intensive therapy group were treated with drugs to maintain glycosylated haemoglobin values below 6.5%, blood pressure below 130/80 mm Hg, cholesterol below 4.5 mmol/l, and triglyceride below 1.7 mmol/l. Recommended lifestyle interventions included reduced dietary fat, regular moderate exercise, and cessation of smoking. All participants in the intensive therapy group were also advised to take aspirin and a dietary supplement that included vitamins E and C, folic acid, and chrome picolinate. In addition, patients in the intensive therapy group were given an angiotensin converting enzyme (ACE) inhibitor (or, if contraindicated, an angiotensin II receptor antagonist), regardless of blood pressure, to slow the progression of renal disease. After a mean follow up of 7.8 years, one or more cardiovascular events (death from cardiovascular causes, non-fatal myocardial infarction or stroke, coronary or peripheral artery revascularisation, or amputation as a result of ischaemia) had occurred in 44% of patients in the conventional treatment group but in only 24% of those in the intensive therapy group. The risk reduction was similar when revascularisation procedures were excluded. Rates of nephropathy, retinopathy, and autonomic neuropathy were also notably reduced in the intensive therapy group. Although the changes on the composite end point were striking there was no difference in cardiovascular death rates between the groups over the 7.8 years follow up.

▲ **Gæde P**, Vedel P, Larsen N, Jensen GVH, Parving HH, Pedersen O. Multifactorial intervention and cardiovascular disease in patients with type 2 diabetes. *N Engl J Med* 2003;348:383-93.

Off-pump surgery is equivalent to on-pump CABG ▶ The trend to percutaneous intervention (PCI) for revascularisation rather than coronary bypass graft surgery (CABG) is based on the higher risks of acute stroke, myocardial infarction, and death with CABG. In addition there is a risk of neurocognitive disturbance. It was felt that the bypass machine may have been the problem, so off-pump techniques have been developed. In a trial of 281 low risk patients, using the Octopus device, mortality was 2% at one year in both groups. Symptoms and quality of life at one year were also equivalent in the two groups. There was, however, a 14% cost savings with off-pump as compared with on-pump surgery. PCI, therefore, still looks attractive for low risk patients. Results of off-pump CABG in high risk patients need to be assessed.

▲ **Nathoe HM**, van Dijk D, Jansen EWL, Suyker WJL, Diephuis JC, van Boven WJ, de la Rivière AB, Borst C, Kalkman CJ, Grobbee DE, Buskens E, de Jaegere PPT, for the Study Group. A comparison of on-pump and off-pump coronary bypass surgery in low-risk patients. *N Engl J Med*;2003;348:394-402.

It doesn't matter what you drink, it is good for the heart ▶

Over a 12 year follow up period involving over 38 000 male health professionals, men taking a drink on 3-7 days of the week had lower risk of myocardial infarction (relative risk (RR) 0.66-0.68, 95% confidence interval (CI) 0.54 to 0.84) than non-drinkers. In addition, drinking 10-30 g or more a day did not change this, nor did the type of alcohol or whether it was taken with a meal. Can society cope with the burden of alcohol related problems if it comes recommended by the doctor?

▲ **Mukamal KJ**, Conigrave KM, Mittleman MA, Camargo CA, Jr, Stampfer MJ, Willett WC, Rimm EB. Roles of drinking pattern and type of alcohol consumed in coronary heart disease in men. *N Engl J Med* 2003;348:109-18.

Renal angioplasty reduces blood pressure, but does not save the kidney ▶

An analysis of three trials of renal angioplasty versus medical treatment suggests that renal angioplasty was more effective in lowering blood pressure (systolic -7 mm Hg, 95% CI -12 to -1 mm Hg, and diastolic -3 mm Hg, 95% CI -6 to -1 mm Hg). At 12 months, patients treated with balloon angioplasty were more likely to have patent renal arteries (52% v 19%; odds ratio (OR) 4.2, 95% CI 1.8 to 9.8), used fewer anti-hypertensive medications, and appeared to have fewer major cardiovascular and renovascular complications (OR 0.27, 95% CI 0.06 to 1.23; $p = 0.09$). There was no difference in renal function, however.

▲ **Nordmann AJ**, Woo K, Parkes R, Logan AG. Balloon angioplasty or medical therapy for hypertensive patients with atherosclerotic renal artery stenosis? A meta-analysis of randomized controlled trials. *Am J Med* 2003;118:44-50.

MRI can detect subendocardial infarction better than SPECT ▶

The resolution of single photon emission computed tomography (SPECT)-MIBI is ~10 mm, and thus small subendocardial infarcts can be missed. Contrast enhanced cine magnetic resonance (CMR) imaging has better resolution. In animals, contrast enhanced CMR and SPECT detected all segments with nearly transmural infarction (> 75% transmural extent of the left ventricular wall). CMR also identified 100 of the 109 segments (92%) with subendocardial infarction (< 50% transmural extent of the left ventricular wall), whereas SPECT identified only 31 (28%). In 91 patients, all segments with nearly transmural infarction, as defined by contrast enhanced CMR, were detected by SPECT. However, of the 181 segments with subendocardial infarction, 85 (47%) were not detected by SPECT. On a per patient basis, six (13%) individuals with subendocardial infarcts visible by CMR had no evidence of infarction by SPECT. When CMR can be easily and accessibly combined with perfusion and function imaging, a new gold standard for non-invasive work up of coronary artery disease will have arrived.

▲ **Wagner A**, Mahrholdt H, Holly TA, Elliott MD, Regenfus M, Parker M, Klocke FJ, Bonow RO, Kim RJ, Judd RM. Contrast-enhanced MRI and routine single photon emission computed tomography (SPECT) perfusion imaging for detection of subendocardial myocardial infarcts: an imaging study. *Lancet* 2003;361:374-9.

Any carotid stenosis > 50% could be a target for treatment in a symptomatic patient ▶

Pooled data from the three biggest trials ($n = 6092$) of carotid endarterectomy versus medical treatment suggest that surgery increased the five year risk of ipsilateral ischaemic stroke in patients with less than 30% stenosis ($n = 1746$, absolute risk reduction -2.2%, $p = 0.05$), had no effect in patients with 30-49% stenosis (1429, 3.2%, $p = 0.6$), was of marginal benefit in those with 50-69% stenosis (1549, 4.6%, $p = 0.04$), and was highly beneficial in those with 70% stenosis or greater without near occlusion (1095, 16.0%, $p < 0.001$). Stroke/death rates at 30 days with surgery were 7% in the trials. With the advent of carotid stenting and distal protection devices, event rates are much lower than this. A new wave of percutaneous intervention may be about to occur on the back of surgical trial data.

▲ **Rothwell PM**, Eliasziw M, Gutnikov SA, Fox AJ, Taylor DW, Mayberg MR, Warlow CP, Barnett HJM, for the Carotid Endarterectomy Trialists' Collaboration. Analysis of pooled data from the randomised controlled trials of endarterectomy for symptomatic carotid stenosis. *Lancet* 2003;361:107-16.

Heart failure

Diastolic heart failure is present in over 1% of the population ▶

Using Doppler criteria for diagnosis of diastolic dysfunction and review of case notes and investigation to diagnose congestive heart failure (CHF), 2.2% of the population had CHF. Ejection fraction < 40% was present in 2% of the population. Of those with proven CHF, 44% has an ejection fraction

over 50%. In total, 21% of the population had some diastolic dysfunction, and 0.7% had severe diastolic dysfunction. CHF was much more common among those with systolic or diastolic dysfunction than in those with normal ventricular function. However, even among those with moderate or severe diastolic or systolic dysfunction, less than half had recognised CHF. In multivariate analysis, controlling for age, sex, and ejection fraction, mild diastolic dysfunction (hazard ratio 8.31, 95% CI 3.00 to 23.1; $p < 0.001$) and moderate or severe diastolic dysfunction (hazard ratio 10.17, 95% CI 3.28 to 31.0; $p < 0.001$) were predictive of all cause mortality.

▲ **Redfield MM**, Jacobsen SJ, Burnett JC, Jr, Mahoney DW, Bailey KR, Rodeheffer RJ. Burden of systolic and diastolic ventricular dysfunction in the community: appreciating the scope of the heart failure epidemic. *JAMA* 2003;**289**:194–202.

Another large study suggests elderly patients with heart failure should get β blockers ▶ In nearly 12 000 patients with at least one admission with heart failure, β blockers reduced total mortality (hazard ratio 0.72), mortality caused by heart failure (hazard ratio 0.65) and hospitalisations for heart failure (hazard ratio 0.82). Mean age was 79 years, and 9.7% were on β blockers. These effects were seen with all doses of β blockade but with a trend to better results with higher doses. Interestingly, the use of ACE inhibitors was not associated with a significant reduction in hospitalisations for heart failure (hazard ratio 0.89–0.93 for all doses), although it was associated with decreased all cause mortality (hazard ratio 0.55–0.67).

▲ **Sin DD**, McAlister FA. The effects of beta-blockers on morbidity and mortality in a population-based cohort of 11,942 elderly patients with heart failure. *Am J Med* 2002;**113**:650–6.

Hypertension

Pulse pressure and systolic BP are more important than diastolic BP ▶ Of 2040 participants in the Framingham study, CHF developed in 11.8% during the follow up period of 17.4 years. The relation of blood pressure to CHF was strongest for systolic and pulse pressure. A 1 SD (20 mm Hg) increment in systolic pressure conferred a 56% increased risk for CHF (hazard ratio 1.56, 95% CI 1.37 to 1.77); similarly, a 1 SD (16 mm Hg) increment in pulse pressure conferred a 55% increased risk for CHF (hazard ratio 1.55, 95% CI 1.37 to 1.75). These associations were unrelated to age, duration of follow up, and initiation of treatment for hypertension during follow up; they were also observed in patients with systolic hypertension (systolic blood pressure ≥ 140 mm Hg) at the baseline examination (hazard ratio 1.41, 95% CI 1.18 to 1.69 for pulse pressure, and 1.42, 95% CI 1.14 to 1.76 for systolic pressure).

▲ **Haider AW**, Larson MG, Franklin SS, Levy D. Systolic blood pressure, diastolic blood pressure, and pulse pressure as predictors of risk for congestive heart failure in the Framingham heart study. *Ann Intern Med* 2003;**138**:10–16.

Patients with renal disease should get combined ACE inhibition and A-II blockade ▶ After screening and an 18 week run-in period, 263 patients were randomly assigned to treatment with an angiotensin-II (A-II) receptor blocker (losartan, 100 mg daily), an ACE inhibitor (trandolapril, 3 mg daily), or a combination of both drugs at equivalent doses. Ten (11%) of 85 patients on combination treatment reached the combined primary end point of doubling of creatinine or end stage renal failure compared with 20 (23%) of 85 on trandolapril alone (hazard ratio 0.38, 95% CI

0.18 to 0.63; $p = 0.018$) and 20 (23%) of 86 on losartan alone (hazard ratio 0.40, 95% CI 0.17 to 0.69; $p = 0.016$). Age (1.30, 95% CI 1.03 to 2.29; $p = 0.009$), baseline renal function (1.80, 95% CI 1.02 to 2.99; $p = 0.021$), and antiproteinuric response to trandolapril (0.81, 95% CI 0.21 to 0.91; $p = 0.039$) were also predictive of reaching end point. Frequency of side effects with combination treatment was the same as with trandolapril alone.

▲ **Nakao N**, Yoshimura A, Morita H, Takada M, Kayano T, Ideura T. Combination treatment of angiotensin-II receptor blocker and angiotensin-converting-enzyme inhibitor in non-diabetic renal disease (COOPERATE): a randomised controlled trial. *Lancet* 2003;**361**:117–24.

General cardiology

High altitude pulmonary oedema can occur below 2400 m

▶ In 52 previously well patients skiing at 1400–2440 m, high altitude pulmonary oedema (HAPO) developed. All were helped by descent, oxygen, continuous pressure assisted ventilation (CPAP), and fluid restriction. Half of them received nicardipine. Two of the patients presented in coma. Symptoms to watch out for are headache, fever, altered sleep, and breathlessness.

▲ **Gabry AL**, Ledoux X, Mozziconacci M, Martin C. High-altitude pulmonary oedema at moderate altitude (< 2,400 m; 7,870 feet): a series of 52 patients. *Chest* 2003;**123**:49–53.

The “O” in HOCM is important ▶ Outflow tract obstruction is not essential to diagnose hypertrophic cardiomyopathy. In a retrospective study of 1101 patients, 25% have a gradient of > 30 mm Hg at rest. In all, 12% died over 6.3 years follow up. The overall probability of death related to hypertrophic cardiomyopathy was significantly greater among patients with outflow tract obstruction than among those without obstruction (relative risk 2.0, $p = 0.001$). The risk of progression to New York Heart Association (NYHA) functional class III or IV or death specifically from heart failure or stroke was also greater among patients with obstruction (RR 4.4, $p < 0.001$), particularly among patients 40 years of age or older ($p < 0.001$). Multivariate analysis confirmed that outflow tract obstruction was independently associated with an increased risk of both death related to hypertrophic cardiomyopathy (RR 1.6, $p = 0.02$) and progression to NYHA class III or IV or death from heart failure or stroke (RR 2.7, $p < 0.001$). The amount of gradient was not important. However, the presence of a gradient had low predictive power (7%) for sudden death, explaining the conflicting results in previous studies.

▲ **Maron MS**, Olivetto I, Betocchi S, Casey SA, Lesser JR, Losi MA, Cecchi F, Maron BJ. Effect of left ventricular outflow tract obstruction on clinical outcome in hypertrophic cardiomyopathy. *N Engl J Med* 2003;**348**:295–303.

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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