

JOURNALSCAN

This is the first “JournalScan”. The aim is to focus on the “non-cardiological” journals and to locate publications which are of relevance to cardiology. We are going to do this on a monthly basis. On the web there will be links to the abstract of the article and in many cases to full text. The reviewers are all cardiology trainees who select the articles; the section is then put together by Iqbal Malik and finally edited by Iqbal and myself. I hope you find this a useful addition to the journal.

Comments would be welcomed.

ROGER HALL
Editor, Heart

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CORONARY ARTERY DISEASE

GP IIb/IIIa receptor blockers, such as tirofiban and abciximab, are cost effective in the treatment of unstable angina and during coronary angioplasty: Using published data, Hillegeass and colleagues conclude that use of these agents during percutaneous transluminal coronary angioplasty (PTCA) or in acute coronary syndromes has a cost effectiveness of less than \$16 000 (about £10 000) per life year gained. This compares well with other standard treatment. As a comparison, haemodialysis costs about £30 000 per life year gained.

1 Hillegeass WB, Newman AR, Raco DL. Glycoprotein IIb/IIIa receptor therapy in percutaneous coronary intervention and non-ST-segment elevation acute coronary syndromes: estimating the economic implications. *PharmacoEconomics* 2001;19:41–55.

Staying fit reduces the progression of atherosclerosis: Increased cardiorespiratory fitness reduces risk of cardiovascular events, but whether it is related to slower progression of early atherosclerosis is unclear. Lakka and associates show that progression of carotid atherosclerosis seen on ultrasound is slower in those who do more exercise.

2 Lakka TA, Laukkanen JA, Rauramaa R, Salonen R, Lakka H-M, Kaplan GA, Salonen JT. Cardiorespiratory fitness and the progression of carotid atherosclerosis in middle-aged men. *Ann Intern Med* 2001;134:12–20.

Recovery of coronary flow after bypass grafting may take up to six months: Positron emission tomography (PET) scanning allows measurement of myocardial blood flow. Although blood flow at rest is normalised after coronary bypass grafting (CABG) for three vessel disease, coronary flow reserve—a measure of coronary resistance—remains impaired at one month after CABG but returns to normal at six months. This is in keeping with previous data suggesting recovery is also delayed after PTCA.

3 Spyrou N, Khan MA, Rosen SD, Foale R, Davies DW, Sogliani F, Stanbridge RD, Camici PG. Persistent but reversible coronary microvascular dysfunction after bypass grafting. *Am J Physiol Heart Circ Physiol* 2000;279:H2634–40.

Stents are better than PTCA alone in acute myocardial infarction: Primary angioplasty is probably better than thrombolysis for acute myocardial infarction. Is stenting even better? Scheller and colleagues extend the data on primary stenting in acute myocardial infarction out to almost two years follow up. Although there was no difference in death or myocardial infarction, the stent group had less angina, and a lower rate of repeat PTCA on follow up.

4 Scheller B, Hennen B, Severin-Kneib S, Ozbek C, Schieffer H, Markwirth T. Long-term follow-up of a randomized study of primary stenting versus angioplasty in acute myocardial infarction. *Am J Med* 2001;110:1–6.

Low dose aspirin lowers cardiovascular events but vitamin E treatment does not: The PPP looked at randomised open

label aspirin for risk reduction in the presence of at least one major cardiovascular risk factor. Low dose aspirin gave a benefit which was additional to any benefit of general risk reduction strategies. Total cardiovascular events were significantly reduced from 8.2% to 6.3%, although at a cost of increased bleeding (from 0.3% to 1.1%). The results on vitamin Es were inconclusive, confirming the findings of previous studies on this topic.

5 Collaborative Group of the Primary Prevention Project (PPP). Low-dose aspirin and vitamin E in people at cardiovascular risk: a randomised trial in general practice. *Lancet* 2001;357:89–95.

MRI can be used to detect Q-wave and even small non-Q wave myocardial infarction: Contrast enhanced magnetic resonance imaging (MRI) can detect Q and non-Q wave myocardial infarction non-invasively. Wu and co-workers studied patients with proven myocardial infarction and controls with non-ischaemic cardiomyopathy or normal hearts. MRI spotted all patients with Q wave myocardial infarction and 91% of those with non-Q wave myocardial infarction. They suggest that MRI may offer an advantage over echocardiography and other techniques since it detected small infarcts even if there were no regional wall motion abnormalities.

6 Wu E, Judd RM, Vargas JD, Klocke FJ, Bonow RO, Kim RJ. Visualisation of presence, location, and transmural extent of healed Q-wave and non-Q-wave myocardial infarction. *Lancet* 2001;357:21–8.

Intracoronary radiotherapy (brachytherapy) reduces recurrence of stenosis after PTCA for in-stent restenosis: This (the GAMMA-1 trial) is the latest randomised placebo controlled trial to show that in-stent restenosis, which recurs in up to 60% of cases if treated just by PTCA, is better treated, at least up to six months follow up, by adjunctive brachytherapy. The danger is of late thrombosis, especially if another stent is inserted, and antiplatelet treatment (usually clopidogrel plus aspirin) needs to be continued for at least six months. The treatment is tricky to deliver, however, as the catheter lab often has to be redesigned to be “radiation-safe”.

7 Leon MB, Teirstein PS, Moses JW, Tripuraneni P, Lansky AJ, Jani S, Wong SC, Fish D, Ellis S, Holmes DR, Kerieakes D, Kuntz RE. Localized intracoronary gamma-radiation therapy to inhibit the recurrence of restenosis after stenting. *N Engl J Med* 2001;344:250–6.

Statins should be started before discharge after acute myocardial infarction: Statins are proven to be of benefit in both primary and secondary prevention, but how early after an acute myocardial infarction should they be started? Stenestrand and colleagues present data that are not randomised, but show a 25% lower death rate at one year in patients discharged from hospital on statins compared to those discharged without them. Several randomised trials are also addressing this issue including MIRACL, FLORIDA and A-to-Z. In the meantime, starting treatment at the time of infarction seems to do no harm, and since patients were going to start on them later anyway, why not pre-discharge?

8 Stenestrand U, Wallentin L, for the Swedish Register of Cardiac Intensive Care (RIKS-HIA). Early statin treatment following acute myocardial infarction and 1-year survival. *JAMA* 2001;285:430–6.

HYPERTENSION

Lose weight, and eat a healthy, low sodium diet to reduce blood pressure: A diet low in sugar and fat, and high in fruit and fibre lowers blood pressure. The DASH investigators show that lowering sodium in the diet (difficult in real life since it is added to so many products) reduces blood pressure in normotensives and those with mild/moderate hypertension. The TOHP II investigators confirm that if you are overweight, then weight loss is an effective way to lower blood pressure. These studies give solid evidence to tell patients to eat healthy diets and lose weight.

- 1 Stevens VJ, Obarzanek E, Cook NR, Lee IM, Appel LJ, Smith West D, Milas NC, Mattfeldt-Beman M, Belden L, Bragg C, Millstone M, Raczynski J, Brewer A, Singh B, Cohen J, for the Trials of Hypertension Prevention Research Group. Long-term weight loss and changes in blood pressure: results of the trials of hypertension prevention, phase II (TOHP II). *Ann Intern Med* 2001;**134**:1–11.
- 2 Sacks FM, Svetkey LP, Vollmer WM, Appel LJ, Bray GA, Harsha D, Obarzanek E, Conlin PR, Miller ER III, Simons-Morton DG, Karanja N, Lin P-H, Aickin M, Most-Windhauser MM, Moore TJ, Proschan MA, Cutler JA, for the DASH-Sodium Collaborative Research Group. Effects on blood pressure of reduced dietary sodium and the dietary approaches to stop hypertension (DASH) diet. *N Engl J Med* 2001;**344**:3–10.

GENERAL CARDIOLOGY

Having a patent foramen ovale (PFO) increases risk of “the bends” in divers: PFO was diagnosed on contrast transoesophageal echocardiography (TOE), and ischaemic brain lesions identified by MRI in divers. Those with PFO were 4.5-fold more likely to have had decompression events (the bends) and twice as many ischaemic brain lesions per person were diagnosed on MRI compared to divers without PFO. Even if the diver did not have a PFO, he was 5-fold more likely to have MRI lesions than a healthy non-diver without PFO. The clinical relevance of the MRI lesions is not clear, but the increased incidence of the bends is worrying.

- 1 Schwerzmann M, Seiler C, Lipp E, Guzman R, Lövsblad KO, Kraus M, Kucher N. Relation between directly detected patent foramen ovale and ischemic brain lesions in sport divers. *Ann Intern Med* 2001;**134**:21–4.

A dilated right ventricle caused by tricuspid regurgitation may recover better than a dilated left ventricle caused by mitral regurgitation: If the left ventricle begins to fail because of volume overload, the recovery after correction of the mitral or aortic regurgitation is never complete. Inducing tricuspid regurgitation in dogs allows study of cardiomyocytes during right heart volume overload. Right ventricle sarcomere shortening was of normal extent and at normal velocity, although cardiomyocytes were longer than control cells. This could mean recovery of right ventricular function is more likely with treatment of the tricuspid regurgitation than recovery of the left ventricle with treatment of mitral regurgitation.

- 2 Ishibashi Y, Rembert JC, Carabello BA, Nemoto S, Hamawaki M, Zile MR, Greenfield Jr. JC, Cooper G. Normal myocardial function in severe right ventricular volume overload hypertrophy. *Am J Physiol* 2001;**280**:H11–16.

Spiral computed tomography (CT) may be the way to exclude pulmonary embolism: The difficulties of interpreting non-specific ventilation-perfusion scan results are highlighted by Ost and associates. They demonstrate the utility of spiral CT versus pulmonary angiography as the gold standard investigation in these circumstances where clinical suspicion of pulmonary embolism is high. A negative CT scan had a negative predictive value of 96%.

- 3 Ost D, Rozenshtein A, Saffran L, Snider A. The negative predictive value of spiral computed tomography for the diagnosis of pulmonary embolism in patients with nondiagnostic ventilation-perfusion scans. *Am J Med* 2001;**110**:16–21.

BASIC RESEARCH

The “glitazones” may be antiatherogenic in addition to improving diabetes control: Peroxisome proliferator activated receptors (PPARs) are a group of nuclear receptors which regulate genes involved in lipid and glucose metabolism. PPAR- γ is highly expressed in foam cells in atherosclerotic plaques. PPAR- γ is the target of the thiazolidinediones (or “glitazones”), a new class of antidiabetic drugs that improve insulin sensitivity. Moore and colleagues report that stimulation of PPAR- γ causes down regulation of a low density lipoprotein scavenger receptor, SR-A. This might explain why these drugs reduce lipid accumulation in macrophages. They could therefore be useful in slowing down the atherosclerotic process.

- 1 Moore KJ, Rosen ED, Fitzgerald ML, Randow F, Andersson LP, Altshuler D, Millstone DS, Mortensen RM, Spiegelman BM, Freeman MW. Role of PPAR- γ in macrophage differentiation and cholesterol uptake. *Nature Med* 2001;**7**:41–7.

Tissue plasminogen activator (tPA) might mediate neuronal death: tPA is currently the only approved treatment for acute stroke. However, results from animal stroke models suggest that tPA may also mediate neuronal death by potentiating N-methyl-D-aspartate (NMDA) receptor mediated neurotoxicity. This might partly explain why opening the artery with tPA during stroke does not have the same benefit as in myocardial infarction.

- 2 Nicole O, Docagne F, Ali C, Margail I, Carmeliet P, MacKenzie ET, Vivien D, Buisson A. The proteolytic activity of tissue plasminogen activator enhances NMDA receptor mediated signaling. *Nature Med* 2001;**7**:59–64.

Inflammation is important in reperfusion injury: The adhesion molecules are involved in recruitment of inflammatory cells. Briaud and colleagues show that absence of two of them—ICAM-1 and P selectin—delays the influx of cells, but not the extent of injury at 24 hours in an animal model of ischaemia/reperfusion, due to the cells getting in via other adhesion mechanisms. However, Hoffmeyer and associates suggest that a broad inhibition of neutrophil function may be helpful if given before the insult.

- 3 Briaud SA, Ding Z-M, Michael LH, Entman ML, Daniel S, Ballantyne CM. Leukocyte trafficking and myocardial reperfusion injury in ICAM-1/P-selectin-knockout mice. *Am J Physiol* 2001;**280**:H60–7.
- 4 Hoffmeyer MR, Scalia R, Ross CR, Jones SP, Lefer DJ. PR-39, a potent neutrophil inhibitor, attenuates myocardial ischemia-reperfusion injury in mice. *Am J Physiol* 2000;**279**:H2824–8.

Journals scanned—American Journal of Medicine; American Journal of Physiology; Heart and Circulatory Physiology; Annals of Emergency Medicine; Annals of Thoracic Surgery; Annals of Internal Medicine; Archives of Internal Medicine; BMJ; Canadian Medical Association Journal; Chest; Clinical Pharmacology and Therapeutics; 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—C Baker, E Barnes, V Bhatia, R Desilva, M Earley, K Fox, D Gorog, G Jenkins, R Kaprilian, A Kapur, M Khan, P Lambiase, V Markides, M Poullis, R Rakhit, P Ramrakha, J Strange, H Walker, B Wasan.