ISCHAEMIC HEART DISEASE

Late presentation with acute MI: do nothing or do a primary angioplasty? | No studies to date have specifically addressed whether primary PCI is the most beneficial strategy in the patient presenting more than 12 hours from the onset of an ST elevation myocardial infarction (STEMI). In the BRAVE-2 trial, 365 patients presenting between 12-48 hours after the start of symptoms were randomised to immediate invasive treatment (stenting with abciximab) or a conventional conservative treatment strategy. The primary end point of left ventricular infarct size (as measured by aperfusion single photon emission computed tomography (SPECT) study with technetium sestamibi) was found to be significantly smaller in patients assigned to the invasive group (median 8% v 13%). The mean difference in final left ventricular infarct size was 6.8% smaller in the invasive group. No significant differences between the two treatment groups were found on comparing the secondary end point, a composite of death, recurrent myocardial infarction (MI), or stroke at 30 days.


Routine invasive treatment for ACS is better than selective use of catheterisation | A meta-analysis of seven trials examining a routine invasive versus a selective invasive strategy following non-STEMI (NSTEMI) looked at the rates of death or MI in the 9212 patients studied. Overall, death or MI was reduced from 14.4% of patients in the selective invasive group to 12.2% of patients in the routine invasive group. Higher risk patients with elevated cardiac biomarker values at baseline benefitted more from routine intervention, with no significant benefit observed in patients with negative baseline marker values. However, during initial hospitalisation, a routine invasive strategy was associated with a significantly higher early mortality (1.1% v 1.8%), and the composite of death or MI. But after discharge, a routine invasive strategy led to fewer subsequent deaths and MIs (11.0% v 7.4%). At the end of follow up, a routine invasive strategy led to a 33% reduction in severe angina, and a 34% reduction in rehospitalisation.


Oxidised phospholipids may be a marker for coronary disease | Concentrations of oxidised low density lipoprotein (LDL) and Lp(a) lipoprotein were measured in a total of 504 patients immediately before coronary angiography. Concentrations of oxidised LDL were reported as the oxidised phospholipid content per particle of apolipoprotein B-100 (oxidised phospholipid:apo B-100 ratio). Measurements of the oxidised phospholipid:apo B-100 ratio and Lp(a) lipoprotein concentrations were skewed toward lower values, and the values for the oxidised phospholipid:apo B-100 ratio correlated strongly with those for Lp(a) lipoprotein (r = 0.83, p < 0.0001). In the entire cohort, the oxidised phospholipid:apo B-100 ratio and Lp(a) lipoprotein concentrations showed a strong and graded association with the presence and extent of coronary artery disease (that is, the number of vessels with a stenosis of more than 50% of the luminal diameter) (p < 0.001). Among patients 60 years of age or younger, those in the highest quartiles for the oxidised phospholipid:apo B-100 ratio and Lp(a) lipoprotein concentrations had odds ratios (ORs) for coronary artery disease of 3.12 (p < 0.001) and 3.64 (p < 0.001) and, respectively, as compared with patients in the lowest quartile. The combined effect of hypercholesterolaemia and being in the highest quartiles of the oxidised phospholipid:apo B-100 ratio (OR 16.8; p < 0.001) and Lp(a) lipoprotein concentrations (OR 14.2; p < 0.001) significantly increased the probability of coronary artery disease among patients 60 years of age or younger.


Hypertension

Routine ocular fundoscopy in hypertension is not warranted | To be beneficial, a test must predict something useful or change practice. Studies were included that assessed hypertensive retinopathy with bleeding for blood pressure and cardiovascular risk factors. Studies on observer agreement had to be assessed by two or more observers and expressed as a k statistic. Studies on the association between hypertensive retinopathy and hypertensive organ damage were carried out in patients with hypertension. The association between hypertensive retinopathy and cardiovascular risk was carried out in unselected normotensive and hypertensive people without diabetes mellitus. The assessment of ocular changes in the retina is limited by interobserver variation, with a high rate of disagreement between observers. The positive and negative predictive values for the association between hypertensive retinopathy and blood pressure were low (47–72% and 32–67%, respectively).
Associations between retinal microvascular changes and cardiovascular risk were inconsistent, except for retinopathy and stroke. The increased risk of stroke, however, was also present in normotensive people with retinopathy. These studies did not adjust for other indicators of hypertensive organ damage.

ALLHAT suggests thiazides are as good as any other treatment in hypertension ▶ ALLHAT (an hypertensive and lipid-lowering treatment to prevent heart attack trial) was an active controlled trial in 31 512 adults, 55 years or older, with hypertension and at least one other risk factor for coronary heart disease, stratified into diabetes (n = 13 101), impaired glucose tolerance (n = 1399), and normal (n = 17 012) groups on the basis of national guidelines. Participants were randomly assigned to double blind, first step treatment with chlorthalidone 12.5–25 mg/day, amlodipine besylate 2.5–10 mg/day, or losinipril 10–40 mg/day. In an intention-to-treatment analysis of fatal coronary heart disease or non-fatal MI (primary outcome), total mortality, and other clinical complications, angiotensin converting enzyme inhibitors and calcium channel blockers showed no beneficial effects over other treatment in any group.

Blood pressure targets in diabetic and non-diabetic patients ▶ Twenty seven randomised trials (n = 158 709 participants) that included 33 395 individuals with diabetes and 125 314 without diabetes contributed to the analyses. For each outcome and each comparison summary, estimates of effect and 95% confidence intervals were calculated for patients with and without diabetes using a random effects model. Total major cardiovascular events were reduced to a comparable extent in individuals with and without diabetes by regimens based on angiotensin converting enzyme inhibitors, calcium antagonists, angiotensin receptor blockers, and diuretics/β blockers (p > 0.19 for all by χ² test of homogeneity). There was limited evidence that lower blood pressure goals produced larger reductions in total major cardiovascular events in individuals with versus without diabetes (p = 0.03 by χ² test of homogeneity). This does not exclude such effects and UK guidelines still suggest harsher blood pressure targets in patients with diabetes.

Sustained weight loss lowers risk of hypertension ▶ Weight loss was assessed among 623 overweight (BMI ≥ 25) middle aged (aged 30–49 years) and 605 overweight older (aged 50–65 years) adults in Framingham. Subjects were classified first according to the amount of weight lost over four years: (1) weight changed by less than 1.8 kg (stable weight); (2) lost 1.8 kg or less to 3.6 kg; (3) lost 3.6 kg to less than 6.8 kg; and (4) lost 6.8 kg or more. We also classified weight loss according to whether it was sustained during the next four years. After adjusting for age, sex, education, baseline body mass index, height, activity, smoking, and alcohol intake, weight loss of 6.8 kg or more led to a 21–29% reduction in long term hypertension risk. After adjusting for cancer, cardiovascular disease occurring during follow up, weight loss of 6.8 kg or more led to a 26% reduction in risk (relative risk [RR] 0.72, 95% CI 0.49 to 1.05) for middle aged adults and a 37% reduction (RR 0.63, 95% CI 0.42 to 0.95) for older adults. Sustained weight loss led to a 22% reduction in hypertension risk (RR 0.78, 95% CI 0.60 to 1.03) among middle aged and a 26% reduction (RR 0.74, 95% CI 0.56 to 0.97) in older adults. This risk reduction was strengthened by adjustment for prevalent cancer or cardiovascular disease occurring during follow up.

Fish oils are not a panacea for arrhythmias ▶ Based on clinical studies showing a reduction in rates of sudden cardiac death in patients taking ω-3 polyunsaturated fatty acids (PUFAs), Raitt and colleagues assigned 200 patients with implantable cardioverter-defibrillators (ICDs) and a recent episode of ventricular tachycardia (VT) or ventricular fibrillation (VF) to receive either a fish oil supplement or placebo and followed them up for a median of 718 days. By 24 months, 65% of patients randomised to receive fish oil had needed ICD therapy for VT/VF, compared with 59% of patients randomised to receive placebo (p = 0.19). Recurrent VT/VF events were overall more common in patients randomised to receive fish oil (p < 0.001). The authors therefore conclude that in high risk patients such as these, fish oil supplementation does not reduce the risk of VT/VF, and may even be proarrhythmic in some patients.

The emergency medical team: expensive scare? ▶ The medical emergency team (MET) has been suggested as a method of spotting sick patients and preventing their deterioration and demise. Of 23 hospitals in Australia, some were randomised to continue functioning as usual (n = 11) and others to introduce a MET system (n = 12). The primary outcome was the composite of cardiac arrest, unexpected death, or unplanned intensive care unit (ICU) admission during the six month study period after MET activation. Analysis was by intention to treat. Introduction of the MET increased
Detecting loss of biventricular pacing from the surface ECG

Loss of left ventricular capture in patients with cardiac resynchronisation devices may account for worsening heart failure and can be difficult to diagnose without a programmer. After analysis of the R–S spike ratio in the 12 lead ECG during right ventricular and biventricular pacing in 10 patients, an algorithm to detect loss of left ventricular capture was developed. Fifty-four patients with a cardiac resynchronisation device and underlying left bundle branch block were then assessed. Leads V1 and I of a 12 lead ECG were assessed after biventricular pacing was confirmed and after the device was programmed to right ventricular pacing only (simultaneous loss of left ventricular capture). The sensitivity of the algorithm to correctly identify loss of left ventricular capture was 94% (95% CI 88.2% to 97.7%), and the specificity was 93% (95% CI 86.3% to 95.8%). The likelihood ratio of a positive test result was 12.8 (95% CI 6.443 to 23.310), and the likelihood ratio of a negative test result was 0.06 (95% CI 0.024 to 0.137).


Images in Cardiology

Multiple ventricular thrombus in HIV cardiomyopathy

A 46 year old woman with a history of dilated cardiomyopathy, an ejection fraction of 10% and a left ventricular thrombus, HIV, hypertension, and a history of hepatitis B, was admitted with increasing shortness of breath, paroxysmal nocturnal dyspnoea (PND), orthopnoea, and pedal oedema over a three week period. On admission, the patient was in respiratory distress and hypertensive. Her cardiovascular examination showed tachycardia and an S3, and her respiratory examination revealed crackles throughout; she also had pedal oedema. The patient was admitted and treated for pulmonary oedema with aggressive diuresis. On the second day after admission the patient had a cardiac arrest and was resuscitated, requiring endotracheal intubation. Subsequent to this episode the patient became hypotensive; she also had fevers and a chest x-ray showed a left lower lobe infiltrate. She was treated for sepsis and started on fluids and noradrenaline (norepinephrine). A two dimensional echocardiogram showed a dilated left and right ventricle with an ejection fraction of 10%, and two thrombi—one measuring 4.1 × 3.2 cm and the other 1.2 × 1.6 cm (panel). Both thrombi were freely mobile, with the large one almost obliterating the left ventricular cavity; there was also a hint of a right ventricular thrombus. The patient was started on dobutamine and weaned off noradrenaline. Her blood pressure stabilised over the next few days and her fluid boluses were stopped; she was also placed on anticoagulation with enoxaparin. However, on day 5 after admission, the patient had an embolic stroke in the right gangliocapsular region. A repeat echocardiogram no longer revealed any thrombus. The patient was eventually discharged with minimal signs of the stroke. She was clinically stable at six months follow up.

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