Ischaemic heart disease

Invasive treatment of ACS is cost neutral ➤ It is now clear that invasive treatment for acute coronary syndromes (ACS) is clinically effective in most patients. However, this entails the use of catheterisation facilities and additional consumables. This study suggests that the cost of the invasive strategy, including the use of tiotiban, is US$6100 vs $7200 for the conservative strategy at six months (confidence interval of difference $2000 to $78). The cost-per-year gain with the invasive strategy was $12700 (range $8400–$27800).

Magnesium is dead MAGIC ➤ After initial optimism, magnesium has fallen out of favour in the treatment of ACS. The MAGIC study confirms that 24 hours of magnesium treatment produces no benefit in patients who received aspirin (up to 650 mg) within 48 hours after revascularisation, subsequent mortality was 1.3% (40 of 2999 patients), as compared with 4.0% among those who did not receive aspirin during this period (81 of 2023, p < 0.001). Aspirin treatment was associated with a 48% reduction in the incidence of myocardial infarction (2.8% vs 5.4%, p < 0.001), a 50% reduction in the incidence of stroke (1.3% vs 2.6%, p = 0.01), a 74% reduction in the incidence of renal failure (0.9% vs 3.4%, p < 0.001), and a 62% reduction in the incidence of bowel infarction (0.3% vs 0.8%, p = 0.01). Of course, this was not a randomised study, so there may have been some bias in the groups.

CK rise is not essential to diagnose statin induced myopathy ➤ This report describes four cases with biopsy proven myopathy in patients with weak muscles on statin treatment. The biopsy findings reversed with cessation of statin treatment as did symptoms. At no stage was creatine kinase elevated.

High job stress and low quality employment increases cardiovascular mortality ➤ In a longitudinal study over 25 years, there was 2.2–2.4 fold increased risk of cardiovascular death if high stress jobs without prospects for promotion were compared to more rewarding careers. It seems obvious, and the effect persists even after controlling for other cardiovascular risk factors.

Renal failure increases mortality of acute MI up to 15-fold ➤ In-hospital mortality rates after acute myocardial infarction in a series of 3100 patients were 2% in patients with normal renal function, 6% in those with mild renal failure (cratiion clearance (CrCl) 50–75 ml/min), 14% in those with moderate renal failure (CrCl 35–50 ml/min), 21% in those with severe renal failure (CrCl < 35 ml/min), and 30% in those with end stage renal disease (p < 0.001). Patients with renal failure received adjunctive and reperfusion therapies less frequently than those with normal renal function (p < 0.001). Post-discharge death was less likely in patients who received acute reperfusion therapy (odds ratio (OR) 0.7, 95% confidence interval (CI) 0.6 to 0.9), aspirin (OR 0.7, 95% CI 0.5 to 0.8), and β blocker treatment (OR 0.7, 95% CI 0.6 to 0.9).


CHF has a worse prognosis if there is systolic dysfunction ➤ The rule of halves suggests that in 50% of cases of congestive heart failure, the diagnosis may be wrong. In addition, when the diagnosis is correct, the main problem may be diastolic dysfunction. Of 5532 participants > 65 years of age, 269 (4.9%) had congestive heart failure. Among these, left ventricular function was normal in 63%, borderline decreased in 15%, and overtly impaired in 22%. The mortality ratio was 25/1000 person-years in the reference group (no congestive heart failure and normal left ventricular function at baseline); 154/1000 person-years in participants with congestive heart failure and impaired left ventricular systolic function; 87 and 115/1000 person-years in participants with congestive heart failure and normal or borderline systolic function, respectively; and 89/1000 person-years in persons with impaired left ventricular function but no congestive heart failure. Thus both systolic and diastolic heart failure lead to worsened prognosis.

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Aspirin restored within 48 hours of bypass surgery saves lives ➤ In a follow up study of more than > 5000 patients with non-random allocation of aspirin use, during hospitalisation, 3.2% and 16.0% had non-fatal cardiac, cerebral, renal, or gastrointestinal ischaemic complications. Among those patients who received aspirin (up to 650 mg) within 48 hours after revascularisation, subsequent mortality was 1.3% (40 of 2999 patients), as compared with 4.0% among those who did not receive aspirin during this period (81 of 2023, p < 0.001). Aspirin treatment was associated with a 48% reduction in the incidence of myocardial infarction (2.8% vs 5.4%, p < 0.001), a 50% reduction in the incidence of stroke (1.3% vs 2.6%, p = 0.01), a 74% reduction in the incidence of renal failure (0.9% vs 3.4%, p < 0.001), and a 62% reduction in the incidence of bowel infarction (0.3% vs 0.8%, p = 0.01). Of course, this was not a randomised study, so there may have been some bias in the groups.

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There is no significant interaction of ACE inhibitors and aspirin. Data from the SOLVD (studies of left ventricular dysfunction) trial suggested that angiotensin converting enzyme (ACE) inhibitors may be less effective in patients receiving aspirin. In a systematic overview of data for 22,060 patients from six long-term randomised trials of ACE inhibitors, baseline characteristics, and prognosis in patients allocated placebo, differed strikingly between those who were and were not taking aspirin at baseline. Results from analyses of all trials, except SOLVD, did not suggest any significant differences between the proportional reductions in risk with ACE inhibitor treatment in the presence or absence of aspirin for the major clinical outcomes (p = 0.15), or in any of its individual components, except myocardial infarction (interaction p = 0.001). However, for the study as a whole, ACE inhibitor treatment significantly reduced the risk of the major clinical outcomes by 22% (p < 0.0001), with clear reductions in risk both among those receiving aspirin at baseline (OR 0.80, 99% CI 0.73 to 0.88) and those who were not (OR 0.71, 99% CI 0.62 to 0.81, interaction p = 0.07).

Hypertension

Doxazosin increases the risk of heart failure in hypertension compared to chlorthalidone. A LAHAT (antihypertensive treatment in lipid-lowering treatment to prevent heart attack trial) reported that treatment initiated with doxazosin compared with chlorthalidone doubled the risk for heart failure in high-risk hypertensive patients (RR 2.04, 95% CI 1.79 to 2.32). After the treatment groups were categorised as having no exposure to open label medications (monotherapy) or exposure to open label treatment, the relative risk for heart failure with doxazosin versus chlorthalidone was 3.10 (95% CI 2.51 to 3.82) and 1.42 (95% CI 1.20 to 1.69), respectively. After adjustment for follow up systolic/diastolic blood pressure, the overall relative risk was 2.00 (95% CI 1.72 to 2.32).

General cardiology

Risk from AF on a single ECG manifests as 3–5-fold higher mortality at 20 years. Data from the Framingham study suggested that atrial fibrillation (AF) was related to long-term risk of death. The study by Stewart et al highlighted that the increase in risk is mainly caused by stroke and heart failure (89% of women with AF had a cardiovascular event within 20 years, compared to 27% if there was no AF on baseline ECG; for men the figures were 66% and 45%, respectively). Atrial flutter increases the mortality 2.5-fold at six months (95% CI 2.0 to 3.1, p = 0.02) and 1.7-fold at five years (95% CI 1.2 to 2.6, p = 0.007).

The anterior-posterior paddle position may be most effective for cardioverting AF. One hundred and eight consecutive patients (mean [SD] age 60 [16] years) with persistent atrial fibrillation (median duration 5 months, range 0.1–120) underwent external cardioversion with paddles in the anterior-posterior or anterior-lateral positions. Cardioversion was successful in a higher proportion of the anterior-posterior than the anterior-lateral group (50 of 52 [96%] vs 44 of 56 [78%], difference 23.7%, 95% CI 9.1% to 37.8%; p = 0.009). Crossover from the anterior-lateral to the anterior-posterior electrode position was successful in eight of 12 patients, whereas crossover in the other direction was not successful (two patients). After crossover, cardioversion was successful in 102 of 108 randomised patients (94%). The extraordinary success rate may have been related to the short duration of AF.

AF ablation at the time of surgery. Percutaneous radiofrequency ablation procedures, predominantly aimed at isolation of multiple pulmonary veins, have evolved rapidly over the last few years, with promising results in patients with paroxysmal AF. However, results are still often poor in patients with persistent AF. Modified Maze surgery is highly effective in this patient group, but is associated with significant mortality and morbidity. Epicardial off-pump ablation procedures are increasingly being used in order to shorten procedure length, morbidity, and mortality. Three studies on this subject have been recently published. By far the highest success rates (> 90%) were reported by Güden and colleagues, when performing bi-atrial ablation with a saline irrigated radiofrequency probe, although patients were maintained on amiodarone postoperatively for at least three months. In-hospital mortality in these studies varied between 0.8–4%, lower than reported for the Maze procedure, although it is difficult to be certain to what extent the ablation procedure itself may have contributed to mortality.

Use thrombolysis for stable “submassive” pulmonary embolism. Of 256 patients enrolled with pulmonary embolism, stable blood pressure, and evidence of right ventricular dysfunction on echo, 118 were randomly assigned to receive heparin + alteplase and 138 to receive heparin + placebo. The incidence of the primary end point was significantly higher in the heparin + placebo group than in the heparin + alteplase group (p = 0.006), and the probability of 30 day event-free survival (according to Kaplan–Meier analysis) was higher in the heparin + alteplase group (p = 0.005). This difference was due to the higher incidence of treatment escalation (open label lysis, catecholamine, respiratory support) in the heparin + placebo group (24.6% v 10.2%, p = 0.004), since mortality was low in both groups (3.4% in the heparin + alteplase group v 2.2% in the heparin + placebo group, p = 0.71).

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