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Effective secondary prevention: the place of aspirin, ACE inhibition and β blockade

Carol Fisher and John JV McMurray

Introduction

Despite falling population mortality rates from coronary heart disease, myocardial infarction remains common and deadly. At least 25 per cent of patients die rapidly, before hospital admission is possible (Macintyre *et al.* 2001). As around two-thirds of patients having a myocardial infarction (MI) have already been identified as having coronary heart disease (CHD) (Tunstall Pedoe *et al.* 1975), many of these out-of-hospital deaths are avoidable. Of patients admitted to hospital, 25 per cent die within 30 days. Of those discharged alive from hospital, 31.4 per cent die within one year and 64 per cent by ten years (Capewell *et al.* 2000). There is, therefore, enormous scope for further improving prognosis through acute treatments and long-term secondary prevention after MI. Sadly, recent data suggest that many patients in the UK are still denied these life-saving measures (EUROASPIRE 2001). This chapter summarises the evidence that antiplatelet therapy, β blockers and angiotensin-converting enzyme (ACE) inhibitors improve prognosis after MI.

Antiplatelet therapy

Aspirin

Although early administration of aspirin as a treatment for acute MI reduces immediate (ISIS-2 Collaborative Group 1988) and longer-term (ten-year) mortality (ISIS-2 Collaborative Group 1998) (despite only being administered for five weeks), there is less evidence that chronic administration of aspirin after five weeks is of prognostic benefit. Current recommendations to prescribe long-term aspirin therapy to MI survivors are based on the Anti-platelet Trialists' Collaboration (ATC 1994) meta-analysis. This examined 145 randomised trials of antiplatelet therapy versus controls. These trials included 70,000 high-risk patients, i.e. patients known to have vascular disease or other conditions that imply an increased risk of occlusive vascular disease. Of about 20,000 patients with acute MI, 10 per cent of patients on antiplatelet therapy suffered a vascular event compared with 14 per cent of patients in the control group, i.e. about 40 vascular events can be avoided per 1,000 patients treated ($2p < 0.00001$). Vascular events were defined as non-fatal MIs, non-fatal strokes or vascular deaths. Among 20,000 patients with a past history of MI, 13 per cent of patients receiving antiplatelet therapy suffered a vascular event compared

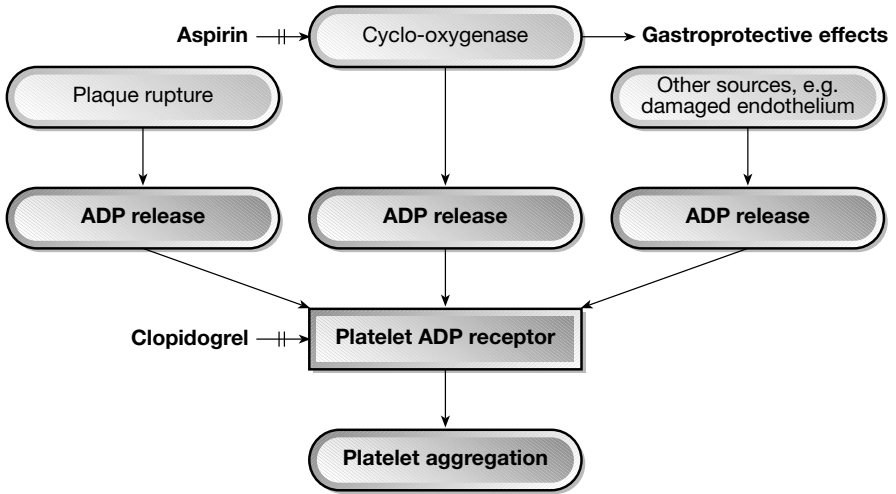


Figure 4.2 Mode of action of aspirin and clopidogrel. SAVE = Survival and Ventricular Enlargement; AIRE = Acute Infarction Ramipril Efficacy; TRACE =trandolapril in patients with reduced left-ventricular function after acute myocardial infarction

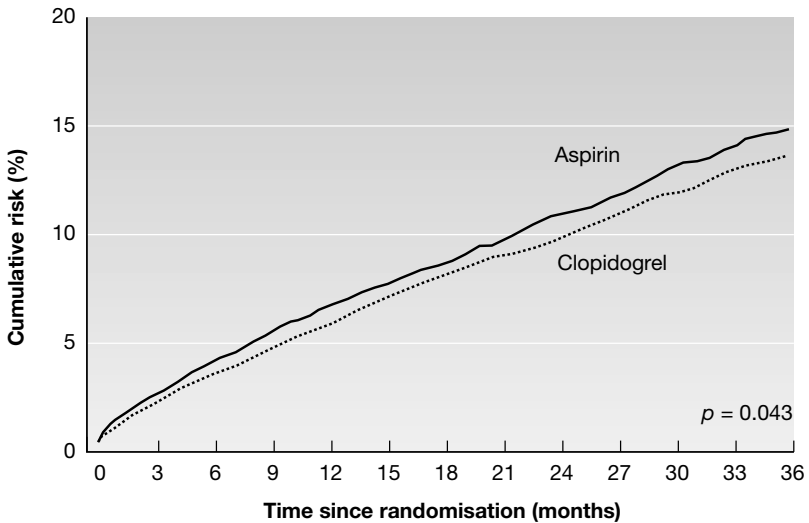


Figure 4.3 Cumulative risk of ischaemic stroke, myocardial infarction or vascular death. (Adapted from the CAPRIE Study 1996)

cardiovascular death, MI or stroke was found in the combination group (9.3% in the combination group versus 11.5% in the aspirin group). However, a 30 per cent increase in bleeding was found in the combination group. Treating 1,000 patients for

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