Review: Medical therapy, angioplasty, and bypass surgery are effective for stable angina in patients at different risk levels


Question
In patients with chronic stable angina, what are the respective effects of pharmacological therapy, percutaneous transluminal coronary angioplasty (PTCA), and coronary artery bypass graft surgery (CABG)?

Data sources
Studies were identified in MEDLINE (1976 to 1996) using the terms angioplasty, coronary artery bypass, and angina. Lists of abstracts from recent meetings of the American Heart Association and the American College of Cardiology and bibliographies of relevant studies were also reviewed.

Study selection
Studies were selected if they were randomised controlled trials (RCTs) or meta-analyses pertaining to the treatment of chronic stable angina and if they compared pharmacological therapy, PTCA, and CABG.

Data extraction
Data were extracted on patient characteristics, number of diseased vessels, and proportion of patients with class III to IV angina; outcomes included mortality, myocardial infarction (MI), angina, and need for repeat revascularisation.

Main results
3 RCTs that compared PTCA with medical therapy in patients with stable single-vessel coronary artery disease (CAD) showed no difference between groups for mortality or incidence of MI. 1 trial showed that more patients who received PTCA than those who received medical therapy were free of angina (64% vs 46%, P < 0.01), and another showed that patients who received PTCA had greater relief of symptoms and less inducible ischaemia during treadmill testing. CABG was compared with medical therapy in a meta-analysis of 7 RCTs, 3 of which were large multicentre RCTs done shortly after the introduction of CABG and which provided 84% of the patients in the meta-analysis. Lower mortality rates at 5, 7, and 10 years were seen in patients who received CABG than in those who received medical therapy. The greatest benefit of CABG was seen in patients at highest preoperative risk (most severe symptoms, ischaemia, greatest extent of CAD, and left ventricular dysfunction). 6 recently completed RCTs compared PTCA with CABG. The patients were highly selected, and the data should not be extrapolated to other subsets of patients. Patients who received PTCA compared with those who received CABG did not differ for mortality or a combined end point of death and non-fatal MI, although repeat revascularisation was required more often in the first year after PTCA than after CABG (33.7% vs 3.3%).

Conclusions
Mortality and myocardial infarction rates do not differ for medical therapy and angioplasty in low-risk patients with single-vessel disease. In high-risk patients with multivessel disease, mortality is lower at 5, 7, and 10 years in patients who receive bypass surgery rather than medical therapy; angioplasty and bypass surgery produce similar reduced rates of mortality and myocardial infarction, but need for repeat revascularisation is more common after angioplasty.

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Commentary
Solomon and Gersh frame their review of the management of chronic stable angina in a manner that is clinically relevant, straining patients into those at low, medium, and high risk for coronary events. This is exactly how experienced clinicians approach their patients.

Several of the authors' points deserve special attention. First, coronary revascularisation does not prolong life for most patients, and to date, revascularisation has not been shown to decrease the incidence of MIs. For most patients, revascularisation improves the quality of their lives, and because patients value risks and benefits differently (I), it is imperative that patients be part of the decision-making process. Second, our therapeutic armamentarium for treating CAD is growing rapidly, and given the competing demands for the health care dollar, it is unlikely that we will see randomised trials comparing all the treatment options and including all the patient populations that we would like. Therefore, it is important that we supplement our knowledge from clinical trials with data from high-quality observational databases (2). Third, although this article focuses on the management of chronic stable angina, the message that for many patients either medical or invasive treatment is a good alternative is also applicable to patients with unstable syndromes (3).

This review certainly reflects my practice patterns and those of my colleagues, and I recommend this approach to all physicians managing patients with chronic stable angina.

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References