CABG v PTCA in multi-vessel disease: angiographic insights

See page 1192 for the article to which this Editorial refers

A number of randomized trials, initiated in the late 1980s, have compared coronary artery bypass grafting with percutaneous coronary intervention in the management of multi-vessel coronary artery disease. Although the studies had important differences in design and patient characteristics — somewhat uniquely in the complex world of clinical trials — they reported broadly consistent results. No significant differences in mortality or freedom from subsequent myocardial infarction were observed, although no individual trial was powered to examine these end-points in isolation. The PTCA strategy was limited by a greater need for repeat revascularization procedures (34% PTCA v 33% CABG in the first year of follow-up), and less effective relief of anginal symptoms. These findings can perhaps be attributed to the less complete revascularization achieved with the percutaneous approach and the established problem of lesion restenosis.

A meta-analysis of the earlier trials has been published and these observations have now been extended to include the BAR1 data. The combined sample size of 5200 patients reveals a trend to increased mortality in the PTCA group that approaches normal levels of statistical significance (Risk Ratio 1.2, 95% CI 0.97–1.48).

It might appear, therefore, that CABG remains the treatment of choice in patients with advanced coronary disease but the interventional cardiologists still have much to offer. There may be cost advantage with PTCA and many patients appreciate the shorter initial hospital stay and reduced immediate procedural morbidity. Advances in techniques and equipment, particularly the use of coronary stents, have widened the scope and improved the results of PTCA. New trials are being planned which will examine whether the benefits of primary coronary stent implantation, established in isolated lesions, can be translated to the multi-vessel setting. Patients with multi-vessel disease will be randomized to CABG or PTCA supported by stent implantation. The ‘Stent or Surgery’ Trial (SoS) has a pragmatic design, employing a range of stents that will allow the operator to adopt a lesion-specific choice of implant. The BENESTENT III or ARTS trial is device-specific and will use new stent technology from Johnson & Johnson Interventional Systems.

Coronary artery disease is in the main a progressive condition and although intensive risk factor modification, particularly lipid lowering therapy, may have an impact in this area it is likely that many patients will, over time, manifest new atherosclerotic disease in native vessels and bypass conduits. The current trials have reported only a short follow-up period, sufficient to demonstrate the full effects of PTCA lesion restenosis but too short for the effects of new disease in bypass grafts to become clinically apparent. Patients with this pattern of disease are difficult to manage, and although PTCA can be used, patients often require repeat bypass grafting. Re-operation has a greater morbidity and mortality than the initial procedure and often threatens a patent and well functioning internal mammary conduit. Initial use of a PTCA-based strategy may allow surgery to be delayed or avoided, particularly in younger patients.

The results of the angiographic sub-study of the German Angioplasty Bypass Investigation
dismissed and may be ideal for patients with minimal symptoms and coronary disease that is not of prognostic significance. If revascularization is indicated, the relative merits of surgery and PTCA will have to be weighed and, with involvement of interventional-ist, surgeon and not least the patient, it is likely that the best course will become apparent.

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References