The changing practice of cardiac surgery

by **Mr Alexander Manche**
MPhil(Lond) FRCS(CTh) FETCS
Consultant Cardiothoracic Surgeon

As recently as 25 years ago very few patients over 65 were admitted to the intensive care unit in the UK on the grounds of age; but then cardiac surgery was still a fledgeling speciality.

The mid 1960's saw the development of relatively safe cardiopulmonary bypass, allowing surgery on the inside of the heart, or open heart surgery. For the first time the surgeon was able to replace or repair heart valves and close septal defects under direct vision. Following Favoloro's experience with direct coronary revascularisation in 1967 a whole new world emerged in the treatment of ischaemic heart disease (IHD) (Captur, 2005). Coronary artery bypass grafting was soon to become the most popular operation in the West. Changes in practice have carried on relentlessly and these are reflected in our local service over the past 10 years.

Perhaps the most far reaching change has been the extended indications for surgery in the face of a low mortality. The knowledge that coronary artery disease is a substrate for myocardial infarction, the single most important cause of premature death, has resulted in the aggressive treatment of this condition in the absence of symptoms. The substantial waiting list for coronary angiography in spite of an ever increasing output is a clear sign that referring physicians appreciate the implications of IHD. Approximately 25% of patients undergoing angiography are referred for surgery (Department of Cardiac Services, 2005a). Thus cardiac operations have increased from 300 in 1995 to 537 in 2004, with over 80% of work involving coronary revascularisation (Department of Cardiac Services, 2005b). Last year, in my practice alone, 27% of patients were over 70 and there were 9 octogenarians. Cardiac surgery is not alone in providing for the expectations of an ageing population. The older patient presents the surgeon with increased technical challenges and the entire caring team are often faced with a difficult rehabilitation programme. Although overall mortality remains around 1.5% the over 70's suffer greater morbidity, with more than twice the incidence of CVA than their younger cohorts (Manche, 2001). Carotid artery disease may necessitate concomitant endarterectomy, a service we are providing with increasing frequency. This procedure is performed on bypass under deep hypothermia.

Vascular disease is but one reason for impaired renal function. Our treatment of this co-morbid condition in the post-operative period has undergone radical change over 10 years, starting with renal replacement therapy as a last resort when hyperkalaemia could not be controlled by other measures, and progressing to haemodialysis early on when oliguria sets in. Our recent experience with this regime has been very gratifying, with recovery of creatinine clearance after fewer dialysis sessions. Renal impairment is no longer a contraindication for surgery.

In an effort to improve long term graft patency we have extended our use of arterial conduits in CABG (Zacharias et al, 2004). Over 98% of patients receive an internal thoracic artery graft, usually to the left anterior descending, and over 25% last year also received a radial artery graft, usually to an obtuse marginal artery.

continues on page 9

The changing practice of cardiac surgery

continued from page 6

The technique of performing grafts without the use of cardiopulmonary bypass, OPCAB (off pump coronary artery bypass) remains controversial. We carried out this procedure over a period of 3 years in selected cases, starting in 2000, but have since discontinued it because we could not demonstrate any clinical advantage over the standard technique in our practice. A recent study raised concern over medium term graft patency (Khan et al, 2004).

Another area of change is in the field of valvular heart disease. Aortic regurgitation is now considered an indication for surgery, especially in the younger patient, before ventricular dilatation sets in. Similarly mitral regurgitation is being treated earlier with the aim of avoiding atrial fibrillation, pulmonary hypertension and heart failure. In this context we are offering repair when the clinical situation and the mitral valve pathology are suitable. Modern techniques of over-reduction of the posterior annulus (Calafiore et al, 2004) as well as specially shaped rings that alter the dynamics of the posterior left ventricular free wall now play a role in our repairs.

In the sixties thoracic surgeons ventured into the territory of the heart and great vessels. The following decade saw the emergence of coronary revascularisation. Our new challenges are dictated by an ageing population in whom correction of a cardiac problem may make the difference between simply living and enjoying life to the full. As surgeons it is our duty to respond to these demands of our modern society.