

Introduction

Coronary heart disease is a major cause of morbidity and mortality, causing 22% of all deaths in Australia in 1999. The most common forms of heart disease affecting Australians are coronary heart disease, acquired valve disease, conduction defects, congestive heart failure and congenital heart defects. There is a wide range of treatments for heart disease, among which are cardiac surgery and electrophysiological treatments.

Coronary artery bypass grafting (CABG) was developed in the 1960s and is now a well-established procedure. Vessel grafts are used to construct new conduits from major arteries to points beyond obstructions in the coronary arteries to restore adequate blood supply to the heart muscle (myocardium). The procedure usually requires the chest to be opened and the circulation to be diverted from the heart and lungs to a cardiopulmonary bypass machine with a pump oxygenator. In most cases the graft material is obtained from the patient's internal mammary artery in the chest or the saphenous vein in the leg, or both. Less invasive techniques for performing the procedure are now being introduced.

CABG is a treatment and not a cure for coronary artery disease, and there is a risk of recurrent disease. Reoperations are uncommon within the first five years but become more frequent later. Although coronary angioplasty has replaced some CABG procedures following its introduction in the early 1980s, the techniques are regarded as complementary. The growth in the rate of CABG has flattened out in more recent years.

Valve surgery involves repairing or replacing the mitral, aortic, tricuspid or pulmonary valves. It usually requires cardiopulmonary bypass. Valve disease may be congenital, a result of disease such as rheumatic fever, or age-related. Most valve procedures done in Australia consist of replacing the damaged valve with a mechanical prosthesis, a bioprosthesis or a human graft. Reconstruction of the damaged valve by suturing techniques is less common. Simpler valve procedures can be undertaken with catheter-based techniques.

Electrophysiology surgery involves removing sections of heart muscle tissue responsible for abnormal heart rhythms (arrhythmias) such as ventricular and supraventricular tachycardias, which can be serious or even life-threatening.

Other cardiac procedures include operations on the aorta, surgery for cardiac tumours and trauma, transplants and pericardiectomy.

Information on transmyocardial laser revascularisation procedures was collected for the first time in 1998. This is a new technique where small holes or channels are drilled through the myocardium using laser energy to improve blood supply to the heart in cases unsuitable for CABG or percutaneous transluminal coronary angioplasty.

This report differs from previous editions as it is restricted to details of acquired cardiac surgery. Coverage of congenital cardiac surgery was considered too poor in 1999 to present a representative national picture of this surgery so data are not presented (see *Methods* for further details). From previous years data, congenital surgery constituted around 7% of all cardiac surgery (around 1,600 operations). The report covers patterns and trends in the use of cardiac surgery procedures for acquired conditions, and associated mortality.

This report is available on the Internet at the Institute's web site: <http://www.aihw.gov.au>