Aortic valve replacement in the elderly

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Summary
With increasing longevity, increasing numbers of patients in their 8th decade present with symptomatic aortic valvular disease. We have examined the results of aortic valve replacement in 30 patients of 70 years or older who underwent isolated aortic valve replacement at Groote Schuur Hospital between January 1969 and January 1979. Follow-up ranged from 1 year to 10 years, with a mean of 2.5 years. There was 1 operative death. Two patients died within the first 6 months of operative complications. The 1-year survival rate was 90%. All hospital survivors showed marked improvement in cardiac functional status. Actuarial statistics on survival show an 84% survival rate at 3 years.

Aortic valve replacement is safe and effective in patients over the age of 70 years.

Symptomatic aortic valvular stenosis is associated with a grave prognosis and is accepted as an indication for aortic valve replacement. Despite several recent reports of successful aortic valve replacement in the elderly, the validity and effectiveness of the procedure are still questioned. The hesitancy of physicians to submit elderly patients to a major surgical procedure with doubtful benefits, and requiring a prolonged hospital stay, unfortunately, delays the referral of patients with symptomatic aortic valve disease.

We report the results of aortic valve replacement in 30 patients over the age of 70 years at Groote Schuur Hospital, Cape Town.

Patients and methods
Between January 1969 and January 1979, 30 patients of 70 years or older had an isolated aortic valve replacement at Groote Schuur Hospital. Their ages ranged from 70 to 79 years with a mean of 72.4 years. There were 18 female and 12 male patients.

Twenty-four patients were in the New York Heart Association (NYHA) class III. One patient was in class IV and 5 patients were operated on for syncope only. Nineteen patients had pure aortic stenosis, 2 patients had dominant aortic incompetence and 9 patients had mixed aortic stenosis and incompetence.

Twenty-seven patients underwent cardiac catheterization and full haemodynamic assessment pre-operatively. Actuarial statistics on survival show an 84% survival rate at 3 years.

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Performed in 24 patients; coronary angiograms were reported as normal in 22 patients, and 2 patients had significant disease of at least one coronary artery.

Fourteen patients had aortic valve replacement with Björk-Shiley prostheses, 9 patients had replacement with porcine xenografts, 4 with UCT prostheses, 2 with Starr-Edwards valves and 1 with a St Jude medical prosthesis. Coronary artery bypass grafting was not performed on any patient.

Results
Operative mortality and morbidity. There was 1 operative death—a 77-year-old woman died of respiratory complications shortly after operation. Two other patients suffered major complications at the time of surgery and died later of these complications. A 71-year-old man suffered a dense left hemiplegia at the time of operation and died 6 months later. A 71-year-old woman developed postoperative wound sepsis and infective endocarditis, and died 4 months after operation. Two other patients had minor wound sepsis postoperatively. One patient suffered a transient left hemiparesis which recovered completely. None of these patients required prolonged ventilatory support. Excluding the 2 patients who suffered major postoperative complications, the average postoperative hospital stay was 19 days.

Follow-up. We maintained complete follow-up on all patients, either from recent hospital visits or from contact with their referring physicians. Follow-up periods ranged from 1 year to 10 years, with a mean of 2.5 years.

Late complications. There were two episodes of anticoagulant-related haemorrhage, one minor and one resulting in a major subarachnoid haemorrhage causing death 18 months after operation. Two patients have had transient episodes of neurological deficit, thought to be embolic, with complete recovery.

Late mortality. There were 3 late deaths. A 72-year-old woman died 18 months after operation of a subarachnoid haemorrhage. She was being treated with warfarin at the time. A 77-year-old man died 4 years after operation from the complications of ulcerative colitis. An 80-year-old woman died suddenly 6 years after operation. The actuarial survival curve of treatment and outcome of their aortic valve disease is shown in Fig. 1.
these patients was calculated according to the method of Anderson et al. This shows an 84% survival rate at 3 years (Fig. 1).

Postoperative cardiac status. All 27 hospital survivors had improved cardiac status. In the 5 patients with syncope alone as the indication for operation this symptom was abolished, and they are all now in functional class I. There were 22 patients in NYHA class III or IV. All of these patients are now in class I or II. They are able to undertake all activities appropriate to their age (Fig. 2).

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Discussion

Physicians unfamiliar with the effectiveness of operation for severe aortic valve disease in the elderly often regard surgery as an appalling risk and the last hope, with the result that patients are often referred only after a long delay. Most of our patients had had symptoms for 6-12 months before being referred for surgery. The hazards of submitting elderly patients who have almost reached the end of their approximate lifespan to a procedure with a high operative mortality and morbidity, the prolonged postoperative course and severe late sequelae are quoted as reasons for delaying surgery.

Our experience confirms that operative mortality for aortic valve replacement in patients aged 70 years and over is low. There was 1 early operative death and 2 late deaths due to operative complications, giving a 1-year survival of 90%. This 10% early mortality is similar to that reported in other series and better than that in other early reports. The average postoperative hospital stay was 19 days.

Cardiac functional results were excellent. All hospital survivors were free of major cardiac symptoms and resumed normal activities for their age. Valve-related complications in the follow-up period were limited to a subarachnoid haemorrhage in a patient treated with warfarin, and two minor embolic episodes - both of which resolved with no sequelae.

At the age of 70 the life expectancy of a man is 9.4 years and that of a woman 11.9 years. The grave prognosis of symptomatic aortic valve disease which is medically treated has been demonstrated. The benefit with relatively low operative mortality and morbidity offered by aortic valve replacement is demonstrated by the results in our patients and in those of others. There is therefore no justification in denying otherwise well patients with symptomatic aortic valve disease and a life expectancy of approximately 10 years the benefits of aortic valve replacement surgery purely on the basis of advanced age.

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REFERENCES