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HEART VALVE SURGERY IN PATIENTS OVER THE AGE OF 60 YEARS

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INDEXING WORDS

heart valve surgery; elderly patient; valve replacement

SYNOPSIS

From October 1980, to October 1984, sixteen patients over the age of 60 years underwent heart valve surgery at the Kobe University Hospital. Seven patients had isolated aortic valve replacement, six patients isolated mitral valve replacement, two patients single valve replacement combined with coronary artery bypass grafting, one open mitral commissurotomy and one double valve replacement. There were two operative deaths due to LOS and arrhythmia, resulting in an early mortality of 12.5%. Follow-up of the fourteen patients from two months to three years reveals 2 additional deaths due to heart failure and thrombosed valve, respectively. Cardiac status improved noticeably in the surviving twelve patients except one, who is suffering from chronic obstructive lung disease.

It is concluded that valve surgery for elderly patients can be performed with acceptable operative mortality and has a satisfactory outlook for most patients.

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INTRODUCTION

As the surgical risk of patients with valvular disease has declined to an acceptably low level, surgical treatment of cardiac disorders in the elderly is being undertaken more and more frequently.^{1, 2, 4, 7, 13)} However, only a few reports are available about the valve surgery in patients over the age of 60 years in Japan.⁹⁾

We have therefore reviewed our experience with valve surgery in patients over the age of 60 and with particular emphasis on operative mortality, postoperative course, and medium-term results.

CLINICAL MATERIAL

From October 1980 to October 1984, sixteen patients over the age 60 underwent heart valve surgery at the Kobe University Hospital. Their ages ranged from 60 to 69 years (mean 64 years). There were seven men and nine women. The predominant valvular lesion was aortic stenosis in four patients, aortic regurgitation in four patients, mitral stenosis in four patients, mitral regurgitation in three patients, and combined valvular disease in one patient. The etiology of these valvular lesions was rheumatic in six, calcified valve in four, annuloaortic dilatation in three, chordal rupture in two and ischemic heart disease in one (Table 1). Five patients underwent coronary arteriography preoperatively and significant obstructive lesions were found in three patients.

Preoperative classification of functional disability according to the New York Heart Association criteria included eight patients in class 4, seven patients in class 3, and one patient in class 2. Twelve patients had symptoms of congestive heart failure, seven patients had angina pectoris, three patients sustained recent syncope episodes.

Surgery was performed with the use of a bubble or membrane oxygenator. Myocardial protection was achieved with local cardiac cooling and potassium cardioplegia in all cases.

Aortic valve replacement was done in eight patients, mitral valve replacement in six patients, multiple valve replacement in one patient, and mitral commissurotomy in one patient. Five

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patients underwent additional surgical procedures at the same operation, including aortocoronary bypass grafting in two patients, tricuspid annuloplasty in two patients, and aortoplasty in one patient (Table 2).

Follow-up periods of hospital survivors were from two months to three years, a mean duration of nine months.

Table 1 Pathological findings.

Findings	No. of patients
Aortic valve disease	
Calcific aortic stenosis	4
Aortic root disease	3
Rheumatic	1
Mitral valve disease	
Rheumatic	4
Torn chordae	2
Ischemic	1
Multiple valve disease	
Rheumatic	1

Table 2 Operations.

Procedure	Number	Hospital death	Late death
AVR	7	1	1
MVR	5	0	1
AVR/MVR	1	1	0
OMC	1	0	0
Single valve + CABG	2	0	0
Total	16	2 (12.5%)	2 (12.5%)

Abbreviations: AVR, aortic valve replacement; MVR, mitral valve replacement; OMC, open mitral commissurotomy; CABG, coronary artery bypass grafting

RESULTS

There were two deaths within the first 30 days after surgery and an early mortality of 12.5%. These two deaths were due to low cardiac output syndrome in one, and arrhythmia in another.

Low cardiac output syndrome requiring catecholamine and/or intra-aortic balloon pump support was the most common major complication and encountered in four patients. Three patients could overcome this complication. The other postoperative complications were as follows; renal failure, two; arrhythmia, one; respiratory failure, one; and transient mental confusion (delirium), one (Table 3).

There were two late deaths, from 6 to 18 months after operation. The causes of late death was heart failure in one, and thrombosed valve in another.

The functional status of currently surviving patients has substantially improved, as compared to the profile of preoperative disability (Fig. 1).

Table 3 Postoperative complications.

Causes	No. of patients	No. of death
Low cardiac output syndrome	4	1
Renal failure	2	0
Arrhythmia	1	1
Respiratory insufficiency	1	0
Delirium	1	0
Total	9	2

FUNCTIONAL CLASSIFICATION

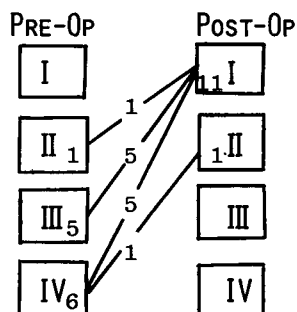


Fig. 1
Preoperative and postoperative cardiac status of twelve currently surviving patients.

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DISCUSSION

It is apparent that there has been a considerable decline in operative mortality of heart valve surgery during the last ten years. This change has been brought about by advances in cardiac surgical techniques and refined assessing of patients with valvular heart disease.^{5, 6,)} However, because of the anticipated risks, cardiologists and cardiac surgeons alike are reluctant to consider valve operations in elderly patients, especially in Japan.

Several recent foreign reports have recorded the beneficial results of heart valve surgery in elderly patients and a progressive reduction in mortality.^{1, 2, 4, 6, 7, 8, 13)} This study was undertaken to clarify the current status and results of valve surgery in patients over the age of 60 in our clinic.

Etiology

With the diminishing incidence of rheumatic heart disease it might be expected to have decline in the incidence of valve surgery. This is not so. The reason for this has been due to the wider application of valve surgery to older people, previously neglected, many of whom suffer from degenerative valve disease.^{8, 12)} It is also true in our cases. Only six out of sixteen patients were mainly suffering from long-standing advanced rheumatic heart disease, in the other patients the valve disease was the resulted from non-rheumatic processes, mainly degenerative changes or aging. These processes are as follows: severely calcified aortic valve, dilatation of the aortic valve ring and wall, ruptured chordae tendinae, and ischemic heart disease.

Surgery

Our operative mortality of 12.5% was similar to that of the other series which varried from 9 to 15.7%.^{6, 10)} And this operative mortality is also comparable with that in younger people.¹⁴⁾ Though elderly patients may tolerate cardiac surgery fairly well, it should be noted that these patients require careful pre- and postoperative care, including careful and gentle handling of the tissue, vigorous treatment of low cardiac output syndrome, frequent respiratory therapy, and prevention of renal

failure.

In selecting the patients for surgery, there are slight differences in the optimal time between aortic and mitral lesions, considering the early and late mortalities.³⁾ For aortic valve lesion, it was well known that patients with aortic stenosis will tolerate the operation better than patients with aortic regurgitation. And patients with symptomatic aortic stenosis may have severely curtailed life expectancy so it is justified to recommend surgery for symptomatic patients with aortic stenosis. On the contrary it is reasonable to recommend for earlier operative intervention in patients with aortic regurgitation before left ventricular dysfunction and possible irreversible morphological injury has occurred because survival rates in aortic regurgitation were inversely related to ventricular size.⁷⁾ For mitral valve lesion, the indications for surgery were the same as those for younger patients. It should also be remembered that regurgitant lesions in both aortic and mitral location are particularly dangerous because they are well tolerated only at the expense of myocardial damage.

We underwent simultaneous coronary artery bypass grafting with valve replacement in two patients but the question of the role of additional coronary artery bypass surgery in elderly patients undergoing valve replacement remains unsolved.^{3, 11)} Our present policy is to apply routine bypass grafting for all significant coronary artery stenosis if the patient has ischemic pain.

The follow-up on the patients in this study is obviously too short to allow us to draw any firm conclusions with regard to long-term survival. However, the symptomatic improvement and better quality of life have clearly been achieved by operation.

Finally, it should be noted that the patient's motivation to get well has encouraged us to do the operations for these patients and also might have contributed to get these good results.

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