



Postoperative Results of Mitral Valve Replacement in Patients with Severe Pulmonary Arterial Hypertension (≥ 50 mmhg)

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Abstract

Mitral valve replacement after mitral stenosis is directly related to rheumatic fever, which is very common in our country. The development of PAH is the most frequent evolutionary course of MR. This is a retrospective study of 55 patients with severe PAH. The aim of our study is to demonstrate that severe pulmonary hypertension is not a contraindication to mitral valve replacement, and that long-term results are good.

Keywords: *Mitral stenosis, severe pulmonary arterial hypertension, mitral valve replacement, mortality.*

Introduction

Rheumatic heart disease is common in developing countries, and is the leading cause of valvopathy. Pulmonary arterial hypertension (PAH) secondary to left heart disease is characterized by a progressive increase in pulmonary vascular resistance leading to right heart failure. Recurrent attacks of rheumatic fever are associated with precarious living conditions, and severe valvopathy develops within 5 years of the initial episode [1]. In the early stages, pulmonary hypertension may be restricted to the pulmonary veins, but later, pulmonary arterial hypertension (PAH) develops.

The development of pulmonary arterial hypertension (PAH) has long been considered a risk factor for poor prognosis in patients undergoing mitral valve replacement, with operative mortality ranging from 15% to 31% [2,3]. This retrospective study was conducted to assess early postoperative hemodynamic changes and distant mortality after mitral valve replacement in the presence of severe pulmonary arterial hypertension. Starr reported the first successful prosthetic replacement of an irreversibly damaged mitral valve [4]. Since the early days of mitral surgery, severe pulmonary hypertension has been an important risk factor for patient outcome [5-9].

Materials and Methods

The study included 55 patients with mitral stenosis associated with severe pulmonary arterial hypertension (PAH) greater than 50mmhg. Women predominated, with 45 patients (81.82%); the remaining 10 patients were men (18.19%). The mean age was 35.5 years, with extremes of 16 years for the youngest and 65 years for the oldest.

Mitral involvement was found in 23 patients, tricuspid involvement in 20. 12 patients had associated aortic involvement.

In the previous cases, right heart failure was found in 08 patients, 3 patients had suffered strokes and endocarditis in two patients. Most of the patients were in stage II NYHA (53 patients) and 02 in stage III - IV.

Cardiac rhythm was sinus in 35 patients, the remaining 20 in atrial fibrillation. The mitral valve was calcified in all cases, as was the left atrial thrombus. The mean size of the left atrium was 55 mm, with extremes of 39 and 82 mm.

Myocardial function was preserved in all cases. The mean systolic blood pressure (SBP) was 64mmhg. All patients benefited from mechanical mitral valve replacement under extracorporeal circulation (EKG), 12 from aortic valve replacement and 20 from tricuspid valve replacement (18 plasties and 2 commissurotomies).

Results

Operative mortality was 10.6%. There were 02 intraoperative deaths due to myocardial incompetence and 04 postoperative deaths due to haemorrhage and myocardial incompetence.

07 patients (12.73%) had complications such as rhythm and conduction disorders, pulmonary infections and renal failure. Operative mortality in patients without severe PAH was 7.64%.

The follow-up period for our patients was 10 years. We also studied distant mortality in patients without severe PAH, which was 5.29%.

Postoperative systolic blood pressure (PAPS) was 41mmHg and regressed to 23mmHg after surgical treatment.

Discussion

The discussion focused on the risk of mortality in patients with mitral stenosis and severe pulmonary hypertension above 50 mmhg.

We compared our results with those found in the literature. All our results are comparable to those reported in the literature.

Indeed, after mitral valve replacement, a clear drop in pulmonary arterial pressure is observed. In our series, the decrease in SPAP was 23mmhg (%), a finding found in virtually all series [6].

Student's statistical test showed that the drop in systolic pulmonary artery pressure (SPAP) was statistically significant, since the P was equal to 0.03% and therefore less than 0.05%.

Operative mortality was very high in our series (10.6%), a result also found in most other series. For Vincens, mortality was

11.6% [9]; 10.5%; for Robert A, 10.5% [11]. Nirmal found 16.6% [12] and 10% for Khalta [13]. on the other hand, when mitral valve replacement is not associated with severe PAH, mortality in our series was 7.64%. This suggests that severe PAH is an undeniable risk factor for the operative mortality of mitral valve replacement in mitral stenosis.

The constant mortality, at 5.45%, is practically the same as the mortality without severe PAH (5.29%). In the light of our results, we can say that mitral stenosis with severe PAH is not a contraindication to mitral valve replacement, since late mortality with or without severe PAH is practically the same. Survival. At 10 years is 85% and this is found in all series [9-14].

Table 1

Authors	Numbers	SPAP Pre Op mmHg	SPAP Post Op mmHg	Mortality OP %	Survival AT 10 Years %
Kabbani(1982)	48	100	40	15	82
Vincens (1995)	43	60	38	11,6	76
Robert (1998)	382	Sup à 50		10,5	87
Nirmal (2013)	68	82,4		16,6	97
Khalta (2015)	100	67,12	39,11	10	
Notre étude 2019	55	64	41	10,6	85

Conclusions

At the end of our study, we can say that severe PAH is not a contraindication to mitral valve replacement. The long-term results are good, with a reduction in PAPS and a good functional outcome.

The challenge of early diagnosis is to enable early specific treatment. Our aim is to improve the vital prognosis of the patients by limiting the progression of valvular disease. To achieve this, we need to operate early, before the onset of severe PAH.

Conflict of Interest

There was no conflict of interest.

Data Availability

Data would be available upon reasonable request.

Funding Statement

The entire financial burdens were burn by the researchers

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