

Residual Pulmonary Hypertension in Patients after Mitral Valve Surgery: Impact of Rheumatic Etiology

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Background:

Residual pulmonary hypertension (PHT) is not uncommon after successful mitral valve (MV) surgery. We hypothesized that a rheumatic etiology of MV disease is an important determinant of higher post-operative pulmonary artery systolic pressure (PASP).

Methods:

The study group included 171 patients who underwent successful MV surgery (n=129 replacement; n=42 repair) with a follow-up echocardiographic examination at least 3 months after operation. Patients with overt mitral prosthesis dysfunction, aortic prosthesis, moderate or severe aortic stenosis or regurgitation, left ventricular ejection fraction <50% or non-measurable PASP were excluded. The factors associated with elevated post-operative PASP were determined.

Results:

The underlying MV pathology was rheumatic heart disease (RHD) in 98 patients (57.3%) and non-RHD (mainly myxomatous MV disease) in 73 patients (42.7%). The main clinical and echocardiographic findings in these 2 groups are compared in the Table. PASP was significantly higher in patients with RHD (43±15 versus 35±11 mmHg in the non-RHD group; P<0.001); significant PHT (PASP ≥50 mmHg) was evident in 29 (82.9%) with RHD versus only 6 (17.1%) in non-RHD patients (P<0.001). Univariate predictors of higher post-operative PASP included age (at last follow-up), time since surgery, female gender, atrial fibrillation, significant left atrial dilatation, mitral prosthesis (versus repair), and mean trans-mitral pressure gradient. By multivariate linear regression – age, RHD (PASP higher by 4.5 mmHg [95% confidence interval 0.4-8.7, P=0.03] compared to non-RHD), atrial fibrillation, and trans-mitral pressure gradient were independently associated with higher PASP. In a patients in whom pre-operative PASP was available for analysis (n=122), higher pre-operative PASP was significantly associated with higher post-operative PASP (P=0.003).

Conclusions:

PASP during follow-up is higher in patients with RHD undergoing successful MV surgery, at times resulting in significant residual post-operative PHT.

Variable	All patients (n=171)	RHD (n=98)	Non-RHD (n=73)	P value
Age at last echocardiogram, yr	64±13	64±11	64±15	NS
Male, n (%)	72 (42)	25 (26)	47 (64)	<0.001
Mitral prosthesis, n (%)	129 (75)	98 (100)	31 (43)	<0.001
Duration of follow-up, yr median (interquartile range)	5.3 (1.8-10.8)	7.8 (3.1-15.0)	3.1 (1.1-6.4)	<0.001
Atrial fibrillation, n (%)	72 (42)	54 (55)	18 (25)	<0.001
Left atrium dilatation (moderate or severe), n (%)	82 (48)	62 (63)	20 (27)	<0.001
Mean trans-mitral pressure gradient, mmHg	4.5±1.7	4.7±1.6	4.3±1.7	0.09