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VALVULAR HEART DISEASE

PREVALENCE AND CLINICAL SIGNIFICANCE OF FUNCTIONAL MITRAL STENOSIS AFTER MITRAL VALVE REPAIR FOR MYXOMATOUS MITRAL REGURGITATION

ACC Poster Contributions

Ernest N. Morial Convention Center, Hall F

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Session Title: Surgery for Mitral disease and Atrial Fibrillation

Abstract Category: 18. Adult Cardiothoracic Surgery/Valvular Surgery

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Background: Mitral valve repair (MvR) has become the standard treatment for most cases of severe myxomatous mitral regurgitation (MMR); however, some patients have exhibited evidence of significant mitral stenosis (MS) after MvR. The aim of this study was to assess the prevalence and clinical significance of this type of MS following successful MvR.

Methods: 65 patients who had MvR for MMR in 2001-2009 were recruited and assessed with bicycle stress echocardiogram, 6 minute walk test, SF-36 health survey and BNP measurements. We excluded patients with significant residual MMR, aortic valve disease or ventricular dysfunction. The age was 61 ± 11 yrs; 45 (69%) were male; 63 (97%) had mitral annuloplasty with 41 (63%) receiving a band and 22 (34%) a full ring. In this study, MS was defined as a resting mean mitral gradient (MMG) > 4 mmHG.

Results: 28 (43%) patients met the criteria for MS; they had higher resting and peak exercise right ventricular systolic pressure (RVSP) and reported worse general health (see table). MS was associated with the use of a full ring during MvR ($p=.0002$). MS patients had elevated MMG at rest which correlated strongly with elevated peak exercise MMG ($r = .72, p < .0001$) and peak exercise RVSP ($r = .64, p = .0003$).

Conclusion: MS post MvR is a common problem associated with worse general health status. Patients with MS develop greater elevations in MMG and RVSP during exercise, which can be readily assessed by bicycle stress echocardiogram. The risk of MS may be reduced by limiting the use of mitral rings.

	Patients with MS N = 28	Patients without MS N =37	p value
Number of patients			
Demographic variables			
age	59.8 ± 11.6 years	61.9 ± 11.7 years	0.47
body mass index	26.1 ± 3.4	26.3 ± 4.0	0.8335
male	21 (75%)	24 (67%)	0.5261
Surgical variables			
mitral valve annuloplasty	28 (100%)	35 (95%)	0.2133
mitral valve band	11 (39%)	30 (81%)	0.0012
mitral valve ring	17 (61%)	5 (14%)	0.0002
Echocardiographic variables at rest			
mean mitral valve gradient	6.1 ± 2.6 mmHg	2.8 ± 0.5 mmHg	<.0001
peak mitral valve gradient	12.2 ± 6.8 mmHg	6.8 ± 1.2 mmHg	<.0001
mitral valve area (VTI)	2.0 ± 0.65 cm ²	2.5 ± 0.61 cm ²	0.0134
cardiac output	6.2 ± 1.5 L/min	5.7 ± 1.9 mmHg	0.25
LV ejection fraction	65.9 ± 5.5 %	63.2 ± 7.4 %	0.11
LA volume indexed	42.3 ± 12.8	36.5 ± 12.4	0.0676
RVSP at rest	38.0 ± 8.7 mmHg	33.1 ± 4.8 mmHg	0.0058
Echocardiographic variables at peak exercise			
mean mitral valve gradient	15.9 ± 8.3 mmHg	9.0 ± 3.6 mmHg	<.0001
peak mitral valve gradient	26.7 ± 11.0 mmHg	15.8 ± 6.1 mmHg	<.0001
RVSP at peak exercise	54.7 ± 11.6 mmHg	46.8 ± 9.4 mmHg	0.0036
Functional variables			
6 minute walk distance	477 ± 103 meters	459 ± 80 meters	0.4365
Supine bicycle exercise duration (modified Bruce protocol)	12.47 ± 5.33 minutes	13.84 ± 6.24 minutes	0.3518
MEIs achieved	5.53 ± 1.59	6.08 ± 2.00	0.3559
SF-36 Health Survey			
general health scale	53.04 ± 24.50	69.43 ± 22.22	0.0065
BNP measurements			
BNP baseline	122.08 ± 102.50	85.72 ± 90.28	0.1389
BNP post exercise	157.62 ± 117.36	111.13 ± 98.04	0.0869