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Valvular Heart Disease

LEFT ATRIAL DYSFUNCTION IN PATIENTS WITH PRESSURE GRADIENT-AORTIC VALVE AREA MISMATCHED SEVERE AORTIC STENOSIS

Poster Contributions
Poster Hall B1
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Session Title: Evaluation of Aortic Stenosis
Abstract Category: 40. Valvular Heart Disease: Clinical
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Background: Severe aortic stenosis (AS) can be classified into pressure gradient (PG)-aortic valve area (AVA) matched and low gradient PG-AVA mismatched AS by echocardiography. Echocardiographic parameters for left atrial (LA) function have not been fully elucidated in patients with low gradient PG-AVA mismatched AS.

Methods: A total of 94 consecutive patients who underwent aortic valve replacement for severe AS (AVA-1.0 cm2) from January 2009 to June 2011 have been retrospectively reviewed. The study patients were divided into 3 groups based on mean PG and left ventricular ejection fraction (LVEF): Group 1:PG-AVA matched severe AS (mean PG>40mmHg, AVA<1.0cm2; n=60), Group 2: low PG-AVA mismatched AS with reduced LVEF (mean PG≤40mmHg, AVA<1.0cm2, LVEF<50%; n=12), Group 3: low PG-AVA mismatched AS with preserved LVEF (mean PG≤40 mmHg, AVA<1.0cm2, LVEF≥50%; n=22). Preoperative echocardiographic parameters and severity of mitral/aortic regurgitation (MR/AR) were compared among the groups. LAEF was measured using by modified Simpson method, and severity of MR/AR was semiquantitatively evaluated by color Doppler echocardiography; 0:none, 1:mild, 2:moderate and 3:severe. Right ventricular (RV) systolic pressure was estimated from PG of tricuspid regurgitation.

Results: As shown in Table. Stroke volume index and LAEF in Group 2 and in Group 3 were significantly smaller than in Group 1.

Conclusion: LA booster function was reduced in patients with low-PG-AVA mismatched AS, irrespective of LV systolic function.

	Group 1	Group 2	Group 3
Age (year)	73 ± 7	75 ± 5	73 ± 10
BSA	1.49 ±0.16	1.58 ±0.18	1.56 ±0.19
LVEDD (mm)	43 ± 6	53 ± 6*#	44 ± 5
LVESD (mm)	26 ± 7	43 ± 7*#	25 ± 5
LAD (mm)	41 ± 9	44 ± 6	42 ± 7
LVEDV(ml)	76 ± 29	136 ± 39*#	75 ± 29
LVESV(ml)	26 ± 13	85 ± 30*#	25 ± 11
LVEF(%)	68 ± 6	38 ± 9*#	66 ± 5
SVI (ml/m²)	49 ± 12	37 ± 12*	39 ± 12*
LVWMI	1.02 ± 0.1	1.90 ± 0.36*#	1.06 ± 0.23
E/A	0.78 ± 0.29	1.27 ± 0.67*	1.19 ±1.01*
LAEF (%)	44 ± 12	29 ± 14*	34 ± 13*
MR	1.00 ± 0.75	1.79 ± 0.81 *	1.25 ± 0.87
AR	1.10 ± 0.66	1.42 ± 0.82	0.98 ± 0.55
RV pressure (mmHg)	30 ± 10	36 ± 11	30 ± 14

*p<0.01 vs. Group 1, #p<0.01 vs . Group 3

BSA: body surface area, LVEDD: LV end-diastolic dimension,
LVESD: LV end-systolic dimension, LAD: LA dimension,
LVEDV: LV end-diastolic volume, LVESV: LV end-systolic volume,
SVI: LV stroke volume index, LVWMI: LV wall motion index,
LAEF: LA ejection fraction, MR: Mitral regurgitation, AR: Aortic regurgitation