Outcomes of degenerative aortic valve regurgitation: a single center study

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RECEIVED: March 16, 2025
ACCEPTED: April 2, 2025

KEYWORDS: aortic regurgitation, degenerative aortic valve disease, aortic valve replacement.
CITATION: Cardiol Croat. 2025;20(5-6):101-2. | https://doi.org/10.15836/ccar2025.101

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Introduction: Aortic regurgitation (AR) contributes to left ventricle (LV) eccentric remodeling due to both volume and pressure overload and. Etiological causes are multiple, but the most common cause of AR today is idiopathic degeneration with loss of elastin and collagen fibers.[1,2] The aim of this study was to evaluate if degenerative etiology of AR contributes to worse outcomes in patients treated for significant AR.

Methods: Our overall study population (SP) consisted of 123 patients with significant AR due to any cause. All patients were treated in University Hospital Centre Zagreb from 2017-2019 according to guidelines. Further on, a subpopulation of patients with degenerative aortic valve regurgitation (dAR) was analyzed using the same outcome parameters in order to compare mixed etiology (endocarditis, leaflet restriction, rheumatic disease, ascending aorta dilatation) of AR with dAV and highlight the impact of valve degeneration on outcomes. Study population characteristics are shown in **Table 1**. Outcomes included the change in LV end-diastolic volume (ΔEDV, ml), end-systolic volume (ΔESV, ml), ejection fraction (EF, %), myocardial mass (ΔLVMI, g/m^2), MACE and mortality in a mean follow up time of 57 months.

TABLE 1. Characteristics of the overall study population and the degenerative aortic regurgitation subgroup.

	SP		dAR	
N	123		47	
Age	58.7		60.2	
FU (months)	75		57.4	
Severe AR	80	65%	35	74.50%
Moderate AR	35	28.40%	12	25.50%
Mortality	16	13%	8	17%
Male	99	81%	38	80.80%
Female	24	19.50%	9	19.20%
No coronary disease	89	72%	34	72.30%
Mechanical AV	40	32.50%	12	25.50%
Biologic AV	19	15.40%	6	12.70%
Reconstructed AV	9	7.30%	6	12.70%
CON	55	44.70%	23	48.90%
AS	15	12.20%	12	25.50%

N-number of study population, AR-aortic regurgitation, FU-follow up, AV-aortic valve, CON-conservative treatment, AS-aortic stenosis

Results: Both groups were comparable in age, sex and presence of coronary artery disease. In group dAR patients had more sever AR (65% in SP vs 74.5% in dAR) and more frequently accompanied aortic stenosis (12.2% vs 25.5%), **Table 2**. Patients with dAR had higher EDV at the point of diagnosis and in follow up, but more pronounced reduction in ESV with a tendency for recovery of EF and reduction in LVMI compared to SP. The dAR group showed tendency for less hospitalizations and MACE but higher incidence in mortality.

Conclusion: Degenerative AR tends to be diagnosed and treated with delay, with more severe AR, accompanied AS and higher mortality rate compared to other etiological factors of AR.

TABLE 2. Change in echocardiographic parameters and clinical outcomes between the overall study population and the degenerative aortic regurgitation subgroup.

	SP		Δ	dAR		Δ
EDV	187.4	151.9	35.5	201.0	164.6	36.4
ESV	94.7	79.9	14.8	102.6	81.6	21.0
EF	54.1	51.9	2.1	53.0	54.9	-1.9
LVMI	184.9	163.6	21.3	201.4	175.6	25.8
MACE		30	24.4%		10	21%
HOSP		32	26%		8	17%
Mortality		16	13%		8	17%

End-diastolic volume-EDV, end-systolic volume-ESV, ejection fraction-EF, left ventricular mass index-LVMI, MACE- major adverse cardiovascular events, HOSP-number of hospitalizations, SP-overall study population, dAR-degenerative aortic- regurgitation, Δ- difference between primary values and in follow up

LITERATURE

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