

Prevalence and prognostic implications of moderate or severe mitral regurgitation in patients with bicuspid aortic valve

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On behalf of The BAV international registry

Funding Acknowledgement: Type of funding sources: None.

Background: Significant (\geq moderate) mitral regurgitation (MR) could augment the hemodynamic effects of aortic valvular disease in patients with bicuspid aortic valve (BAV), imposing a greater hemodynamic burden on left ventricle and atrium, possibly culminating in a faster onset of left ventricular (LV) dilation and/or symptoms.

Purpose: To determine the prevalence and prognostic implications of significant MR in patients with BAV.

Methods: In this large, multicenter, international registry, a total of 2,932 patients (48 ± 18 years, 71% male) with BAV were identified. All patients were evaluated for the presence of significant primary or secondary MR by transthoracic echocardiography and were followed-up for the endpoint of all-cause mortality and a combined endpoint of all-cause mortality or aortic valve surgery.

Results: Overall, 147 patients (5.0%) had significant primary (1.5%) or

secondary (3.5%) MR. Significant MR was associated with all-cause mortality (HR 2.80, 95% CI 1.91 to 4.11, $p < 0.001$, Figure A) and reduced event-free survival (HR 1.97, 95% CI 1.58 to 2.46, $p < 0.001$) on univariable analysis. However, MR was not associated with all-cause mortality (HR 1.33, 95% CI 0.85 to 2.07, $p = 0.21$, Figure B) or event-free survival (HR 1.10, 95% CI 0.85 to 1.42, $p = 0.46$) after multivariable adjustment. Subgroup analyses demonstrated an independent association between significant MR and all-cause mortality for individuals with significant aortic regurgitation (HR 2.04, 95% CI 1.03 to 4.05, $p = 0.042$), although this association was not observed for subgroups with significant aortic stenosis or without significant aortic valve dysfunction.

Conclusions: Significant MR is uncommon in patients with BAV. Following adjustment for confounding variables, significant MR was not associated with event-free or overall survival.

