

Mitral annular calcification, mitral valve diseases and clinical outcomes in patients undergoing transcatheter aortic valve replacement for severe aortic stenosis

T. Okuno¹, M. Asami¹, F. Praz¹, D. Heg², J. Lanz¹, M. Kassar¹, R. Hoeller¹, F. Khan¹, L. Raeber¹, S. Stortecky¹, S. Windecker¹, T. Pilgrim¹

¹Preventive Cardiology & Sports Medicine, Inselspital Bern, Bern, Switzerland; ²Institute of Social and Preventive Medicine and Clinical Trials Unit, University of Bern, Bern, Switzerland

Background: Mitral annular calcification (MAC) and mitral valve diseases (MVD) have been identified as strong predictors of mortality in patients undergoing transcatheter aortic valve replacement (TAVR). However, the association between MAC and MVD, and the prognostic implications in these patients remain unclear.

Purpose: This study sought to investigate the association between severity of MAC and the prevalence of MVD as well as to assess the prognostic impact of MAC depending on the presence or absence of MVD in patients undergoing TAVR.

Methods: We identified 967 patients who have comprehensive echocardiographic and computed tomographic assessment of MVD and MAC from our institutional registry that is a part of the Swiss TAVI registry (NCT01368250) between August 2007 and June 2017.

Results: Among these patients, mild or moderate MAC was present in 45.2% and severe MAC was present in 17.8%. The prevalence of MVD

was significantly higher in severe MAC patients, while the prevalence in patients with mild and moderate MAC was similar to patients without MAC. Compared to patients without severe MAC and MVD, an increased risk of all-cause death at 1 year was observed in patients with severe MAC and MVD (hazard ratio [HR]: 2.81, 95% confidence interval [CI]: 1.72–4.59, $p < 0.001$) as well as in patients with non-severe MAC and MVD (HR: 2.80, 95% CI: 1.87–4.20, $p < 0.001$) but not in patients with severe MAC and non-MVD (HR: 0.68, 95% CI: 0.27–1.70, $p = 0.409$). In a multivariable analysis, severe MAC concomitant with MVD was found to be an independent predictor of new permanent pacemaker implantation after TAVR (Odds ratio: 2.08, 95% CI: 1.27–3.41, $p = 0.004$).

Conclusions: Severe MAC was associated with higher prevalence of MVD. Severe MAC concomitant with MVD was associated with increased risks of mortality at 1 year and conduction abnormalities after TAVR, whereas severe MAC without MVD was not.

