

Natural History and Improvement Predictors of Mitral Regurgitation after TAVI

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Background: Significant mitral regurgitation (MR) is frequently present in elderly patients with calcific aortic stenosis (AS). The outcome of MR after isolated aortic valve replacement has not been determined in cohorts of patients who were not candidates for mitral valve (MV) repair. Revival II studies the safety and efficacy of per-cutaneous AVR (TAVI). The study cohort is free of the selection bias found in studies where both valves could be repaired. The purpose of the current trial was to define the short-term outcome of moderate to severe MR after TAVI.

Methods: Of the 75 enrolled in the study, 35 had moderate to severe MR. Echocardiography was performed at numerous time points before and after TAVI and vena-contracta (VC), a quantitative measure of MR, was performed. To define predictors of MR improvement, Pre-specified parameters were compared between the patients with MR reduction good responders (GR) vs. poor responders (PR).

Results: The mean VC declined from 0.5 ± 0.20 cm on baseline to 0.32 ± 0.18 cm and 0.38 ± 0.2 cm on 24 hours and 3 months respectively ($P < 0.05$). The percent of patients with mitral annular calcification (MAC) was significantly lower in the GR compared to PR (20% vs. 62% respectively $P < 0.05$). The rest of the pre-specified parameters did not differ significantly between GR and PR including age (85 ± 5 vs. 82 ± 6), gender, STS score, MV tethering height (7.8 ± 3 mm vs. 6.3 ± 3 mm), MV tethering area (14 ± 8 mm vs. 12 ± 9 mm), percent change in AV area ($336\% \pm 130$ vs. $285\% \pm 180$), percent change in mean systolic trans AV pressure ($20\% \pm 8$ vs. 23% , $p = 0.10$), MV leaflet thickening and baseline ejection fraction (47 ± 15 vs. 45 ± 18).

Conclusion: MR improves significantly after TAVI. MAC was the only predictor of reduced MR improvement. These results suggest that careful evaluation of the MV is required in selection for isolated AVR.