Transcatheter aortic valve replacement in severe aortic stenosis and cardiac amyloidosis: a systematic review and meta-analysis

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Background: Aortic stenosis (AS) and cardiac amyloidosis (CA) are typical degenerative diseases of the elderly. According to recent studies, up to 16% of patients referred to transcatheter aortic valve replacement (TAVR) have a concomitant diagnosis of CA. Until recently, TAVR in patients with CA and AS has been considered futile, following the results of small observational studies. However, few studies recently suggested a beneficial impact of TAVR in patients with AS and CA as compared with medical therapy alone.

Purpose: To clarify the efficacy and safety profile of TAVR in CA-AS patients.

Methods: We performed a systematic review and meta-analysis of studies evaluating the risk of mortality after TAVR in CA-AS patients as compared with medical therapy. Moreover, we performed a systematic review and descriptive meta-analysis of studies reporting outcomes and complication rates of TAVR in CA-AS patients as compared with patients with AS alone.

Results: We identified 4 observational studies reporting data on mortality in CA-AS patients treated with either TAVR or medical therapy. Mortality was significantly lower in patients undergoing TAVR (OR 0.23, 95% CI 0.07–0.73, I^2=0%, NNT=2.6) as compared with medical therapy. A sensitivity analysis with hazard ratio as effect estimate showed consistent results. Then, we identified 4 observational studies reporting data on mortality, re-hospitalizations and periprocedural complications of TAVR in CA-AS patients as compared with patients with AS alone. We found higher rates of mortality, cardiovascular hospitalization and need for permanent pacemaker implantation in CA-AS patients as compared to lone AS patients undergoing TAVR. Conversely, no differences were found in terms of stroke, acute kidney injury and vascular complications.

Conclusions: Our analysis rejects the idea of futility of TAVR in CA-AS patients showing a clear survival benefit of CA-AS patients undergoing TAVR as compared with medical therapy. Moreover, these patients may undergo TAVR with an acceptable procedural risk, that is substantially comparable to lone AS patients, except for a higher incidence of permanent pacemaker implantation.