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Core 6. Catheter-Based and Surgical Interventions

Session Title: New Developments in TAVR and Complex Structural Heart Interventions

Abstract 16590: Outcome of TAVI in Patients With Low-Gradient and "Paradoxical" Low-Gradient Aortic Stenosis: Results of the German Aortic Valve Registry (GARY)

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Objective: Patients (pt) with severe aortic stenosis (AS; $AVA/BSA \leq 0.6 \text{ cm}^2/\text{m}^2$) may present a mean transvalvular aortic gradient (MPG) $< 40 \text{ mmHg}$ due to either severe LV-dysfunction (low-flow, low-gradient; LG-AS) or concentric LV-remodelling with reduced stroke volume ("paradoxical" low-gradient, PLG-AS). However, the impact of these findings on mortality after TAVI is still undetermined. Herein, we analysed the outcome of patients undergoing TAVI for LG-AS (MPG $< 40 \text{ mmHg}$ and LVEF $< 40\%$), PLG-AS (EF $\geq 50\%$ and MPG $< 40 \text{ mmHg}$) and high-gradient AS (HG-AS: MPG ≥ 40) based on data from the GARY.

Methods and Results: 3908pt undergoing TAVI were included in this ongoing non-randomized national multicenter registry. LG-AS, PLG-AS and HG-AS were present in $n=359$ (9.2%; MPG: $26.5 \pm 7.3 \text{ mmHg}$; EF: $30.3 \pm 7.3\%$), $n=640$ (16.4%; MPG: $30.7 \pm 6.5 \text{ mmHg}$; EF: $60.2 \pm 7.8\%$) and $n=1864$ (47.7%; MPG: $55.5 \pm 13.8 \text{ mmHg}$; EF: $56.3 \pm 12.5\%$) pt, respectively. EuroScore I (36.7 ± 20.9 vs. 22.6 ± 15.7 vs. 24.3 ± 17.4 ; $p < 0.001$) and patient age (79.1 ± 6.1 vs. 80.5 ± 5.6 vs. 81.4 ± 6.1 ; $p < 0.001$) were significantly different between groups. TAVI was performed transfemorally in the majority (68.5 vs. 68.5 vs. 71.0% , $p = \text{n.s.}$) with a high procedural success rate ($> 97.1\%$ in all groups).

In-hospital mortality of pt with LG-AS was significantly higher than with HG-AS (7.8 vs. 4.9% ; $p = 0.029$). In contrast, patients with PLG-AS had a comparable in-hospital mortality (P-LGAS 5.3% vs. H-GAS 4.9% ; $p = 0.67$). The rate of TAVI-associated complications was without significant differences (new pacemaker: 23.9 vs. 20.0 vs. 22.4% ; $p = \text{n.s.}$; cerebrovascular events: 3.3 vs. 3.8 vs. 3.4% $p = \text{n.s.}$). However, postoperative low cardiac output occurred more frequently in patients with L-GAS (8.7 vs. 4.0 vs. 4.2% ; $p < 0.05$). Further, patients with L-GAS and P-LGAS required a longer duration of mechanical ventilation compared to H-GAS (30.0 ± 83.6 vs. 37.7 ± 125.0 vs. 24.8 ± 94.1 hours; $p = 0.015$)

Conclusion: Severe aortic stenosis with a mean transvalvular gradient $< 40 \text{ mmHg}$ is a common finding and present in $\approx 25\%$ of patients undergoing TAVI. In patients with low-flow, low-gradient AS in-hospital mortality after TAVI is significantly higher, however not in patients with "paradoxical" low gradient AS.

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