Insights on clinical outcomes in according to age in patients undergoing Transcatheter Aortic Valve Replacement

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Transcatheter Aortic Valve Replacement (TAVR) is considered the treatment in patients older or at high or intermediate risk. Results form contemporary randomized trials in low-risk patients will likely broaden the indication of TAVR, but the data regarding long-term are limited by older population.

The aim of this study was to evaluate the survival and the factors predicting mortality after TAVR in according to age.

Methods: From April 2008 to December 2019, the self-expandable and balloon-expandable prostheses were was implanted in 765 patients with symptomatic severe aortic stenosis with deemed high risk on base to age, $<$80 years and $\geq$80 years old. The rate of acute complications was defined by the combined endpoint of death, vascular complications, myocardial infarction, majopr bleeding or stroke.

Results: The mean age in patients $<$80 compared with $\geq$80 years, was 73.69±6.5 vs. 83.4±2.1 years and the logistic EuroSCORE and STS score were 15.9±11% vs. 18±11%, 4.8±3 vs. 6.3±4, p$>$0.001, respectively In-hospital mortality was 4% vs. 3.4%, p=0.404, and the rate of acute complications was 19.6 vs. 16.5%, p=0.168. The late mortality (beyond 30 days) was 36.9 vs. 35.2%, p=0.352.

When compared in both groups, there were no differences for the presence of threatening bleeding 3.4% vs. 3.2% (HR = 1.028 [IC95% 0.722–1.463], p=0.516), myocardial infarction 4% vs. 2.5% (HR = 1.263 [IC95% 0.814–1.960], p=0.167), stroke 8% vs. 9.1% (HR = 1.149 [IC95% 0.686–1.925], p=0.347) and acute kidney innjury 14.1% vs. 19.1% (HR=0.1.14 [IC95% 0.969–2.141], p=0.071) and there was difference in between groups in hospitalizations for heart failure 14.6% vs. 7.9% (HR = 1.398 [IC95% 1.075–1.817], p=0.008

Survival at 1, 3, and 5were similar in both groups (88% vs. 89.5%, 73.3 vs. 78.2%, 58.8 vs. 62.6%, log Rank 0.992, p=0.319), respectively, after a mean follow-up of 42.3±27 months.

The main predictors of cumulative mortality in young patients were: Charlson index [HR 1.18 (95% CI 1.06–1.30), p=0.001], Acute Kidney Injury [HR 2.21 (95% CI 1.42–3.47), p=0.001], Left ventricular ejection fraction [HR 1.02 (95% CI 1.009–1.035), p=0,001], and protective factor was a higher Karnosfky index [HR 0.98 (95% CI 0.97–0.99) p=0.006]. And in older patients were: Frailty [HR 1.67 (95% CI 1.13–2.47), p=0.010], COPD [HR 2.09 (95% CI 1.41–2.91), p=0,001], Stroke [HR 3.01 (95% CI 1.54–5.89), p=0.001] Charlson index [HR 1.14 (95% CI 1.02–1.27), p=0.015], Acute Kidney Injury [HR 1.57 (95% CI 1.06–2.32), p=0.001.

Conclusions: TAVR is associated with low complications rate in young and older patients. Survival during follow-up was similar in both groups, but the predictive factors of mortality differ, with greater impact on the comorbidtiy in the elderly patients