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Valvular, Myocardial, Pericardial, Pulmonary, Congenital Heart Disease –
Valvular Heart Disease – Epidemiology, Prognosis, Outcome

Long-term analysis of pulmonary hypertension and tricuspid regurgitation after transcatheter aortic valve replacement

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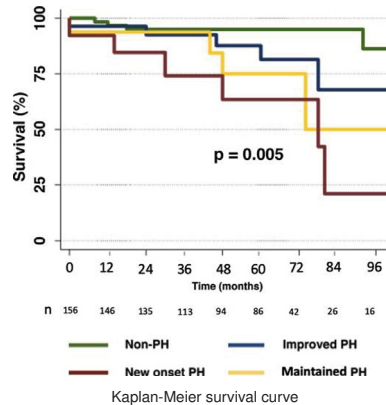
Introduction: Transcatheter aortic valve replacement (TAVR) is increasingly utilized in treatment of aortic stenosis (AS). AS is commonly associated to pulmonary hypertension (PH) and tricuspid regurgitation (TR). We aimed to evaluate the long-term post-TAVR course of PH and TR.

Methods: Patients undergoing TAVR were screened for 24-month echocardiographic data on PH and TR. All echocardiograms were performed by a single team. Patients were divided in groups according to TR and PH (pulmonary systolic pressure $\geq$ or <45 mmHg) grading at 24 months with follow-up of up to 96 months. Standardized clinical outcomes and survival were compared.

Results: 156 and 151 patients were selected for PH and TR follow-up, respectively. Mean follow-up was 42.23 ± 17.53 months and 42.60 ± 17.67 months for PH and TR groups. Maximum follow-up was 96 months. PH was reduced post-TAVR (32.7% pre-TAVR vs. 20.5% post-TAVR, $p<0.001$), but no significant difference in TR was found (11.9% pre-TAVR vs. 10.6% post-TAVR). Increased left atrial (LA) diameter ($p=0.002$) was associated to maintenance PH. Moreover, increased LA diameter ($p=0.015$) and increased EuroSCORE II ($p=0.041$) were correlated to new onset PH. On a multivariable Cox regression model, new onset PH (HR 6.17, 95% CI 1.71–22.29, $p=0.005$), diastolic dysfunction type II or III (HR 1.06, 95% CI 1.06–1.11, $p=0.036$) and LA diameter (HR 1.11, 95% CI 1.02–1.21, $p=0.02$) were independent predictors of long-term mortality.

Conclusions: TAVR was able to reduce the severity of PH, but not TR, in this cohort. Additionally, long-term survival was affected by PH, diastolic dysfunction and LA sizing.

Kaplan-Meier survival curve