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Valvular Heart Disease

IMPACT OF AORTIC VALVE CALCIFICATION SEVERITY ON FIVE-YEAR RESULTS OF PATIENTS UNDERGOING TRANSCATHETER AORTIC VALVE REPLACEMENT

Poster Contributions

Hall C

Saturday, March 29, 2014, 10:00 a.m.-10:45 a.m.

Session Title: TAVR: Novel Technology & Imaging

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Authors: *Ralf Koos, Sebastian Reinartz, Shahram Lotfi, Rüdiger Autschbach, Rainer Hoffmann, Nikolaus Marx, Department of Cardiology, University of Technology RWTH Aachen, Aachen, Germany*

Background: Transcatheter aortic valve replacement (TAVI) has been established in high-risk patients with severe aortic valve stenosis. We aimed to evaluate clinical predictors of five-year outcome and mortality in a real-world population treated with TAVI.

Methods: Consecutive patients with symptomatic aortic valve stenosis (aortic valve area $\leq 1\text{cm}^2$) undergoing TAVI were prospectively included into the Aachen TAVI registry. Among 472 patients, 51 patients (25 men, mean age 80 ± 6 years, logistic EuroSCORE of 22 ± 14) with a five-year follow-up and a baseline dual-source computed tomography (DSCT) were identified. Prior to TAVI, all patients received an echocardiography and underwent a non-enhanced and contrast-enhanced DSCT (Definition, Siemens, Forchheim, Germany with scan parameters as follows: $2 \times 64 \times 0.6\text{mm}$ collimation, tube voltage 120KV, 380mAs tube current) for quantification of aortic valve calcification (AVC) severity using the Agatston AVC score. Mortality tracking was achieved in 100% of patients.

Results: Survival was 78%, 63%, 57%, 53%, and 51% at 1, 2, 3, 4, and 5 years, respectively. NYHA class showed a marked improvement from 3.1 ± 0.5 at baseline to 1.4 ± 0.6 at 5 years. Non-survivors at 5 years showed a significantly higher Agatston AVC score (2358 ± 1341) than survivors (1554 ± 797 , $p=0.038$). Multivariate analysis including age, logistic EuroScore, glomerular filtration rate, Agatston AVC score, ejection fraction $< 40\%$ and NYHA class revealed that only the Agatston AVC score ($p=0.04$) was significantly associated with mortality.

Conclusions: The results of this study suggest that aortic valve calcification severity may serve as a predictor of long-term mortality. Therefore, aortic valve calcification scores easily to be determined from preprocedural CT-datasets may be used for patient risk stratification.