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Predicting 1-year mortality for patients undergoing transcatheter aortic valve implantation using charlson co-morbidity index

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Introduction
The assessment of co-morbidity has become a basic need in the management of patients undergoing transcatheter aortic valve implantation (TAVI).

Purpose
To assess the performance of the Charlson co-morbidity index (CCI) predicting 1-year mortality in patients undergoing TAVI.

Methods
Prospective single-centre study of patients who underwent TAVI since 2010. To determine the co-morbidity, NYHA functional class, CCI, EuroSCORE I, EuroSCORE II and Society of Thoracic Surgeons (STS) score were recorded and multivariate regression model to predict 1-year mortality was performed. Subsequently, the best cut-off value for the CCI in predicting mortality was identified.

Results
241 patients were identified (mean age 80.3 ± 5.9, 51.2% males) with a mean STS score of 5.7 ± 4.8, EuroSCORE I and II of 16.6 ± 10.5 and 4.8 ± 3.9 respectively, and CCI of 5.7 ± 1.2. Most patients (84.2%) were in NYHA functional class III or IV and 1-year mortality was 16.4%. EuroSCORE I, II and STS score did not achieve significance (p=0.60, 0.94 and 0.28, respectively) and were not included in the multivariate logistic regression model to predict death. NYHA functional class I-II (reference value), III and IV were included in the model (OR: 1.4 and 4.8; p=0.03, respectively) as well as CCI (OR: 2.0; 95% CI 1.3-3.0; p=0.001). Patients with CCI =6 presented higher mortality (25.5 vs 5.4%, p=0.001) (OR: 5.9; 95% CI 2.1-16.1; p=0.001)

Conclusions
The CCI is a strong parameter predicting 1-year mortality and seems to be more valid predictor than surgery risk scores. Patients with CCI =6 have an important increased mortality risk. The 1-year mortality assessment with CCI is complemented by the NYHA functional class.