

Patients undergoing urgent trans-aortic valve implantation suffer from an increased mortality rate

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Introduction: Information on the outcome of urgent Transcatheter valve implantations (TAVI) is scarce, but available data suggest that it could be a reasonable option for the treatment of decompensated severe aortic valve stenosis. The prospects of an all-comer urgent population, however, are unknown. Here we report our experience with clinically indicated urgent TAVI implantation in an unselected patient population with severe aortic valve stenosis (AS).

Purpose: To compare the outcome of patients undergoing urgent or elective TAVI and to identify potential predictors of outcome.

Methods: A retrospective, single centre study of AS patients undergoing femoral or apical TAVI between 01.01.2013 and 30.09.2018 was performed. Demographic information, medical history, clinical and procedural data were collected from the local electronic database. Urgent implantation was defined as accelerated, in-hospital patient preparation and urgent device placement following an acute admission. Survival was investigated with Kaplan-Meier survival analysis and log-rank test. Regression analysis was performed to identify possible predictors of mortality.

Results: During the study period TAVI was performed in 631 patients, of whom 53 (8.4%) underwent urgent TAVI. In the case of urgent procedures, the median admission-to-procedure time was 18 [10–29] days. Age, gender and the prevalence of diabetes mellitus, chronic obstructive lung disease (COPD) and a glomerular filtration rate of ≤ 30 ml/min was comparable

among the groups. Patients in the urgent group had a lower BMI (26 [23–28] vs. 27 [24–30]; $p < 0.05$), had more frequently an ejection fraction $< 30\%$ (30% vs 4% $p < 0.001$) and a higher Euroscore II (5.3 [3.4–10.9] vs 2.9 [1.7–4.5]%; $p < 0.001$). The rate of apical implantation and post-operative stroke, pacemaker implantation and renal failure did not differ between the groups. Urgent patients, however, needed longer post-procedural hospitalization (6 [4–9] vs 4 [3–6] days; $p < 0.001$) and had higher in-hospital (11.3% vs 3.1%; $p < 0.001$) and one-year mortality rates (28.3% vs 8.5%; $p < 0.001$). Urgency was an independent predictor of overall one-year mortality (HR 3.0, $p = 0.001$) and worsened the survival of the individuals who were discharged from the hospital (out-of-hospital mortality at one-year; HR 2.8, $p = 0.011$), but had no effect on in-hospital mortality. In-hospital mortality was mainly determined by apical access (OR 3.1; $p = 0.016$) and major post-operative stroke (OR 8.8; $p = 0.006$), with both worsening overall 1-year survival too (HR 1.8 for apical access and 4.8 for stroke; $p < 0.05$). Mortality after a successful hospital discharge was increased not only by urgency (HR 2.8, $p = 0.011$), but by COPD (HR 2.1; $p = 0.04$) and prolonged post-operative hospitalization (HR 1.05/day; $p = 0.001$) as well.

Conclusion: Stabilizing AS patients can mitigate the effect of urgency on peri-procedural survival. Urgency remains, however, an important determinant of one-year TAVI outcome.

