Incidence, Predictive Factors and Effect of Delirium After Transcatheter Aortic Valve Implantation

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Aims
To investigate the incidence, predictive factors and impact of postoperative delirium (POD) among patients treated by transcatheter aortic valve implantation (TAVI).

Methods
A retrospective observational cohort study of 268 consecutive patients who underwent TAVI at our institute was conducted. Delirium was diagnosed according to the Diagnostic and Statistical Manual of Mental Disorder, 4th Edition criteria. Primary outcome of this study was the presence of in-hospital POD after TAVI.

Results
The incidence of POD after TAVI was 13.4% (n=36). Out of these cases, 18 were associated with post-procedural complications, including major vascular complications/bleeding (n=4), stroke (n=3), acute kidney injury (n=3), atrial fibrillation (n=4) and infectious disease (n=4).

POD was most frequently diagnosed on the second day after TAVI (IQR: 1-5) (Figure 1) and was associated with prolonged in-hospital stay regardless of complications (in uncomplicated TAVI: 6 [5-10] vs. 5 [4-5] days, p<0.001; and in complicated TAVI: 9 [8-15] vs. 6 [5-9] days, p<0.001).

Predictors of POD were non-transfemoral (transapical/transaortic) access (Odds Ratio [OR] 7.74; 95% confidence interval [CI] 3.26-18.1), current smoking (OR 3.99; 95% CI: 1.25-12.8), carotid artery disease (OR 3.88; 95% CI: 1.50-10.1), atrial fibrillation (OR 2.74; 95% CI:1.17-6.37) and age (OR 1.08; 95% CI: 1.00-1.17).

After a median follow-up of 16 [6-27] months, patients who developed POD showed higher mortality (36 % vs. 16%; p<0.001). POD remained a significant independent predictor of mortality in the multivariate Cox regression model (Figure 3 and Table 1).

Conclusions: POD after TAVI has an incidence of 13% and occurs early in the postoperative course. Non-transfemoral access is strongly associated with the occurrence of POD. Patients who develop POD show prolonged in-hospital stay and impaired long term survival.