Urinary catheter use and delirium after aortic valve therapy

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Background: Indwelling urinary catheters (IUC) are valuable devices that help to control and monitor urine output under and after invasive procedures. However, adverse outcomes might arise following use of IUC, and several studies show that IUC can be a risk factor for postoperative delirium. Delirium is an acute and fluctuating change in attention and cognition that might lead to extended hospital stay, and more morbidity and mortality. The association between delirium and the duration of IUC use in octogenarians after Surgical Aortic Valve Replacement (SAVR) and Transcatheter Aortic Valve Implantation (TAVI) remains to be established.

Purpose: To determine if the duration of IUC use after SAVR or TAVI predicts the development of delirium in older people.

Methods: This is a prospective cohort study of octogenarian patients (N=136) in a tertiary university hospital. Inclusion criteria: ≥80 years, severe aortic stenosis, and elective TAVI or SAVR. Exclusion criteria: Inability to speak Norwegian or declined consent to participate in the study. The Mini-Mental State examination was used to evaluate global cognitive function at baseline. The Confusion Assessment Method allowed the identification of delirium during five postoperative days. The duration of IUC use was collected from patients’ medical records. The predictive effect of IUC in the development of delirium was examined using multiple regression.

Results: The majority (57%) of patients was female, and 46% received TAVI. Patients in the TAVI group were older (85 vs. 82 years-old, P<0.001), had more comorbidities (2.5 vs. 1.8, P=0.001) and higher logistic EuroSCORE (19.6 vs. 9.4, P<0.001). Delirium was present in 66% of patients treated with SAVR vs. 44% of those receiving TAVI. The average duration of IUC use in SAVR patients with delirium was 66 hours (SD=29) compared to 59 hours (SD=27) in those without delirium (P=0.307), and in TAVI patients with delirium was 58 hours (SD=38) compared to 32 hours (SD=15) for those without delirium (P=0.001). Multivariate regression analysis shows that lower cognitive function (P=0.040), type of aortic valve treatment (P=0.043) and longer of IUC use (P=0.002) predicted the development of delirium.

Conclusion: In octogenarian patients undergoing aortic valve treatment, the duration of IUC use can predict delirium. Further research is needed to mitigate the risks of delirium in patients undergoing aortic valve treatment.