Atrial fibrillation after cardiac surgery: implementation of a prevention care bundle on intensive care unit improves adherence to current perioperative guidelines and reduces incidence

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Introduction:
Atrial fibrillation after cardiac surgery (AFACS) is a very frequent complication affecting 30-50% of all patients. It is associated with an increase in morbidity, mortality and hospital and intensive care unit (ICU) length of stay. We aimed to implement an AFACS prevention care bundle based on a recently published practice advisory [1], focusing on early postoperative (re)introduction of β-blockers.

Methods:
Baseline AFACS incidence and β-blocker administration practices in our centre were audited for all patients undergoing valve surgery or coronary artery bypass graft (CABG) during a 6 weeks period. The AFACS prevention care bundle – an easy to follow graphical tool – was subsequently introduced to the cardiac ICU by a multidisciplinary team and audited following a model of improvement approach. After exclusion of patients with preoperative AF, differences between pre- and post-implementation groups were compared with Chi-square and Fisher’s exact tests for categorical, and One-way ANOVA for continuous variables, using SPSS.

Results:
A total of 384 patients were analysed. Patient and surgery characteristics did not differ between groups. Significantly more patients received postoperative β-blockers after bundle implementation (82.7% pre- vs 91.3% post-bundle, p=0.019) with a higher proportion on day 1 (36.7% pre- vs 67% post-bundle, p<0.001, figure). The incidence of AFACS was significantly reduced from 35.4% to 23.3% (p=0.009), with a particularly marked reduction in the age group 65-75 years and for isolated aortic valve and CABG surgery. There was no significant reduction in hospital length of stay for this cohort.

Conclusion:
Introduction of an AFACS prevention care bundle using a graphical tool improved adherence to current guidelines with regards to early β-blocker administration and significantly reduced AFACS incidence. Future care bundles should include preoperative interventions and might reduce hospital length of stay.

References:
Timing of beta-blocker (re)initiation versus incidence of AFACS before and after prevention care bundle implementation, per post-operative day and for postoperative days 1-5 (insets).