Perioperative atrial fibrillation in major emergency abdominal surgery: does it affect postoperative outcome?

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Background: Atrial fibrillation (AF) in relation to surgery remains a clinical challenge. Major emergency abdominal surgery (e.g. ileus, perforation) is associated with postoperative complications and mortality. However, the prevalence and impact of perioperative AF in this setting is not well examined.

Purpose: We compared 30-days and 1-year outcomes (i.e. hospitalization of any causes, AF-related hospitalization, thromboembolic events and all-cause mortality) in patients who did and did not develop perioperative AF (POAF) in relation to their major emergency abdominal surgery.

Methods: We crosslinked data from Danish nationwide registries and identified all patients who underwent major emergency abdominal surgery (2000–2018) and discharged alive. Patients who developed POAF during hospitalization were matched in a 1:3 ratio on age, sex, year of surgery and category of surgery with those without POAF. Starting follow up at discharge, we examined the rates of outcomes at 30-days and 1-year post-discharge. The cumulative incidences and ratios of outcomes were assessed with the Aalen Johanson estimator together with Kaplan-Meier estimator and multivariable Cox regression analysis, respectively.

Results: We identified 891 patients with POAF and 64,914 patients without POAF. The matched cohort were composed of 889 patients with POAF and 2667 patients without POAF with a median age of 79 years [25th-75th percentile; 72–84 years] and 45.2% males. In general, patients with POAF had higher comorbid burden compared with patients without POAF. The cumulative incidences of a hospitalization of any cause after 30-days post-discharge were 31.2% and 22.3% in patients with and without POAF, respectively. The corresponding numbers for AF-related hospitalization were 20.8% and 1.2%, respectively. In adjusted analyses, POAF was associated with a significantly higher risk of hospitalization of any causes together with AF-related hospitalization (Figure 1 and 2). The cumulative incidences of a thromboembolic event after 30-days post-discharge were 2.2% and 0.9% in patients with and without POAF, respectively. The corresponding numbers for all-cause mortality were 9.7% and 3.2%, respectively. In adjusted analyses, POAF was associated with a significantly higher risk of a thromboembolic event together with all-cause mortality within 30-days of follow up as well as 1-year of follow up. However, the results regarding thromboembolic events did not reach statistical significance after 1-year of follow up (Figure 1 and 2).

Conclusions: Perioperative atrial fibrillation in relation to major emergency abdominal surgery was associated with higher 30-days and 1-year rates of hospitalizations of any causes, atrial fibrillation related hospitalization, a thromboembolic event and all-cause mortality. These findings suggest that perioperative atrial fibrillation is a strong prognostic marker of increased morbidity following major emergency abdominal surgery.