Oral anticoagulation in heart failure complicated by atrial fibrillation: a nationwide routine data study

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Background/Introduction: Heart failure (HF) is frequently complicated by atrial fibrillation (AF). The co-occurrence of both conditions worsens the overall patient prognosis (1). To reduce the risk of thromboembolic complications, current guidelines highly recommend an oral anticoagulant (OAC) therapy in the majority of patients affected (2).

Purpose: Aim of this study was to evaluate whether a permanent OAC therapy in patients with HF and AF leads to favourable outcomes. Additional benefits of new oral anticoagulants (NOACs), compared to vitamin K antagonists (VKA), were further assessed.

Methods: Anonymous routine data of patients who were medically insured at the largest German health insurance provider and had a claims record for hospitalisation with the main diagnosis of HF and AF (2017-2019) were included. Admission due to HF in the previous year, incomplete medication data within 90 days after hospital stay as well as the diagnoses of congenital anomaly, transplantation, asthma, and age under 30 years were exclusion criteria. The endpoints of mortality and readmission rate for all-cause and stroke/intracranial bleeding (ICB) 91-365 days after the index hospitalisation were analysed. For this, information about the medications was taken from the pharmacy database. Kaplan-Meier survival curves and multivariable Cox regression models were used to evaluate the impact of medication on outcome. Adjusted hazard ratios (HRs) and 95% confidence intervals (95% CIs) were calculated. Patient age, sex, and comorbidities were evaluated as independent factors, including all variables of the CHA2DS2-VASc score.

Results: We included 180,316 cases (see figure 1). The median age was 81 years (interquartile range of 76-86) with 55.6% of the patients being female. 96.81% had a CHA2DS2-VASc score of ≥ 2. We found OAC prescription in 80.6% (VKA: 21.7%; direct factor Xa inhibitors (FXaI): 60.0%; direct thrombin inhibitors (DTI): 3.4%). In 8,087 cases, more than one OAC was prescribed. The mortality rate was 19.1%, readmission rate was 29.9% and stroke/ICB occurred in 1.9% during the observed time span. As presented in figure 2, the risk of death was lower with any OAC (HR 0.77, 95% CI 0.75-0.79) but without significant differences in OAC type (VKA: HR 0.73, 95% CI 0.71-0.76; FXaI: HR 0.77, 95% CI 0.75-0.78; DTI: HR 0.71, 95% CI 0.66-0.77). The total readmission rate (HR 0.97, 95% CI 0.94-0.99) and readmission for stroke/ICB (HR 0.71, 95% CI 0.65-0.77) was likewise lower with OAC use.

Conclusion(s): Routine data confirm the beneficial outcome of OAC therapy in patients with HF complicated by AF regarding mortality and readmission for all-cause as well as for stroke/ICB. No additional benefits were visible with the use of NOACs.
Figure 1. Patient selection criteria.

Figure 2. Kaplan-Meier survival (OAC).