Causes and risk factors of emergency department visits among patients with atrial fibrillation treated with non-vitamin K antagonist oral anticoagulants

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**Introduction** : In the contemporary era, non-vitamin K antagonist oral anticoagulants (NOACs) have become the first line treatment option for stroke prevention in patients with non-valvular atrial fibrillation (AF). Although NOAC showed comparable efficacy and superior safety compared with warfarin, still, patients treated with NOACs may experience major or minor complications, and emergency department (ED) visits from these complications can compromise patients’ quality of life. However, there are only limited data about the prevalence, risk factors, and the main causes of ED visit among AF patients treated with NOACs.

**Methods** : This was a single-center retrospective cohort study from Seoul National University Hospital. Between 2012 and 2019, patients with non-valvular AF who initiated NOAC were included. The primary outcome was the occurrence of ED visit from any cause during the index NOAC treatment. The prevalence, risk factors, and the main causes of ED visit were analyzed.

**Result** : Among a total of 3,732 patients treated with NOAC, 344 (9.2%) patients visited the ED for any cause. Older age, female sex, lower body weight, congestive heart failure, hypertension, diabetes, previous stroke or intracranial hemorrhage (ICH) history, impaired renal function, higher CHA2DS2-VASc score were significantly associated with ED visit in univariable analysis. In multivariable logistic regression analysis, older age (per 10 year-old, odds ratio [OR] 1.34, 95% confidence interval [CI] 1.15-1.56), female sex (OR 1.34, 95% CI 1.02-1.76), congestive heart failure (OR 1.34, 95% CI 0.96-1.86), hypertension (OR 1.49, 95% CI 1.13-1.97), previous history of ICH (OR 1.70, 95% CI 1.01-2.88) were significantly associated with ED visit. Among 344 patients, the most common cause of ED visit was bleeding (10.8%), including 0.9% of ICH and 4.9% of gastrointestinal bleeding (Figure). Heart failure (8.4%), angina (8.4%), symptom from poorly controlled AF itself (7.0%), thromboembolic event (stroke/transient ischemic attack/systemic embolism, 5.3%), and pneumonia (4.9%) were also main causes of ED visits of AF patients treated with NOAC.

**Conclusion** : The substantial proportion (9.2%) of AF patients treated with NOACs visited ED due to various causes, and the most common cause of ED visit was a bleeding complication. Evaluating each patient’s potential risk of ED visit and establishing an optimal treatment strategy might be important to avoid ED visit from preventable causes.