Temporal changes in patient profile and clinical outcomes of non-valvular atrial fibrillation patients treated with oral anticoagulants focused on the non-vitamin K antagonist oral anticoagulants era

Introduction: Since non-vitamin K antagonist oral anticoagulant (NOAC) was introduced as an alternative to warfarin for stroke prevention in patients with atrial fibrillation (AF), oral anticoagulant (OAC) prescription patterns and characteristics of patients treated with warfarin or NOAC have been rapidly changed. How much the results of comparative effectiveness and safety between warfarin and NOAC can be affected by these changes remains uncertain. The aim of this study was to evaluate the evolving patterns of OAC use in a large nationwide observational cohort. Further, we examined the changes in characteristics of patients treated with warfarin and NOAC and whether it affected the clinical outcomes.

Methods: Using data from the Korean National Health Insurance Service, a retrospective population-based cohort study was conducted in patients with non-valvular AF who were OAC naïve between Jan 2015 and Dec 2017. The entire cohort was divided into 3 groups according to patient enrollment period (cohort 1 from Jan 2015 to Jan 2016, cohort 2 from Feb 2016 to Dec 2016, and cohort 3 from Jan 2017 to Dec 2017).

Result: According to the enrollment period, 35,353 patients, 36,631 patients, and 44,819 patients who were OAC naïve AF patients were included in cohort 1, 2 and 3, respectively. While the use of NOACs increased, 59% in cohort 1 to 89% in cohort 3, the proportion of patients treated with warfarin declined 41% in cohort 1 to 11% in cohort 3 (p < 0.001). Among patients treated with warfarin, mean age became younger and mean CHA2DS2-VASc decreased from cohort 1 to cohort 3 (all p for trend < 0.001). In patients treated with NOAC, mean age and CHA2DS2-VASc score of cohorts 1, 2, and 3 were similar. Although the clinical outcomes of warfarin groups have been improved over time reflecting dynamic changes in patient characteristics, after propensity score weighting between warfarin and NOAC groups in each cohort, NOAC use was consistently associated with lower risks of composite outcome by 23~25% compared to warfarin across 3 different time periods (Figure).

Conclusion: In the contemporary era, OAC prescription pattern and characteristics of patients treated warfarin or NOAC have been dynamically changing. Despite these changes, NOAC consistently showed better net clinical benefit compared to warfarin across different time periods.