# Underuse of thromboprophylaxis in atrial fibrillation: population based cohort study

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**Purpose**: atrial fibrillation (AF) is associated with 5-fold increase in stroke events, and oral anticoagulation therapy (OAT) with vitamin K antagonists (VKA) is usually recommended for patients at higher risk of this complication. Despite this, atrial fibrillation patients at high risk for stroke are often undertreated. The objective of this study was to describe the behavior of practitioners in AF patients in everyday clinical practice.

**Methods:** This was a retrospective observational cohort study of patients with a diagnosis of NVAF conducted in the Local Health Authority of Treviso (ULSS 9) between 2007 and 2013. Data were collected from the primary care databases of hospital admissions, pharmacological treatments and lab analyses. Stroke risk was calculated by using the $CHA_2DS_2$-VASc score (i.e., 2 points for a history of stroke or transient ischemic attacks and age ≥75 years, and 1 point for age between 65 and 74 years, hypertension, diabetes mellitus, a recent cardiac failure, vascular disease and female sex). Population was divided in two cohorts: patients who were treated with VKA for at least 6 months and patients with AF who did not receive the VKA treatment. Time in therapeutic range (TTR) was defined as the time spent with international normalized ratio (INR) in a range between 2 and 3. For TTR analysis only the patients continuously treated with OAT were considered. Patients with TTR ≥65% were considered to have a well-controlled treatment.

**Results:** A total of 6138 (49.7% men, mean age 75.6 ± 11.5 years) patients with diagnosis of AF were identified. According to the $CHA_2DS_2$-VASc score, 54.8, 8.2, and 86.9% of patients were classified at low, intermediate and high-risk, respectively (mean $CHA_2DS_2$-VASc score 3.5 ± 1.8). 49.3% of the total population received VKA; a higher percentage of female were not treated if compared with VKA patients: 53.1 vs 47.3%. In the no-VKA cohort, 82.7% were classified as high risk patients ($CHA_2DS_2$-VASc score≥2). The mean TTR was 55.7 ± 14.8%; patients who reached the target (i.e. as TTR≥ 65%) were only 823 (27%) in a median treatment duration time of 31.5 months.

**Conclusion**: Differently from the current recommendation, patients at high and low thromboembolic risk, according to the $CHA_2DS_2$-VASc score, were undertreated and over-treated respectively. Moreover, many patients receiving VKA in everyday community care have poorly controlled anticoagulation treatment with INR frequently outside the therapeutic range and are exposed to an unnecessary risk of stroke or bleeding complications.