Comparative Treatment Adherence and Persistence with Edoxaban Versus Apixaban, Dabigatran, Rivaroxaban, and Vitamin K Antagonist in Non-Valvular Atrial Fibrillation Patients in Germany: A Propensity Matched Cohort Study

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Background

- Atrial fibrillation (AF) is the most common form of arrhythmia. Characterized by an irregular and often rapid heartbeat, AF increases the risk of stroke1 and mortality compared with age-matched individuals.2
- Germany has one of the highest prevalence of AF among European countries at 2.3% in 2014, and an incidence of 0.41 per 1,000 person-years.3
- Risk factors of AF include older age, heart disease, high blood pressure, alcohol consumption, and a family history of AF.4
- The use of oral anticoagulants was shown to reduce the risk of stroke and therefore is recommended as first-line therapy in patients with non-valvular AF (NVAF) by international guidelines.5
- Compared to vitamin K antagonists (VKA)6, non-vitamin K antagonist oral anticoagulants (NOACs) have fewer food and drug interactions and do not require monitoring of patient’s international normalized ratio (INR).7,8
- The 2016 European Society of Cardiology guidelines recommended the use of NOACs over VKA.9
- NOACs available in Germany include dabigatran (approved in November 2011), rivaroxaban (approved in December 2011), apixaban (approved in December 2012) and edoxaban (approved in June 2015).10
- Because treatment adherence and persistence to anticoagulant therapy may affect patient outcomes, it is important to understand the utilization patterns of anticoagulants in the real-world setting.

Objective

To compare treatment adherence and persistence to edoxaban with other NOACs (including apixaban, dabigatran, rivaroxaban) and VKA in NVAF patients in Germany.

Methods

Data Source: This is a retrospective study using the German analysis database (Gesundheitsforen Leipzig), a representative sample of the total German statutory health insurance population.

Study Cohorts

Eighty-eight patients included individuals:
- With a pharmacy claim for edoxaban, apixaban, dabigatran, rivaroxaban, or VKA between 2014 and 2017.
- With an AF diagnosis:
  - At least 1 primary or secondary hospital discharge diagnosis of AF (ICD-9-CM 320.1) on the index date, or
  - At least 1 outpatient diagnosis of AF before or on the index date, and at least 1 discrete outpatient diagnosis of AF between 12 months before to 2 months after the index date.11
- ≥ 18 years of age on index date.
- With continuous enrollment in the 12 months before the index date.
- Patients were excluded if they:
  - Received any NOAC within 12 months before the index date, or
  - Received more than 1 NOAC or 1 NOAC plus VKA on the index date, or
  - Had valvular AF, deep vein thrombosis, pulmonary embolism, or end-stage renal disease within 12 months before the index date.
  - Had joint replacement within 6 months before the index date.
  - Pregnancy within 12 months before the index date or before December 31,2017

Propensity Score Matching

- Goal of matching: to control for potential differences between the study cohorts with respect to patient characteristics
- Comparison groups: edoxaban versus one of the other NOAC or VKA
- Matching methods: 1:1 nearest neighbor matching without replacement

Statistical Analysis

- T-tests were used to evaluate the statistical differences in PDC, MPR, and persistence between patients using edoxaban and other NOAC and VKA
- Multivariable logistic regression was performed to identify factors associated with adherence (MPR ≥ 0.8) and persistence (PDC ≥ 0.8).

Results

- A total of 1,236 edoxaban patients were matched with patients treated with apixaban, dabigatran, rivaroxaban, and VKA (Figure 1).
- Table 1a and b show the baseline characteristics of the study cohort before and after matching. After matching, the baseline characteristics were well balanced (standardized difference < 10%) between all comparison groups.

Conclusions

- Edoxaban was associated with significantly higher adherence in NVAF patients compared to dabigatran, apixaban, and VKA. A possible explanation is that edoxaban is dosed once rather than twice daily and does not require routine blood tests.
- Edoxaban patients also had higher persistence compared to dabigatran, rivaroxaban, and VKA.
- Adherence and persistence should be considered in treatment selection to improve patient care.

References


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