HSD23

Comparison of Drug Utilization Outcomes of Direct Oral Anticoagulants in Medicare Patients

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Introduction

- Oral anticoagulants (OACs) are used for stroke prevention in non-valvular atrial fibrillation (NVAF) and secondary prevention in venous thromboembolism (VTE) patients
- Incidence and recurrence of NVAF and VTE increase with age, thus having a high disease burden for the Medicare population
- Since 2010, warfarin use has declined with an increase in the popularity of direct oral anticoagulants (DOACs), including dabigatran, rivaroxaban, apixaban and edoxaban
- Efficacy and safety of DOACs is established; however, limited research exists comparing real-world utilizations outcomes such as adherence, persistence, discontinuation and switching for DOACs in Medicare population
- Of all the utilization measures, adherence is the only metric recently endorsed by the Pharmacy Quality Alliance (PQA) as a quality metric for DOACs for all indications, although there are limited incentives for plans to focus on any other utilization outcomes for patients using DOACs

Objectives

- To compare adherence, persistence, discontinuation and switching rates among Medicare beneficiaries with NVAF or VTE using DOACs

Methods

- Retrospective observational cohort study from January 2015–December 2018
- Centers for Medicare and Medicaid Services (CMS) data including inpatient (IP) and outpatient (OP) claims, master beneficiary summary files, and part D event files

Inclusion and Exclusion Criteria:

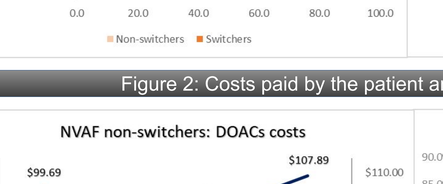
NVAF		VTE	
Inclusion Criteria	*Exclusion Criteria*	*Inclusion Criteria*	*Exclusion Criteria*
Newly diagnosed with AF	Pulmonary embolism	First VTE event	AF diagnosis within a year prior to VTE
18 years of age or older	Pregnancy	18 years of age or older	
CHA$_2$DS$_2$VASC score ≥ 2	Valve replacement or valvular heart disease	One IP or OP claim related to VTE in baseline period	
One IP or OP claim related to AF in baseline period	Pericarditis, myocarditis, or cardiac surgery	≥2 Rx claims of index DOAC in follow-up period	
≥2 Rx claims of index DOAC in follow-up period	Hyperthyroidism		

Variables

- Demographics: age, gender, race, region, plan type, months of Part A coverage (inpatient or hospital), months of Part B coverage (outpatient or medical coverage)
- Costs: average amount paid for the index drug by the patient and the plan in the follow-up period
- Utilization outcomes
  - Adherence: proportion of days covered (PDC) for the index drug i.e., sum of medication days supplied/total number of days in follow-up period (365 days). Also, PDC ≥ 0.80 was categorized as adherent
  - Non-persistence: presence of ≥ 60 days gap in the treatment of the index drug in the follow-up period
  - Discontinuation: presence of ≥ 90 days gap in the treatment of the index drug in the follow-up period
  - Switching: presence of a claim for any oral anticoagulant in the follow-up period that was different from the index drug (in addition, the first OAC a patient switched to was recorded)
- Descriptive statistics conducted for all demographic, costs, and utilization outcomes.T-tests/ANOVA and post hoc Tukey Kramer tests for continuous variables and chi-square for categorical variables
- 5X5 matrix table was used to display the frequencies and percentages of patients switching away from the index drug for the first time to another OAC
- Logistic Regression models:
  - Non-switchers cohort: compare odds of being adherent for each DOAC cohort
  - Switchers and non-switchers: compare odds of switching away from the index drug for each OAC cohort
- Analysis performed using SAS Version 9.4

Study Design

Study Duration: January 1, 2015–December 31, 2018



Results

Baseline Characteristics	
NVAF	**VTE**
N=180,925	N=62,289
Mean age: 77-80 years with apixaban, and warfarin users significantly older	Mean age: 71-74 with apixaban, and warfarin users significantly older
Female: 50-56%	Female: 57-60%
Race & Region: White, from South and Midwest region	Race & Region: White, from South and Midwest region
Most commonly prescribed apixaban (92,836)	Most commonly prescribed rivaroxaban (28,456)

Results

Table 1: Adherence, non-persistence and discontinuation outcomes

NVAF Non-switchers	**Dabigatran (n=9,722)**	**Rivaroxaban (n=46,983)**	**Apixaban (n=87,667)**	**Edoxaban (n=230)**	**Warfarin (n=21,731)**
PDC* Mean (SD)	74.78 (27.41)	75.39 (27.87)	76.88 (26.71)	70.44 (29.8)	69.25 (27.6)
VTE Non-switchers	**Dabigatran (n= 1,399)**	**Rivaroxaban (n=26,347)**	**Apixaban (n=24,275)**	**Edoxaban (n=33)**	**Warfarin (n=5,564)**
PDC* Mean (SD)	64.2 (29.52)	65.95 (29.67)	67.3 (28.67)	72.68 (30.73) *small sample*	62.76 (29.91)

Note: *Significant at p-value<0.05; ANOVA and post hoc Tukey Kramer tests

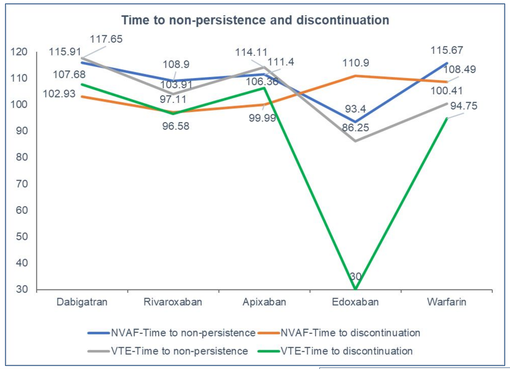


Figure 1: Frequency of DOAC switchers (NVAF and VTE)

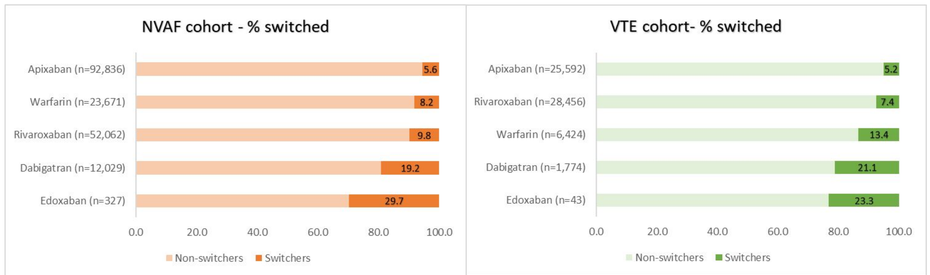
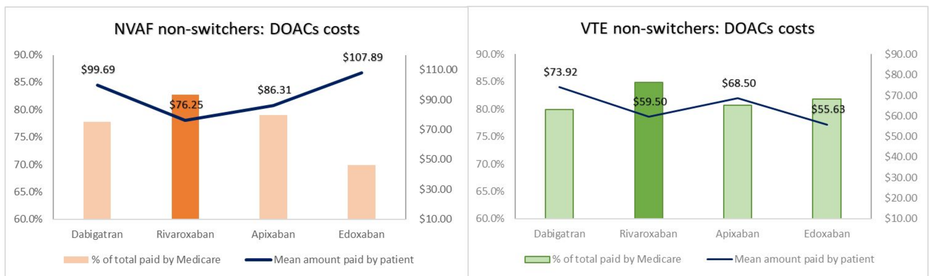


Figure 2: Costs paid by the patient and Medicare (NVAF and VTE)



Incentivizing Medicare plans to incorporate real-world evidence of utilization outcomes for DOACs (i.e., adherence, persistence, discontinuation, and switching) would improve health outcomes, reduce disease burden, and contain costs

Figure 4: Apixaban was the most 'switched to' DOAC

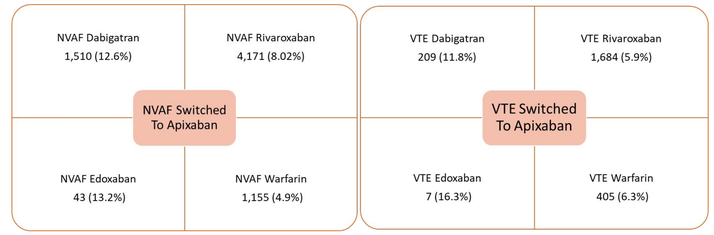


Table 3: Logistic regression for adherence and switching

Adherent vs not	**NVAF (non-switchers)**		**VTE (non-switchers)**	
Dabigatran vs.	Odds Ratio	95% CI	Odds Ratio	95% CI
Rivaroxaban	0.896	0.856-0.937*	0.897	0.803-1.001
Apixaban	0.825	0.790-0.862*	0.838	0.750-0.936*
Edoxaban	1.242	0.952-1.621	0.324	0.154-0.68*
Rivaroxaban vs.				
Apixaban	0.909	0.888-0.931*	0.921	0.889-0.955*
Edoxaban	1.399	1.076-1.82*	0.373	0.180-0.773*
Apixaban vs.				
Edoxaban	1.478	1.137-1.922*	0.399	0.192-0.828*
Switched vs not	**NVAF (all patients)**		**VTE (all patients)**	
Dabigatran vs.	Odds Ratio	95% CI	Odds Ratio	95% CI
Rivaroxaban	2.189	2.072-2.311*	3.182	2.812-3.601*
Apixaban	4.059	3.847-4.284*	4.954	4.359-5.632*
Edoxaban	0.592	0.464-0.755*	0.883	0.428-1.823
Warfarin	1.015	0.917-1.123	0.214	0.168-0.272*
Rivaroxaban vs.				
Apixaban	1.898	1.822-1.977*	1.551	1.443-1.667*
Edoxaban	0.295	0.232-0.375*	0.29	0.142-0.592*
Warfarin	1.03	0.958-1.108	0.451	0.403-0.504*
Apixaban vs.				
Edoxaban	0.147	0.116-0.187*	0.184	0.09-0.375*
Warfarin	0.505	0.471-0.542*	0.218	0.193-0.247*

Note: Controlled for: age, gender, race, region, plan type, part A coverage, part B coverage, amount paid by the patient, amount paid by the plan for the prescription; *Significant at p-value < 0.05

Conclusions

- Of all the OACs, **apixaban had the most favorable utilization outcomes** for NVAF and VTE cohorts as demonstrated by the adherence and switching rates
- **Rivaroxaban, despite once-daily dosing, was not superior** to other DOACs in terms of utilization outcomes including adjusted adherence, persistence, discontinuation or switching
- NVAF and VTE patients on dabigatran had the highest switching rates to other OACs, with the majority of patients **switching to apixaban**
- Utilization outcomes were not guided by the dosing frequency of rivaroxaban, **yet Medicare coverage continued to favor rivaroxaban**