OKLAHOMA STATE UNIVERSITY
CENTER FOR HEALTH SCIENCES

Oklahoma State University Medical Center-Pharmacy Residency Program

Appropriateness of Direct Oral Anticoagulant Prescribing for New Onset Venous Thromboembolism and Non-valvular Atrial Fibrillation

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BACKGROUND

- Treatment of non-valvular atrial fibrillation (NVAF) and venous thromboembolism (VTE) has been revolutionized through development of new direct-acting anticoagulants such as Xarelto (Rivaroxaban) and Eliquis (Apixaban).
- Non-injectable options other than warfarin with less monitoring and lower bleed risk.
- Although they are more optimal agents, some facilities have reported incorrect prescribing rates up to 25%.

AIM STATEMENT

- Determine the rate of incorrect prescribing of 2 DOACs at the OSU Medical Center from 1/1/21 to 4/30/21.

ENDPOINTS

Primary
- Number/Percent of patients with appropriately prescribed DOAC (rivaroxaban or apixaban) for new-onset NVAF or VTE

Secondary
- Number/Percent of readmissions within 30 days due to recurrent VTE or bleeding event after inappropriate prescribing
  - Subcategory (BMI)
- Mean time for:
  - Dose adjustments
  - Transition from alternative anticoagulant

METHODS

Study Design:
- Retrospective chart review for quality assurance

Investigational drugs:
- Rivaroxaban
- Apixaban

Study time period: 1/1/21 – 4/30/21

Inclusion criteria:
- Age ≥ 18 years
- Diagnosed new-onset NVAF or VTE
- Prescribed one of the investigational drugs

Exclusion criteria:
- Pregnant patients
- Previously taking investigational drug
- Previous diagnosis of NVAF or VTE

Patient Demographics
- Age, Gender, Race, Height, Weight, BMI, Regimen, Drug-Drug Interactions

Preliminary Data

Study Population

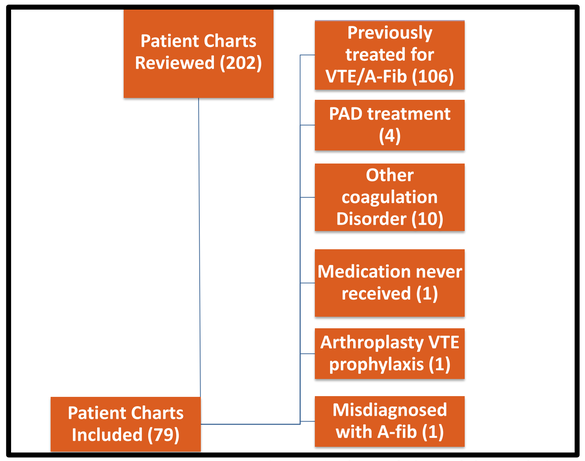

Figure 1. Study population and chart exclusions

Appropriate vs Inappropriate Dosing

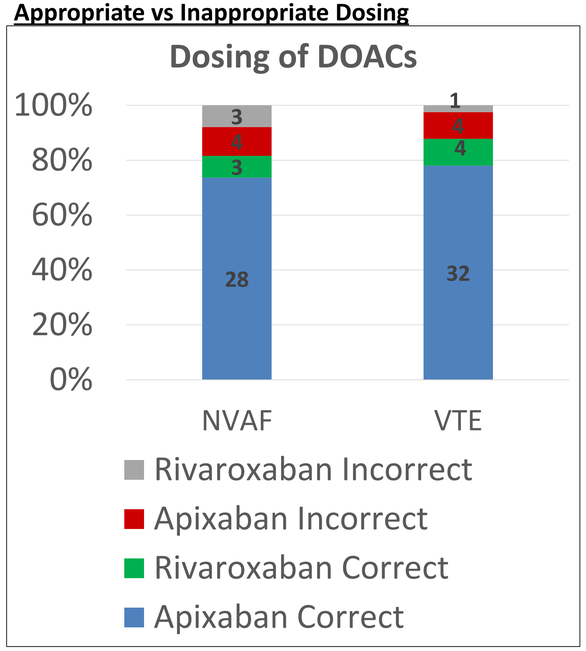

Figure 2. Primary endpoint, appropriate prescribing of DOACs

Secondary endpoints

Table 1. Secondary endpoint analysis

	Apixaban		Rivaroxaban	
	NVAF (N=32)	VTE (N=36)	NVAF (N=6)	VTE (N=5)
	Readmissions VTE/Bleeding			
BMI <18.5	-	-	-	-
BMI 18.5-<25	0/6	0/3	0/3	0/2
BMI 25-<30	0/3	0/10	1/1	-
BMI 30-<35	1/15	1/9	0/1	-
BMI 35-<40	0/6	0/9	-	0/2
BMI >40	0/2	0/5	0/1	0/1
Mean Time to dose adjustment	0 hours	N/A	69.67 hours	N/A
Mean Time to transition	4.29 days	1.31 days	3.07 days	4.21 days

Discussion

- Overall incorrect prescribing for A-fib and VTE treatment was 18.42% and 12.2% respectively.
- There was a larger percentage of incorrect prescribing in the rivaroxaban group as compared to the apixaban group [(4/11; 36.36%) vs. (8/60; 13.33%)] This is more evident in the rivaroxaban NVAF group which had 50% incorrect prescribing.
- The specifics on incorrect prescribing are as follows:
  - Drug-Drug interaction contraindication apixaban: 1
  - Overdosing apixaban based on criteria*: 2
  - Underdose apixaban based on criteria*: 2
  - Overdose apixaban based on indication: 1
  - Underdose apixaban based on indication: 2
  - Overdose rivaroxaban based on CrCl: 3
  - Underdose rivaroxaban based on indication: 1
- The mean time for dose adjustment in NVAF rivaroxaban group was skewed due to one patient with 216 hours.
- The three events in the secondary endpoints were GI bleeds. One occurred 10 days after discharge, one was 5 days after initiation of therapy, and one was a re-bleed within 24 hours.

***Criteria: Age >80, Weight <60 kg, SCr > 1.5**

CONCLUSION

In review of the selected charts over the time period at OSU Medical Center, the rate of incorrect prescribing of the selected DOACs (rivaroxaban and apixaban) was lower than the expected rate seen at other facilities nationally. The primary issue with prescribing centered around adjusting for renal function and specific parameters with apixaban (weight, age, and serum creatinine).

NEXT STEPS

To address these gaps in care for our patients, periodic education for prescribers at our facility as well as collaborative patient care with clinical pharmacists can lower the rates of incorrect prescribing. Furthermore, programs in the electronic prescribing system can be implemented to ascertain patient factors prior to orders being placed.

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Disclosures

The research team has no disclosures to state on this research and has no commercial or financial interest from this study.