UNIVERSITY of MARYLAND

Medication Utilization Evaluation of Apixaban and Dabigatran at a Major Academic Medical Center

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Background

- New oral anticoagulants (NOAC) are attractive alternatives to warfarin due to fewer monitoring requirements, more favorable pharmacokinetics, and limited drug-drug interactions.
- Apixaban, dabigatran and rivaroxaban are three NOACs approved by the United States Food and Drug Administration (FDA) and each is on our hospital's formulary.
- Approved indications for use vary among the NOACs. They include stroke prevention in atrial fibrillation (AF), treatment and prevention of recurrent venous thromboembolism (VTE) and prevention of VTE in orthopedic surgery patients.[1-3]
- The dosing and dose adjustments for each agent differs based on indication for use and other clinical features (e.g., renal function, drug-drug interactions).[1-3]

Objectives

Primary

- To determine whether patients were prescribed the correct dose of apixaban or dabigatran based on product labeling
- To determine whether therapy was prescribed for an approved indication

Secondary

- To identify the frequency at which concomitant anticoagulants are ordered and/or administered with each NOAC
- To determine the incidence of bleeding among those receiving NOAC therapy and to describe how bleeding was managed

Methods

- Retrospective chart review conducted between May 1, 2013 and May 1, 2014
- Approved by the local Institutional Review Board
- Inclusion criteria: 18-89 years old and NOAC was received or ordered
- Bleeding was defined as a decrease in hemoglobin ≥ 3 g/dL during/following initiation of a NOAC.
- Data collected from the electronic medical record included:
  - Demographics (patient gender, race, and weight)
  - Indication for NOAC use and dose
  - Serum creatinine
  - Hemoglobin decrease ≥ 3 g/dL
  - Administration of blood products
  - Concomitant use of aspirin, P2Y12 inhibitors, H_2 antagonists/proton pump inhibitors, anticoagulants or interacting medications

Results

- 44 patients (28%) were ordered for apixaban and 113 (72%) were ordered for dabigatran during the study period.
- 2 patients (4%) in the apixaban group and 1 (1%) in the dabigatran group were excluded based on age.
- As of December 1, 2014, 10 charts in the apixaban group have been reviewed.
- All patients received the appropriate dose of therapy, and therapy was prescribed for an FDA-approved indication.
- Demographics are presented in Table 1.
- Data regarding concomitant medication use are presented in Table 2.

Table 1. Baseline Characteristics

Age, years (mean, range)	68.6 (52-83)
Age ≥ 80 years (n, %)	2 (20%)
Female gender (n, %)	3 (30%)
Indication for use: Atrial fibrillation	 10 (100%)
Weight, kg (mean, range)	83.1 (44.5-140)
Weight ≤ 60 kg (n, %)	2 (20%)
Baseline serum creatinine, mg/dL (mean)*	0.9
Serum creatinine ≥ 1.5 mg/dL (n, %)*	1 (12.5%)
Baseline creatinine clearance, mL/min (mean)*	88.4
Baseline estimated glomerular filtration rate, mL/min/1.73m^2 (mean)*	84.3
NOAC as continuation of home medication	2 (20%)

NOAC = new oral anticoagulant. *Data only available for 8 patients

- No bleeding events were documented following initiation or continuation of apixaban.
- No patients received a transfusion following initiation or continuation of apixaban.
- A total of 9 nine coagulation panels (prothrombin time, international normalized ratio and partial prothrombin time) were drawn.
- Four patients (40%) had at least one coagulation panel drawn while receiving apixaban. Of these, 3 had the panel drawn on each day of therapy.

Table 2. Concomitant Medication Use

	n (%)
Alternative anticoagulant:	
One-time enoxaparin, prophylaxis dosing	1 (10%)
One-time enoxaparin, treatment dosing	3 (30%)
Antiplatelet therapy:	
Aspirin monotherapy	2 (20%)
P2Y12 antagonist monotherapy	0
Aspirin + P2Y12 antagonist	1 (10%)
Patients with ≥ 1 interacting medication	0

Conclusions

- Data from this project will assist the institution in determining if steps are necessary to improve the safe use of these agents.
- Prescribers will be educated to avoid routinely and unnecessarily checking coagulation tests among patients receiving therapy. Whether an automatic alert can be created for this purpose will also be explored.

References

1. ELIQUIS (apixaban)Prescribing Information [package insert]. Princeton, NJ: Bristol-Myers Squibb Co.; 2014.
2. PRADAXA (dabigatran etexilate mesylate) Prescribing Information [package insert]. Ridgefield, CT: Boehringer Ingelheim Pharmaceuticals, Inc.; 2014.
3. XARELTO (rivaroxaban) Prescribing Information [package insert]. Titusville, NJ: Janssen Pharmaceuticals, Inc.; 2014.

Disclosure
The authors of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation:
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