Assessment of Target Specific Oral Anticoagulant Prescribing Rationale and Adverse Event Pilot Comparison in Veterans Receiving Oral Anticoagulation Therapy

Angela Mechelay, Pharm.D.
PGY1 Pharmacy Resident
Oklahoma City VA Medical Center
Oklahoma City, OK
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Objectives
- Identify preferable characteristics of target specific oral anticoagulants (TSOACs) over warfarin
- Discover the factors influencing provider selection of TSOACs

Assessment Question No. 1
Which of the following is an advantage for the use of TSOACs compared to warfarin?

A. Therapeutic monitoring is required
B. Quick onset of action
C. Reversal agents available
D. Cost

Oral Anticoagulants
- Warfarin
- TSOACs
  - Dabigatran (Pradaxa®)
  - Rivaroxaban (Xarelto®)
  - Apixaban (Eliquis®)
  - Edoxaban (Savaysa®)

FDA Approved Indications

<table>
<thead>
<tr>
<th></th>
<th>VTE treatment</th>
<th>Postop Thrombo-</th>
<th>Nonvalvular AF</th>
<th>Heart valve replacement</th>
<th>Post MI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warfarin</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Dabigatran</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rivaroxaban</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apixaban</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edoxaban</td>
<td>X</td>
<td></td>
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</tr>
</tbody>
</table>

Advantages
- Known efficacy
- Clinical experience
- Reversal agent available
- Low cost

Disadvantages
- Narrow therapeutic index
- Frequent monitoring
- Unpredictable pharmacokinetics & pharmacodynamics
- Drug and food interactions
- Slow onset and offset
- Increased bleeding risk

http://www.pbm.va.gov/PBM/clinicalguidance/drugclassreviews
http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm429523.htm

TSOACs

**Advantages**
- Quick onset of action
- Predictable pharmacokinetic profile
- Therapeutic monitoring not required
- Fewer drug and food interactions

**Disadvantages**
- Short half-life
- Patient compliance
- Lack reversal agents
- Costly
- Less clinical experience

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Dabigatran Prescribing Rationale

**For Prescribing**
- Reduced clinic visits
- Unstable INR without non-compliance
- Less drug/food interactions
- Patient request

**For Not Prescribing**
- Cost
- Well controlled on warfarin
- Limited experience
- Lack of reversal agent
- Limited clinical studies

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Limitations

- Small sample size
- Low response rate
- Rely on physician responses
- No data on prescribing patterns in practice
- No data on patient population
- Newest TSOACs not included

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Research Goals

- Contribute to the understanding of TSOACs utilization within the veteran population
  - TSOACs non-formulary agents
  - Require prior approval
- Identify educational needs
- Assist with local formulary management decisions
- Describe TSOAC adverse event rates outside of the landmark trials

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Objectives

- To evaluate the prescribing rationale for initiation or therapeutic substitution of TSOACs in veterans prescribed anticoagulation therapy.

- To compare the incidence of hemorrhagic and thrombotic adverse events in veterans prescribed TSOACs versus warfarin.
Endpoints

- **Primary:** Description of provider prescribing rationale for initiation or therapeutic substitution of TSOACs
- **Secondary:** Hemorrhagic and thrombotic events rates of TSOACs compared to warfarin

Methods

- **Design:**
  - Retrospective, observational chart review and pilot comparison
- **Setting:**
  - Oklahoma City VA Medical Center
    - 192-bed teaching hospital and tertiary care facility
    - Serves a veteran population of 225,000
    - Anticoagulation Management

Methods (cont.)

- **Study Period:**
  - January 1, 2011 to August 31, 2014
  - Adverse event data up to 6 months post-initiation of oral anticoagulation therapy
- **Study Population:**
  - Veteran patients ≥ 18 years of age who filled a new outpatient prescription for TSOACs
  - Veterans included in the Anticoagulation Management Program quality assurance reports

Data Collection

- **New outpatient TSOAC prescriptions identified through the veterans health information system database**
- **Electronic medical record**
  - Patient demographics and medical history
  - Laboratory values
  - Progress notes, non-formulary and criteria-restricted drug requests
  - Anticoagulation Management Program quality assurance reports

Statistical Analysis

- Formal power analysis not applicable
- Descriptive statistics
  - Patient demographics
  - Prescribing rationale
- Categorical variables: Chi-square test
- Continuous variables: Wilcoxon test

Current Status

- IRB: November 2014
- Research & Development: December 2014
- Primary endpoint data collection complete
- Adverse event data collection underway
- Data analysis underway
Preliminary Results

- Charts reviewed: 197
- Baseline Information:

<table>
<thead>
<tr>
<th>Indication</th>
<th>Patients (%)</th>
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</thead>
<tbody>
<tr>
<td>Atrial fibrillation</td>
<td>78</td>
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<tr>
<td>DVT</td>
<td>12</td>
</tr>
<tr>
<td>PE</td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
</tr>
<tr>
<td><strong>TSOAC</strong></td>
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<tr>
<td>Dabigatran</td>
<td>63</td>
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<tr>
<td>Rivaroxaban</td>
<td>32</td>
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<tr>
<td>Apixaban</td>
<td>3</td>
</tr>
</tbody>
</table>

Preliminary Results (cont.)

- Prescribing rationale for initiation of TSOACs over warfarin:

<table>
<thead>
<tr>
<th>Rationale</th>
<th>Patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labile INR</td>
<td>39</td>
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<tr>
<td>Monitoring issues</td>
<td>20</td>
</tr>
<tr>
<td>Drug-drug interactions</td>
<td>3</td>
</tr>
<tr>
<td>Drug-food interactions</td>
<td>2</td>
</tr>
<tr>
<td>Adverse reaction to warfarin</td>
<td>18</td>
</tr>
<tr>
<td>Patient request</td>
<td>11</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
</tr>
</tbody>
</table>

Conclusion

- TSOACs offer advantages and disadvantages over warfarin.
- Expect the use of TSOACs to continue to increase over time.
- Factors influencing provider selection of TSOACs include labile INR, monitoring issues, warfarin adverse effects, and others.

Assessment Question No. 2

Which of the following factors influence provider selection of TSOACs over warfarin?

A. Patient request  
B. Poor patient compliance  
C. History of a stable INR  
D. Reversal agent available
Assessment of Target Specific Oral Anticoagulant Prescribing Rationale and Adverse Event Pilot Comparison in Veterans Receiving Oral Anticoagulation Therapy

Primary Author: Angela Mechelay, Pharm.D.

Additional Authors: Rona Furrh, Pharm.D., BCPS
Jennifer Bird, Pharm.D., BCPS, CACP
Marcenia Knight, Pharm.D., BCPS
Chris Gentry, Pharm.D., BCPS

Objectives

1. Identify preferable characteristics of target specific oral anticoagulants (TSOACs) over warfarin

2. Discover the factors influencing provider selection of TSOACs

Recommended Reading


Self-Assessment Questions:

1. Which of the following is an advantage for the use of TSOACs compared to warfarin?
   a. Therapeutic monitoring is required
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   c. Reversal agents available
   d. Cost

2. Which of the following factors influence provider selection of TSOACs over warfarin?
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   b. Poor patient compliance
   c. History of stable INR
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References:
