The Evolving History of Anticoagulation: The DOAC Era?

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Objectives

• Discuss the evolution of anticoagulation therapy
• Compare and contrast the place in therapy for anticoagulants used in the outpatient setting
• Identify when parenteral anticoagulant bridge may be warranted in patients on warfarin with atrial fibrillation and/or venous thromboembolism
• Determine optimal oral anticoagulant based on patient-specific characteristics
• Recommend appropriate monitoring for direct oral anticoagulants

Evolution of Anticoagulation

VKA = Vitamin K Antagonist
LMWH = Low Molecular Weight Heparin
DTI = Direct Thrombin Inhibitor
DOAC = Direct Oral AntiCoagulant
### FDA Approved Oral Anticoagulants

<table>
<thead>
<tr>
<th>Present USE in US</th>
<th>VTE Treatment</th>
<th>VTE Secondary Prevention</th>
<th>VTE Prevention after laparotomy</th>
<th>VTE Prevention in medically ill patients</th>
<th>After Cardiac Valve Replacement</th>
<th>In CAD and PAD (with ASA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warfarin (Coumadin®, Jantoven®)</td>
<td>✓✓✓✓✓</td>
<td>✓✓✓✓</td>
<td>✓✓✓✓✓</td>
<td>✓✓✓✓✓</td>
<td>✓✓✓✓✓</td>
<td>✓✓✓✓✓</td>
</tr>
<tr>
<td>Dabigatran (Pradaxa®)</td>
<td>✓✓✓</td>
<td>✓✓</td>
<td>✓✓✓</td>
<td>✓✓✓</td>
<td>✓✓✓</td>
<td>✓✓</td>
</tr>
<tr>
<td>Rivaroxaban (Xarelto®)</td>
<td>✓✓✓</td>
<td>✓✓</td>
<td>✓✓✓</td>
<td>✓✓✓</td>
<td>✓✓✓</td>
<td>✓✓</td>
</tr>
<tr>
<td>Apixaban (Eliquis®)</td>
<td>✓✓✓</td>
<td>✓✓</td>
<td>✓✓</td>
<td>✓✓</td>
<td>✓✓</td>
<td>✓</td>
</tr>
<tr>
<td>Edoxaban (SavaysaTM)</td>
<td>✓✓✓</td>
<td>✓✓</td>
<td>✓✓</td>
<td>✓✓</td>
<td>✓✓</td>
<td></td>
</tr>
<tr>
<td>Betrixaban (BevyxxaTM)</td>
<td>✓✓</td>
<td>✓✓</td>
<td>✓✓</td>
<td>✓✓</td>
<td>✓✓</td>
<td></td>
</tr>
</tbody>
</table>

SSE = Stroke and Systemic Embolism, NVAF = Non-Valvular Atrial Fibrillation

### Oral Anticoagulants Comparison

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Warfarin</th>
<th>Dabigatran</th>
<th>Rivaroxaban</th>
<th>Apixaban</th>
<th>Edoxaban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half life</td>
<td>40 h</td>
<td>12-14 h</td>
<td>7-13 h</td>
<td>8-13 h</td>
<td>10-14 h</td>
</tr>
<tr>
<td>Peak effect</td>
<td>4-5 days</td>
<td>1.5-3 h</td>
<td>2-4 h</td>
<td>1.3 h</td>
<td>1-2 h</td>
</tr>
<tr>
<td>Renal elimination</td>
<td>None</td>
<td>80%</td>
<td>33%</td>
<td>25%</td>
<td>35-50%</td>
</tr>
<tr>
<td>VTE Initial Phase: Oral Only?</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>VTE Secondary Phase: Dosing</td>
<td>Once daily</td>
<td>BID</td>
<td>BID x21 days then Once daily</td>
<td>BID (reduced dose after 7 days)</td>
<td>Once daily</td>
</tr>
<tr>
<td>Antidote</td>
<td>Vitamin K</td>
<td>Idarucizumab</td>
<td>Andexanet alfa</td>
<td>Andexanet alfa</td>
<td>Andexanet alfa</td>
</tr>
</tbody>
</table>

### DOACs vs Warfarin for VTE

- Symptomatic VTE or VTE-related Death: Equal
- Major Bleeding: Equal
- Major and Clinically Relevant Non-Major Bleeding: Equal
- *Did not include VTE-related death*

- GI bleeding event rates were too low to draw definite conclusions (consider extrapolation from AF trials)
- Low rates of intracranial hemorrhage with DOACs compared to warfarin

### VTE Treatment Guidelines

- In patients with DVT of the leg or PE and no cancer, as long-term anticoagulant therapy, we suggest DOAC over VKA therapy (grade 2B)
- For long-term anticoagulation, LMWH, edoxaban, or rivaroxaban for at least 6 months are preferred over VKA

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*DOACs vs Warfarin for VTE, VTE Treatment Guidelines*
AF Stroke Prevention Guidelines
For patients with AF and an elevated CHA2DS2-VASc score of ≥ 2 in men or ≥ 3 in women, oral anticoagulants are recommended

2018 CHEST
DOACs over VKA

2019 AHA/ACC/HRS
DOACs are recommended over VKA in DOAC-eligible patients with AF (except with moderate-to-severe mitral stenosis or a mechanical heart valve)

2020 ESC

The Future of Anticoagulation?

Adverse Drug Reactions (ADRs)

WHO Database
- 39,972 reports in patients with NVAF
- 51% dabigatran, 28% warfarin, 19% rivaroxaban, 2% apixaban
- 204 ADRs with a reporting odds ratio > 1

FAERS Database
- 42,964 cases
- Rivaroxaban with highest rate per prescription for each ADR
- Dabigatran had the highest reported rates of ischemic stroke
- Warfarin with lowest rate per prescription for each ADR

Limitations of DOAC Use

- Mechanical heart valves
- Antiphospholipid syndrome
- Pregnancy and breastfeeding
- Moderate or severe hepatic impairment (Child-Pugh B or C)
- CYP3A4 and P-gp strong inducers/inhibitors
  - Examples of P-gp inducers: carbamazepine, rifampin, St. John’s Wort
  - Examples of P-gp inhibitors: amiodarone, azithromycin, ketoconazole, ritonavir, verapamil
**Choice of Anticoagulant: Example Approach**

<table>
<thead>
<tr>
<th>FDA-approved Indication for DOAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
</tr>
</tbody>
</table>

**DOAC candidate**

Select DOAC based on patient characteristics and preferences

- Does patient meet ≥1 of the following?
  - Able to obtain DOAC longitudinally
  - Likely to be compliant to medication
  - Not pregnant or breastfeeding
  - No clinically significant drug interactions
  - No altered GI absorption
  - Adequate renal/hepatic function
  - No extremes of weight?

**Choice of Anticoagulant: Example Approach**

**Parenteral Anticoagulant Bridging for Warfarin**

Intermediate Thromboembolic Risk

- Consider based on individual risks/patient preferences

- Warfarin or LMWH

**High Thromboembolic Risk**

- Bridging Advised

**DOACs in Renal Impairment**

- Dabigatran
  - CrCl <30: 150 mg BID
  - 30-15: 75 mg BID (Avoid in VTS)
  - <15: Avoid

- Rivaroxaban
  - ≥15: 15 mg daily (VTS for <15)
  - cVD: 10 mg BID x7 days (负荷)

- Apixaban
  - ≥15: 5 mg BID (VTS); 10 mg BID x7 days (负荷)
  - 30 mg daily

- Edoxaban
  - ≥15: 30 mg daily
  - HD: Avoid

**Apixaban in Hemodialysis**

- Mavrakanas et al, 2017
  - Prospective randomized controlled trial (stopped early)
  - n=154 with AF on HD
  - Apixaban 5 mg BID had similar rates of bleeding and stroke as warfarin (PTT >44%) among patients with ESRD on HD

- Siontis et al, 2018
  - Retrospective cohort study
  - n=3552 with AF on HD or FD
  - Apixaban 5 mg BID was associated with lower TE and major bleeding compared to warfarin

- RENAL-AF, 2019
  - Prospective randomized controlled trial (stopped early)
  - n=3552 with AF on HD
  - Apixaban 5 mg BID had similar rates of bleeding and stroke as warfarin (PTT >44%) among patients with ESRD on HD
DOACs in Obesity

2016 ISTH SSC

We suggest that DOACs should not be used in patients with a BMI > 40 kg/m² or a weight > 120 kg

<table>
<thead>
<tr>
<th>DOAC</th>
<th>Trial</th>
<th>Indication</th>
<th>Weight or BMI Cut-off</th>
<th>Proportion of Obese Patients (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dabigatran</td>
<td>RE-COVER II</td>
<td>VTE</td>
<td>≥ 35 kg/m²</td>
<td>12.1</td>
</tr>
<tr>
<td></td>
<td>RE-LY</td>
<td>AF</td>
<td>≥ 100 kg</td>
<td>17.1</td>
</tr>
<tr>
<td>Rivaroxaban</td>
<td>EINSTEIN DVT/PE</td>
<td>VTE</td>
<td>&gt; 100 kg</td>
<td>14.5</td>
</tr>
<tr>
<td></td>
<td>ROCKET-AF</td>
<td>AF</td>
<td>&gt; 35 kg/m²</td>
<td>28.5, 31.6</td>
</tr>
<tr>
<td>Apixaban</td>
<td>AMPUFY</td>
<td>VTE</td>
<td>≥ 35 kg/m²</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>ARISTOTLE</td>
<td>AF</td>
<td>&gt; 30 kg/m²</td>
<td>40</td>
</tr>
<tr>
<td>Edoxaban</td>
<td>Hokusai/VTE</td>
<td>VTE</td>
<td>&gt; 100 kg</td>
<td>14.8</td>
</tr>
<tr>
<td></td>
<td>ENGAGE AF-TIMI-48</td>
<td>AF</td>
<td>None</td>
<td>NR</td>
</tr>
</tbody>
</table>

NR = Not Reported

DOAC Trial Indication Weight or BMI Cutoff

<table>
<thead>
<tr>
<th>DOAC</th>
<th>Study, Year</th>
<th>N</th>
<th>Indication</th>
<th>Weight, kg</th>
<th>BMI, kg/m²</th>
<th>Anticoagulant Efficacy</th>
<th>Anticoagulant Safety Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>AF</td>
<td>&gt; 120</td>
<td>&gt; 40</td>
<td>Warfarin</td>
<td></td>
</tr>
<tr>
<td>Dabigatran</td>
<td>Kido et al., 2019</td>
<td>128</td>
<td>AF</td>
<td>&gt; 120</td>
<td>&gt; 40</td>
<td>DOAC (D, R, A)</td>
<td>1.75%/y</td>
</tr>
<tr>
<td></td>
<td>Kushnir et al., 2019</td>
<td>429</td>
<td>AF</td>
<td>&gt; 120</td>
<td>&gt; 40</td>
<td>DOAC (R, A)</td>
<td>1.8%</td>
</tr>
<tr>
<td>Rivaroxaban</td>
<td>Kushnir et al., 2019</td>
<td>366</td>
<td>VTE</td>
<td>&gt; 120</td>
<td>&gt; 40</td>
<td>DOAC (R, A)</td>
<td>1.2%</td>
</tr>
<tr>
<td>Apixaban</td>
<td>Kalani et al., 2019</td>
<td>180</td>
<td>VTE  and AF</td>
<td>&gt; 120</td>
<td>&gt; 30 kg/m²</td>
<td>Warfarin</td>
<td>1.3%</td>
</tr>
<tr>
<td>Edoxaban</td>
<td>Coons et al., 2020</td>
<td>1840</td>
<td>VTE</td>
<td>&gt; 100</td>
<td>&gt; 40</td>
<td>Warfarin</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

DOAC Drug Selection

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Dabigatran</th>
<th>Rivaroxaban</th>
<th>Apixaban</th>
<th>Edoxaban</th>
</tr>
</thead>
<tbody>
<tr>
<td>All-oral therapy</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dyspepsia or GI issues</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>GI bleed</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>[low dose]</td>
</tr>
<tr>
<td>Significant CAD</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Poor compliance with BID dosing</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CrCl &lt; 30 mL/min</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DOAC Monitoring

<table>
<thead>
<tr>
<th>Resource</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>European Heart Rhythm Association Non-valvular Atrial Fibrillation Guidelines (2015)</td>
<td>“Patients should return on a regular basis for ongoing review...preferably after 1 month initially and later every 3 months”</td>
</tr>
<tr>
<td>ACC/AHA/HRS Atrial Fibrillation Guidelines (2019)</td>
<td>“Renal function and hepatic function should be evaluated before initiation of a DOAC and should be re-evaluated at least annually”</td>
</tr>
<tr>
<td>ASH VTE Guidelines (2018)</td>
<td><em>For patients with a CrCl ≥ 50 ml/min receiving DOAC therapy, renal function should be monitored every 6-12 months</em></td>
</tr>
<tr>
<td>Joint Commission’s National Patient Safety Goal 03.05.01</td>
<td>Reduce the likelihood of patient harm associated with the use of anticoagulant therapy</td>
</tr>
</tbody>
</table>
Anticoagulation and Antiplatelet Update

Danielle Blais, PharmD, BCPS
Specialty Practice Pharmacist
Department of Pharmacy
The Ohio State University Wexner Medical Center

Objectives

- Describe the role of aspirin and oral P2Y12 inhibitors for patients with stable ischemic heart disease (SIHD) or acute coronary syndromes (ACS) with or without percutaneous coronary intervention (PCI)
- Evaluate the advantages and disadvantages of the different P2Y12 inhibitors

Summary: DOAC Double-Check!

- Double-check the indication
- Drug-Drug Interactions
- Organ Function
- Adjustments
- Counsel!
Epidemiology

- Chest discomfort most frequent reason for ED visits
- Coronary heart disease kills about 360,000 per year
- Each year ~ 112,000 people die of a myocardial infarction
- Estimated annual incidence is 605,000 for new heart attacks and 200,000 recurrent heart attacks. Of these ~ 170,000 silent attacks.
- Myocardial infarction ($12.1 billion) and coronary heart disease ($9 billion) are 2 of the 10 most expensive conditions treated in US hospitals in 2013
- About every 40 seconds an American will suffer a heart attack

Case # 1

62 YO F admitted to the Emergency Department (ED)
- Abdominal pain and nausea. A couple of days before she took a test capsule for GI study.
- Sudden urge to have a bowel movement.
- In bathroom had sudden onset of severe chest pain
  - EKG showed ST-elevation

PMH:
- CAD – LAD stent (unknown type) 2016
- Hyperlipidemia
- Chronic diarrhea

PSH:
- Cholecystectomy 1992

Case # 2

57 YO M
- Admitted for an elective urology procedure

PMH
- CAD with a history of 3 cardiac stents (unknown type) in 2017
- Peyronie’s and Erectile Dysfunction

PSH
- Colonoscopy

Post Procedure
- Chest Pain and diaphoresis
- EKG showed ST-elevation

Emergent cath - 100% thrombotic occlusion of prox and mid RCA at site of previous stents
S/P Thrombectomy and PCI with bare metal stent placement x 3

Patient instructed to discontinue aspirin for 10 days prior to procedure

Case # 1

- Patient instructed to stop both clopidogrel (Plavix) and aspirin 9 days prior to GI workup

- STEMI alert
  - Acute thrombosis of previous LAD stent

- Left heart catheterization with successful thrombectomy and balloon angioplasty
Stent Evolution: Restenosis vs Stent Thrombosis

First Generation DES
Restenosis 5 – 15%

Second Generation DES
Restenosis < 5%

Risk of Mortality
Stent Thrombosis versus Bleeding

Mortality associated with stent thrombosis

<table>
<thead>
<tr>
<th>Drug Eluting Stents</th>
<th>Bare Metal Stents</th>
</tr>
</thead>
<tbody>
<tr>
<td>17 - 45%</td>
<td>9 - 21%</td>
</tr>
</tbody>
</table>

Mortality associated with bleeding after PCI at 12-24 months

7.3 - 13%
Essentials of Thrombosis

Sites of Antithrombotic Action

P2Y₁₂ Inhibitor Comparison

Mechanism of Action of P2Y₁₂ Inhibitors
Dual Antiplatelet Therapy (DAPT) Recommendations

**Bare metal stent for Acute Coronary Syndromes**
- Aspirin 81 mg by mouth daily uninterrupted lifelong
- Plus Clopidogrel 75 mg daily or prasugrel 10 mg daily or ticagrelor 90 mg twice daily for a minimum of 1 month (Class II)
- Ideally at least 12 months (Class I)

**Drug eluting stent for Acute Coronary Syndromes**
- Aspirin 81 mg by mouth daily uninterrupted lifelong
- Plus Clopidogrel 75 mg daily or prasugrel 10 mg daily or ticagrelor 90 mg twice daily for a minimum of 6 months (Class II)
- Ideally at least 12 months (Class I)

**Bare metal stent for Stable Ischemic Heart Disease**
- Aspirin 81 mg by mouth daily uninterrupted lifelong
- Plus Clopidogrel 75 mg daily for a minimum of 1 month (Class I)
- Consider up to 12 months (Class II)

**Drug-eluting stent for Stable Ischemic Heart Disease**
- Aspirin 81 mg by mouth daily uninterrupted lifelong
- Plus Clopidogrel 75 mg daily for a minimum of 3-6 months (Class I)
- Consider up to 12 months (Class II)

**Medical management of Acute Coronary Syndromes**
- Aspirin 81 mg by mouth daily uninterrupted lifelong
- Plus Clopidogrel 75 mg daily or Ticagrelor 90 mg twice daily for ideally at least 12 months (Class I)

*Find the Balance*

**Increased Ischemic Risk/Risk of Stent Thrombosis** (May Favor Longer-Duration DAPT)
- Advanced age
- Diabetes mellitus
- Chronic kidney disease
- Prior myocardial infarction
- Prior stent thrombosis
- Heart failure
- Current smoker

**Increased Bleeding Risk** (May Favor Shorter-Duration DAPT)
- Advanced age
- Diabetes mellitus
- History of prior bleeding
- Oral anticoagulant therapy
- Female sex
- Low body weight
- Chronic kidney disease
- Liver disease
- Anemia
- Chronic steroid or NSAID therapy

**Tools to find the balance**

**PRECISE-DAPT Score**

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Decision making</th>
<th>Points</th>
<th>DAPT Duration</th>
<th>Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 10</td>
<td>Low risk</td>
<td>0</td>
<td>Short DAPT (3-6 months)</td>
<td>Standard DAPT (12 months)</td>
</tr>
<tr>
<td>11 to 20</td>
<td>Moderate risk</td>
<td>1</td>
<td>Short DAPT (3-6 months)</td>
<td>Standard DAPT (12 months)</td>
</tr>
<tr>
<td>21 to 30</td>
<td>High risk</td>
<td>2</td>
<td>Short DAPT (3-6 months)</td>
<td>Standard DAPT (12 months)</td>
</tr>
</tbody>
</table>

**Score calculator**

**Benefits of DAPT in Acute Coronary Syndromes**

<table>
<thead>
<tr>
<th>Study</th>
<th>Indication</th>
<th>Duration (months)</th>
<th>Antiplatelet Therapy</th>
<th>Incidence of Primary Composite Endpoint* (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURE</td>
<td>ACS</td>
<td>12</td>
<td>Aspirin</td>
<td>11.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aspirin + Clopidogrel</td>
<td>9.3</td>
</tr>
<tr>
<td>Triton-TIMI 38</td>
<td>ACS/PCI</td>
<td>15</td>
<td>Aspirin + Clopidogrel</td>
<td>12.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aspirin + Prasugrel</td>
<td>9.9</td>
</tr>
<tr>
<td>PLATO</td>
<td>ACS</td>
<td>12</td>
<td>Aspirin + Clopidogrel</td>
<td>11.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aspirin + Ticagrel</td>
<td>9.8</td>
</tr>
</tbody>
</table>

*Primary Composite Endpoint – Death from Cardiovascular (CV) Causes, Non-fatal myocardial infarction (MI) or Non-fatal stroke.
Risks of DAPT in Acute Coronary Syndromes

<table>
<thead>
<tr>
<th>Study</th>
<th>Indication</th>
<th>Duration</th>
<th>Antiplatelet Therapy</th>
<th>Incidence of Major Bleeding (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURE ACS 12</td>
<td></td>
<td></td>
<td>Aspirin vs Aspirin + Clopidogrel</td>
<td>2.7 vs 3.7 p=0.001</td>
</tr>
<tr>
<td>Triton-TIMI 38</td>
<td>ACS/PCI 15</td>
<td></td>
<td>Aspirin + Clopidogrel vs Aspirin + Prasugrel</td>
<td>1.8 vs 2.4 p=0.03</td>
</tr>
<tr>
<td>PLATO ACS 12</td>
<td></td>
<td></td>
<td>Aspirin + Clopidogrel vs Aspirin + Ticagrelor</td>
<td>2.2 vs 2.8 p=0.03</td>
</tr>
</tbody>
</table>

These rates are under the umbrella of a clinical trial NOT real world
Patients who require oral anticoagulation are excluded

P2Y12 Recommendations in Acute Coronary Syndromes

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>COR</th>
<th>LOE</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is reasonable to choose ticagrelor over clopidogrel in ACS patients treated with an early invasive strategy and/or PCI.</td>
<td>Ila</td>
<td>B-R</td>
</tr>
<tr>
<td>It is reasonable to choose prasugrel over clopidogrel in ACS patients who undergo PCI who are not at high risk for bleeding complications.</td>
<td>Ila</td>
<td>B-R</td>
</tr>
<tr>
<td>In ACS patients managed with medical therapy alone (without revascularization or fibrinolytic therapy) treated with DAPT, it is reasonable to use ticagrelor in preference to clopidogrel.</td>
<td>Ila</td>
<td>B-R</td>
</tr>
<tr>
<td>Prasugrel should not be administered to patients with a prior history of stroke or TIA.</td>
<td>Ill: Harm</td>
<td>B-R</td>
</tr>
</tbody>
</table>

Factors Preventing Continuation of Ticagrelor

- Side Effects
- Drug Interactions
- Indication for Oral Anticoagulation
- Patient Adherence
- Cost

Drug Interactions with Ticagrelor

- Ticagrelor is metabolized by CYP 3A
- Weak CYP 3A inhibitor

- Strong CYP 3A inhibitors
- CYP 3A inducers
- CYP 3A substrates

- Antiretrovirals
- Carbamazepine
- Cyclosporine
- Clarithromycin
- Rifampin
- Tacrolimus
- Ketoconazole
- Phenytoin
- Amiodipine
- Itraconazole
- Dexamethasone
- Dilazep, Verapamil
- Voriconazole
- Phenobarbital
- Ator, simv, lovastatin

Simvastatin and lovastatin doses limited to no more than 40 mg

- Ticagrelor and active metabolite are P-glycoprotein (PgP) substrates and weak inhibitors PgP
  - Monitor digoxin levels
  - Dabigatran
Conclusions

- Understanding the current recommendations for DAPT is critically important
- Early discontinuation of DAPT is problematic
- Patients should remain on at least one antiplatelet medication following stent placement
- Patient education is key
  - Pharmacists can be instrumental in providing this education
- Work together with the patients cardiologist to ensure safe transitions of care