Updates in Acute Coronary Syndromes

Krishan Soni, MD, MBA, FACC
Assistant Professor of Medicine
Division of Cardiology

Disclosures
No Conflicts of Interest

Krishan.soni@ucsf.edu

TOPICS
- Dual Antiplatelet Therapy (DAPT)
  - Choice and Dosing
  - Duration
  - Triple Therapy
  - Cessation for Surgery
  - Management in the Bleeding Patient
- ACS Performance Metrics in 2017

Updates in Acute Coronary Syndromes

- Major Society Guideline updates 2016-2017
- Clinical Trials Published 2016-2017
- Regulatory News and Events
Strength of Guideline Recommendations

**Acronyms**

- **ACS**: Acute Coronary Syndrome
- **BMS**: Bare Metal Stent
- **CAD**: Coronary Artery Disease
- **CABG**: Coronary Artery Bypass Graft Surgery
- **DAPT**: Dual Antiplatelet Therapy
- **DES**: Drug Eluting Stent
- **PCI**: Percutaneous Coronary Intervention
- **PPI**: Proton Pump Inhibitor
- **SIHD**: Stable Ischemic Heart Disease
- **TAVR**: Transcatheter Aortic Valve Replacement

**TOPICS**

- Dual Antiplatelet Therapy (DAPT)
  - Choice and Dosing
  - Duration
  - Triple Therapy
  - Cessation for Surgery
  - Management in the Bleeding Patient
- ACS Performance Metrics in 2017

2016 ACC/AHA Guideline
Focused Update on Duration of Dual Antiplatelet Therapy in Patients With Coronary Artery Disease

2017 ESC focused update on dual antiplatelet therapy in coronary artery disease developed in collaboration with EACTS
A 65 yo male with DM, HTN, HL presents with acute onset substernal chest pain for three hours. Troponin is 1. EKG demonstrates sinus rhythm with lateral T wave inversions. He is now chest pain free and awaiting invasive angiography in the AM. Which antiplatelet regimen do you start?

A. Aspirin 81 daily alone
B. Aspirin 81 daily + Clopidogrel 75 daily
C. Aspirin 81 daily + Ticagrelor 90 mg BID
D. Aspirin 81 mg daily + Prasugrel 10 mg daily
E. Call your friendly cardiology consultant

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Antiplatelet Agents

<table>
<thead>
<tr>
<th>Indication</th>
<th>Aspirin</th>
<th>Clopidogrel (Plavix)</th>
<th>Prasugrel (Effient)</th>
<th>Ticagrelor (Brilinta)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACS Post PCI</td>
<td>ACS Post PCI</td>
<td>ACS Post PCI</td>
<td>Post PCI</td>
<td></td>
</tr>
<tr>
<td>Strokes DAILY</td>
<td>81 mg</td>
<td>75 mg DAILY</td>
<td>60 mg DAILY</td>
<td>180 mg 90 mg BID</td>
</tr>
</tbody>
</table>

Class

- NSAID
- 2nd gen thienopyridine (PRODRUG)
- 2nd gen thienopyridine (PRODRUG)
- CTPT

Mechanism

- IRREVERSIBLE COX 2
- IRREVERSIBLE P2Y12
- IRREVERSIBLE P2Y12
- REVERSIBLE P2Y12

Peak Effect

- 1-3 hours
- 6 hours
- 4 hours
- 2 hours

CYP Metab

- NA
- 2C19
- 3A4
- 3A4/5

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Aspirin Dosing in Patients with Coronary Artery Disease (CAD)

- Higher doses of aspirin are associated with bleeding and no increased anti-ischemic benefit
- When used with ticagrelor (Brilinta), aspirin doses of >100 mg are contraindicated

Aspirin Dosing in Patients Treated With DAPT

CYP LOE Recommendation

- in patients treated with DAPT, a daily aspirin dose of 81 mg (range, 75 mg to 100 mg) is recommended.

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Which P2Y12 Agent should I Recommend?

For Medically Managed ACS

- Recommended over

For ACS with PCI

- Recommended over

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Other Pearls Regarding P2Y12 Inhibitors

- **Ticagrelor**
  - may cause dyspnea and bradycardia

- **Prasugrel**
  - may be less effective in patients < 60 kg and > 75 years of age
  - should not be given until after invasive angiography (Class III)
  - do not give to patients with a history of TIA or stroke (Class III)

During angiography, the patient is found to have an 80% mid LAD lesion which is treated with a stent. How long should he remain on DAPT after stent placement for NSTEMI?

A. 3 months
B. 6 months
C. 12 months
D. More information needed
E. As long as possible
**Duration of Dual Antiplatelet Therapy (DAPT) in Patients with SIHD**

**Stable Ischemic Heart Disease (SIHD)**

- **PCI with Bare Metal Stent (BMS): 1 MONTH**
- **PCI with Drug Eluting Stent (DES): 6 MONTHS**

**Stopping early at 3 months**

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**When should DAPT therapy be continued for LONGER Duration?**

**Risk of Ischemia**

- Increased risk of stent thrombosis
- ACS presentation
- Advanced age
- Diabetes mellitus
- Left ventricular ejection fraction < 40%
- Prior MI
- Prior PCI

**Risk of Bleeding**

- Increased bleeding risk (may favor shorter-duration DAPT)
  - History of prior bleeding
  - Oral anticoagulant therapy
  - Female sex
  - Older age
  - Body weight
  - CAD
  - Diabetes mellitus
  - Anemia
  - Chronic renal or NOAC therapy

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**The DAPT Score can guide risk / benefit of longer therapy**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥ 75 y</td>
<td>-2</td>
</tr>
<tr>
<td>Age 65 to 75 y</td>
<td>-1</td>
</tr>
<tr>
<td>Age &lt; 65 y</td>
<td>0</td>
</tr>
<tr>
<td>Current cigarette smoker</td>
<td>1</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>1</td>
</tr>
<tr>
<td>MI at presentation</td>
<td>1</td>
</tr>
<tr>
<td>Prior PCI or prior MI</td>
<td>1</td>
</tr>
<tr>
<td>Stent diameter ≥ 3 mm</td>
<td>1</td>
</tr>
<tr>
<td>Paclitaxel-eluting stent</td>
<td>1</td>
</tr>
<tr>
<td>CHF or LVEF &lt; 30%</td>
<td>2</td>
</tr>
<tr>
<td>Saphenous vein graft PCI</td>
<td>2</td>
</tr>
</tbody>
</table>

**Score ≥ 2**
Favorable benefit/risk
For prolonged DAPT

**Score < 2 NOT**
Favorable benefit/risk
For prolonged DAPT

Our patient has a score of 1.
12 months of DAPT should be adequate

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**You are writing the discharge medication list and receive a page from Pharmacy**

"Ticagrelor is not covered by this patient’s insurance and he wont be able to receive the medication at home unless he pays out of pocket”

**What do you do?**
The patient returns to the Emergency Room 7 days later with shortness of breath. An EKG reveals that he is now in Atrial Fibrillation. Troponin is normal. CHADS2Vasc score is 4.

What regimen to you place him on?

A. Aspirin + Ticagrelor (No change)
B. Aspirin + Ticagrelor + Coumadin
C. Aspirin + Clopidogrel + Coumadin
D. Clopidogrel + Coumadin
E. Clopidogrel + Rivaroxaban
F. That’s a hard choice!

What’s the update on triple therapy?

**American Guidelines**

**TABLE 6**

<table>
<thead>
<tr>
<th>Recommendation</th>
</tr>
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<tbody>
<tr>
<td>Use Coumadin (keep INR at low end of range)</td>
</tr>
<tr>
<td>Use Clopidogrel (NOT Prasugrel/Ticagrelor)</td>
</tr>
<tr>
<td>Use low dose aspirin</td>
</tr>
<tr>
<td>Consider PPI</td>
</tr>
</tbody>
</table>

- For patients who require triple therapy:
  - Use Coumadin (keep INR at low end of range)
  - Use Clopidogrel (NOT Prasugrel/Ticagrelor)
  - Use low dose aspirin
  - Consider PPI
What’s the update on triple therapy? European Guidelines

- Major differences
  - NOACs can be used (IIa indication)
  - Consider lower dose rivaroxaban (15 mg daily)

Timeline for Triple Therapy

72 yo man underwent PCI with a drug eluting stent to the LAD 2 months ago. He now has severe knee osteoarthritis and is asking you when he can have surgery. How long after his stent should he wait?

A. 1 month
B. 3 months
C. 6 months
D. 12 months
E. He should be managed medically indefinitely

Perioperative Management and Timing of Non Cardiac Surgery
Perioperative Management and Timing of Non Cardiac Surgery

**During perioperative period:**
- Continue aspirin if possible
- Restart P2Y12 as soon as possible

What to do when the patient bleeds on DAPT?

**TRIVIAL BLEEDING**
- Any bleeding not requiring medical intervention or further evaluation
  - e.g., nose bleeding; epistaxis, minor cutaneous bleeding

**MILD BLEEDING**
- Any bleeding that requires medical evaluation and not requiring hospitalization
  - e.g., nasal bleeding; gum oozing; superficial skin lacerations

**MODERATE BLEEDING**
- Any bleeding associated with significant drop in Hgb, Hct, or with significant clinical consequence
  - e.g., gastro Intestinal bleeding

**SEVERE BLEEDING**
- Any bleeding concerning with serious bleeding with Pt's physiological status, i.e., hypovolemic shock

**LIFE-THREATENING BLEEDING**
- Any bleeding concerning with serious bleeding with Pt's physiological status, i.e., hypovolemic or hemorrhagic shock
**Key Points Regarding DAPT (1/3)**

- **Dose of Aspirin for all patients is 81 mg daily**
- **Duration of DAPT:**
  - ACS Patients: **1 YEAR for ALL** (with/without stent)
  - SIHD (Stable Ischemic Heart Disease) Patients:
    - Drug Eluting Stent (DES): **6 MONTHS**
    - Bare Metal Stent (BMS): **1 MONTH**
- **Stopping Early:**
  - DAPT could be stopped **3 months** after DES (drug eluting stent) for high bleeding risk patients
- **Longer Therapy:**
  - Risk benefit between bleeding and ischemia
  - DAPT score can be helpful

**Key Points Regarding DAPT (2/3)**

- **Choice of Agents:**
  - Medical Management of ACS: **Ticagrelor > Plavix**
  - PCI in ACS: **Ticagrelor or Prasugrel > Plavix**
  - **Do NOT USE Prasugrel** if history of stroke or TIA
- **Triple Therapy:**
  - Short Duration
  - Use clopidogrel/coumadin
  - Target INR 2-2.5
  - Use PPI (Proton Pump Inhibitor)

**Key Points Regarding DAPT (3/3)**

- **Timing of Non-Cardiac Surgery:**
  - Ideally > 1 month after BMS, 6 months after DES
  - Continue Aspirin if possible
  - **Hold:**
    - Ticagrelor **3 days** prior to surgery
    - Clopidogrel **5 days** prior to surgery
    - Prasugrel **7 days** prior to surgery
- **Stopping for Bleeding**
  - Consider severity of bleeding
  - Continue DAPT, SAPT when possible if indicated

**Updates in Acute Coronary Syndromes**

**TOPICS**

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- **ACS Performance Metrics in 2017**
**2017 ACS Performance Measures (TOP 10)**

**Arrival**
- Aspirin
- Troponin within 6 hours

**Hospitalization**
- Evaluation of LVEF
- ACEi or ARB
- Non invasive stress test (if no cath)

**Discharge**
- Aspirin
- P2Y12 Inhibitor
- Beta Blocker
- Statin (high intensity)
- Cardiac Rehab

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**What Have We Learned?**

**Dual Antiplatelet Therapy**
- Choice of Antiplatelet Agents
- Duration of DAPT after ACS and PCI
- An Approach to Anticoagulation and DAPT
- Timing of Non Cardiac Surgery after PCI
- Management of DAPT for patients with bleeding

**Performance Measures for ACS in 2017**
- Medications on discharge (Aspirin, P2Y12, Beta Blocker, ACEI)
- Assessment of LV function
- Referral to Cardiac Rehab

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**2017 ACS Quality Measures**

- Metrics that may be useful for local quality improvement but are not yet appropriate for public reporting or pay for performance programs.
- New measures are initially evaluated for potential inclusion as performance measures.

**Quality Measures**

- Avoid Using NSAIDS for pain control!
- Don't prescribe prasugrel for patients with a history of Stroke/TIA
- Use Aspirin 81 mg daily with Ticagrelor
Thank You!

Questions / Final syllabus:

Email Krishan Soni @
Krishan.soni@ucsf.edu
415-476-6541

References


■ Marco Valgimigli (Chairperson) (Switzerland), Hector Bueno (Spain), Robert A. Byrne (Germany), Jean-Philippe Collet (France), Francesca Costa (Nic), Andrea Agnelli (Sweden), Pelle Juul (Canada), Adrian Kereiakes (Germany), Marco Botta (Angola), Laura Melzi MA, Ole Henrichsen (France), Franco Joffe Boersma (Germany), and Pietro Natali (Canada). 2017 ESC focused update on dual antiplatelet therapy in coronary artery disease developed in collaboration with EACTS. European Heart Journal (2017) 0, 1–48. doi:10.1093/eurheartj/ehx419.