Managing Acute Coronary Syndrome

in Primary Care

Faculty

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Critical Teaching Points

- ACS includes 3 clinical conditions,: unstable angina (UA), non-ST-segment-elevation myocardial infarction (NSTEMI), and ST-segment-elevation myocardial infarction (STEMI)
- These conditions vary in associated risk but have a common underlying pathophysiology involving thrombus formation and growth occurring on a disrupted atherosclerotic plaque
    - Antiplatelet therapy has a central role both in the acute phase and in long-term care
- Dual antiplatelet therapy (aspirin plus clopidogrel or prasugrel) is standard of care for patients who have undergone percutaneous coronary intervention (PCI) with stenting
    - Careful patient selection is important in balancing reduction in ischemic events vs bleeding
    - Clinicians treating patients at increased risk for ischemic events (such as poor responders to clopidogrel and/or patients with diabetes) should consider an intensive antiplatelet regimen (increasing the clopidogrel dose or selecting prasugrel, a more potent agent)
    - Clinicians treating patients at increased risk for bleeding should consider a less intensive antiplatelet regimen. Risk factors for bleeding include:
        - Weight <60 kg
        - Age ≥75 years of age
        - Prior stroke or transient ischemic attack
- Careful monitoring of patient adherence with an antiplatelet regimen is essential to prevent recurrent ischemic events
    - The primary care physician and cardiologist should coordinate care through regular communication

Essential Elements of Case Study

Variability in patient response to clopidogrel is well documented. One of the causes linked to this phenomenon is a genetic variation associated with reduced activity of the cytochrome P450 enzyme CYP2C19, which is the principal enzyme involved in conversion of clopidogrel to its active metabolite. The FDA has issued a warning that ACS patients with this genetic variation who are taking recommended doses of clopidogrel following PCI are at increased risk for cardiac events when compared with individuals who have normal CYP2C19 function. Tests are available that can help clinicians identify individuals who have this genetic variant and who are likely to demonstrate a poor antiplatelet response to clopidogrel. The following case study concerns a patient who sustained a STEMI, had a stent implanted, and was discharged on dual antiplatelet therapy.

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Presenting Symptoms

- 4 months following his first MI, he presents to the ER complaining of chest pain and tightness
- ECG confirms an anterior wall MI with ST segment elevations in leads V2-V4
- Myocardial markers for ischemic injury are elevated

Personal History

- 57-year-old Hispanic man
- Married, 2 children in high school
- Grocery store manager
- Limited (1-2 times per week) alcohol use
- Former smoker (1.5 packs per day for 40 years; stopped following prior MI)

Family History

- Father underwent coronary artery bypass surgery in his early 60s; fatal MI at 74 years of age
- Mother died of congestive heart failure at 76

Medical History

- Multivessel coronary artery disease
- Type 2 diabetes mellitus
- Hypertension
- Microalbuminuria
- Obesity
- Anterior wall STEMI 4 months prior to current admission, with placement of a drug-eluting stent in the mid-left anterior descending (LAD) coronary artery
- Has been attending cardiac rehabilitation 3 times per week

Medication History

- Motivated to get well and has been compliant with all medications

Antidiabetic Therapy

- Metformin 1000 mg bid
- Pioglitazone 30 mg qd

Discharge Therapy After First MI

- Aspirin 325 mg qd
- Clopidogrel 75 mg qd
- Metoprolol extended-release 25 mg qd
- Perindopril 8 mg qd
- Atorvastatin 40 mg qd

Clinical Course

Initial Treatment

- Treated with aspirin, enoxaparin, and abciximab
- Taken to the cardiac catheterization laboratory within 37 min of symptom onset; thrombus identified in his LAD stent
- Undergoes acute thrombectomy
- Reports complete resolution of his chest discomfort

Post-Procedure Exam and Lab Results

- Blood pressure: 120/70 mm Hg
- Lipids: LDL-C, 62 mg/dL; HDL-C 42 mg/dL; triglycerides, 82 mg/dL
- Glucose: A1C, 6.2%
- ECG shows good septal and anterior wall motion dynamics with an LVEF of 61%
- Chest X-ray is free of pulmonary edema and cardiomegaly
- CYP450 test is positive for the CYP2C19 polymorphism associated with poor antiplatelet response to clopidogrel; he is given a loading dose of prasugrel 60 mg (with a planned maintenance dose of 10 mg)

Discharge Therapy After Second Event

- Aspirin 325 mg qd
- Prasugrel 10 mg qd
- Metoprolol extended-release 25 mg qd
- Perindopril 8 mg qd
- Atorvastatin 40 mg qd

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