Acute Coronary Syndrome- The Role of the ACS Clinic in Providing Best Practice Care

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Objectives

• Review the latest treatment guidelines for adults with acute coronary syndrome (ACS) with emphasis on continued care after hospitalization.
• Discuss strategies to provide patient/family members with knowledge and skills to recognize, interpret, and act on future ACS symptoms.
• Identify the role of the Acute Coronary Syndrome clinic in improving patient outcomes
• Apply knowledge to case scenarios for patients hospitalized with ACS.
Terminology

• Acute coronary syndrome:
  – ST segment elevation myocardial infarction (STEMI)
  – Non-ST segment elevation myocardial infarction (NSTEMI)
  – Unstable angina (UA)

• Different types of ACS start with 1 physiological process, yet symptoms may vary

Symptoms of Heart Disease

• Ischemic pain
  – Pressure
  – Tightness
  – Crushing
  – Squeezing
  – Radiation to left arm

  – Proximally 21% of those with first MI or recurrent MI have silent ischemia
Associated Symptoms

- Dyspnea
- Nausea/vomiting
- Diaphoresis
- Palpitations
- Anxiety/lightheadedness
- Syncope
- Feelings of impending doom

Stable Angina

- Associated with physical exertion, weather extremes or emotional stress
- Predictable pattern (if previously have a history of CHD)
- Relieved by nitroglycerin or rest within 5 minutes

Not ACS
Acute Coronary Syndrome (Unstable Angina; Non-STEMI)

- Less predictable pattern
- New onset or change in pattern
  - More frequent or last longer
- Progressive, more intensive, occurs at rest or awakens patient
- More associated symptoms
- May or may not be relieved by nitroglycerin or rest

Symptoms of NSTEMI and UA may be indistinguishable

Acute MI (STEMI)

- Prodromal symptoms more common
- Symptoms last greater than 1 hour
- Instability
- More associated symptoms
- Not relieved by rest or nitrates
CCS Angina Classification (I-IV)

<table>
<thead>
<tr>
<th>Clinical Findings</th>
<th>Features</th>
<th>Grade</th>
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<tr>
<td>No limitation of ordinary activity</td>
<td>Ordinary physical activity (such as walking or climbing stairs) does not cause angina. Angina may occur with strenuous, rapid or prolonged exertion at work or recreation.</td>
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| Slight limitation of ordinary activity | Angina may occur with:  
- walking or climbing stairs rapidly;  
- walking uphill;  
- walking or stair climbing after meals or in the cold or the wind or under emotional stress;  
- walking more than two blocks on the level at a normal pace and in normal conditions;  
- climbing more than one flight of ordinary stairs at normal pace and in normal conditions. | II    |
| Marked limitation of ordinary physical activity | Angina may occur after:  
- walking 1-2 blocks on the level or in the cold in the wind or under emotional stress;  
- climbing 1 flight of stairs in normal conditions at a normal pace. | III   |
| Unable to carry on any physical activity without discomfort | Angina may be present at rest. | IV    |

Posthospitalization Plan of Care

- The posthospitalization plan of care for patients with NSTEMI/STEMI should address in detail several complex issues:
- Medication adherence and titration
- Timely follow-up
- Dietary interventions- Medical Nutrition consultation
- Physical and sexual activities- cardiac rehabilitation
- Secondary prevention
- Reassessment of arrhythmic and HF risks
- Psychosocial and socioeconomic issues
  - Access to care, risk of depression, social isolation, and healthcare disparities
Acute Phase

• The acute phase of UA/NSTEMI is usually over within 2 months.
  – The risk of progression to MI or the development of recurrent MI or death is highest during that period
  – At 1 to 3 months after the acute phase, most patients resume a clinical course similar to that of patients with chronic stable coronary disease.

• Posthospital systems of care designed to prevent hospital readmissions should be used to facilitate the transition to effective, coordinated outpatient care for all patients with STEMI. (Level of Evidence: B)

Post Hospital Care: Secondary Prevention Matters

• Reduction of CHD deaths (~44%) attributable to:
  – Lower total cholesterol (24%)
  – A lower systolic blood pressure (20%)
  – Lower smoking prevalence (12%)
  – Decrease physical inactivity (5%)
Discharge medications:

- Aspirin 81 mg daily
- Antiplatelet medication (at least 12 months):
  - Clopidogrel (Plavix) 75 mg by mouth daily
  - Ticagrelor (Brilinta) 90 mg twice a day
  - Prasugrel (Effient) 10 mg by mouth daily
- Nitroglycerin - sublingual or spray
  - Need verbal and written instructions for use
  - Contraindicated with recent use of phosphodiesterase inhibitors (Class III - harmful; B)
    - Within 24 hours of Sildenafil (Viagra) or Vardenafil (Levitra)
    - Within 48 hours of Tadalafil (Cialis)

Discharge medications:

- Beta-blockers (initiate, continue and uptitrare)
  - Oral beta blocker within the 1st 24 hours (in absence of heart failure, low output state, risk of shock or other contraindications) (Class I; A)
- RAAS blockers
  - ACE-I - in all patients with LVEF < 40% and those with hypertension, diabetes or stable kidney disease (Class I; A)
  - ARBs - for patients with heart failure or MI and LVEF < 40% who are ACE intolerant (Class I; A)
  - Aldosterone blockers - for patients post MI without significant renal dysfunction in addition to Ace and Beta blocker with LVEF < 40%, diabetes, or heart failure (Class I; A)
Discharge medications:

• Calcium channel blocker alone or in combo with long-acting nitrate is useful to treat/reduce vasospastic angina (Class I; LOE B)
• High dose Statins
• Cessation of tobacco use
  – Nicotine Replacement Therapy ie. Nicoderm patch, Nicotine gum, ect.
  – Varenicline (Chantix)
  – Bupropion (Wellbutrin)

Medications to Avoid

• Antioxidant vitamin supplements (vitamin E, C or beta-carotene) should not be used for secondary prevention (Class III: No benefit)
• Folic Acid with or without Vitamin B 6 and B-12 should not be used for secondary prevention (Class III: No benefit)
• Hormone replacement therapy with estrogen plus progestin, or estrogen alone, should not be given for secondary prevention and should be discontinued in prior users (unless benefits outweighs risk) (Class III: HARM)
• NSAIDs
Teaching

• Recognizing recurrent ischemia
• Before hospital discharge all patients need info on signs of worsening ischemia
• May need to hear that they are not “cured”
• Symptoms may be the same (or not)
• They need an explicit action plan
  – When to seek emergency care versus call the health care provider (Class I; C)
  – Advantages of EMS

Further teaching

• Annual influenza vaccine recommended for all patients with CVD
• Pneumococcal vaccine if >65 years and in high risk patients with CVD
• Activity instructions
  – Specific instructions on lifting, climbing stairs, yardwork and household activities
  – When to return to work, resume driving and sexual activity
The Problem

Spring 2015:
• Readmission rates for AMI were slowing increasing
• But post discharge transition process felt to be well coordinated
• Bundled payment initiatives a reality with the CJR model kicking off April 2016
• MI population poses a unique challenge with 40-45% of inpatients being from outlying regional areas, and do not follow up with our cardiologists or PCPs

Current Post Discharge Transition

• Disease Management
  – Inpatient education
  – Linkage to outpatient resources:
    • Cardiac rehab
    • Medical Nutrition Therapy
    • Diabetes Institute
• Meds to Beds program
• Post Discharge appointment:
  – PCP within 7 days
  – Cardiology 1 – 3 months
• Post discharge phone call
  – 48 – 72 hours after d/c
Data Monitoring

The Solution

• Provide an avenue for timely outpatient follow-up for patients at high risk for emergency room visits and re-hospitalization, thereby reducing readmission rates
  – Establish dedicated time slots in Cath Lab for 1 week post discharge
• Bridge the communication gap between inpatient and outpatient providers in the immediate post hospitalization period
• Improve the rate of outpatient workups that are completed
• Integrate with existing and future transitional care centered university-wide projects
  – Congestive Heart Failure Discharge Project
ACS Clinic

- Inclusion:
  - ACS, elevated troponin and a stent
  - ACS, elevated troponin and heart failure with EF < 40%
- APP/Nursing directly schedules an appt during one of the dedicated time slots
- Hospital follow up appointment made prior to discharge and available on their "Day of Discharge" note and discharge instructions
- Discussion with regional clinics
  - If they are unable to see patient within 7 days, patient is scheduled for follow up in the ACS clinic

ACS Clinic Program Evaluation

- Collect outcome data regarding care
- Patient/Provider satisfaction
- Readmissions, return ER visits, etc
  - Readmission: First time below expected and the national average
- Measure completion of outpt tests.
Data Monitoring

Next Steps

- Staffing challenges
  - APP transitions
  - Utilization of office APPs
- Regional patients- Important they return to local Cardiologist and we need a coordinated program between all regions and Hamot
  - Any 30 day readmission at any hospital are noted on Hamot’s data
- Compliance
- Restructuring the Model of CVDM- moving to OP
- Bundled Payments for CABG and MI coming soon!- post discharge period extending from 30 days to 90days
Case 1: Alice

- 53-year-old African-American female
- Discharge from the hospital one week ago after having STEMI
- 2 drug-eluting stents placed to the LAD
- Comorbidities
  - Diabetes, chronic kidney disease, dyslipidemia, hypertension, chronic pain
  - Other CVD risk factors include physical inactivity and overweight

Test Your Knowledge

- What medication should she be placed on after a STEMI?
  - Dual antiplatelet therapy
  - Beta blocker
  - RAAS blocker-ACEIs and ARBs
  - Statin
  - Nitrate
  - Other medications (diabetes, etc.)
Test Your Knowledge

- What are the teaching priorities for this patient?
  - Basic teaching about heart disease
  - Emphasis that she has not cured
  - Secondary prevention/risk factor modification
  - Importance of medication adherence
  - Importance of cardiac rehabilitation and medical nutrition
  - Symptoms recognition
  - Action plan for recurrent symptoms
  - Physical activity