

Recognizing and Managing Acute Coronary Syndrome

This month's drill was prepared by
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INSTRUCTOR GUIDE

Time Required: 3 Hours

Teaching/Learning Materials: Easel pad and markers or board and chalk

Patient care materials: bandages, blankets, manikins, AED

LCD projector, laptop, and PowerPoint slides (included)

References: Brady Emergency Care, 10th ed. (pp. 367-378), Maryland Protocols for Emergency Services (pp. 25-34, 57, 208)

Motivation: EMTs will respond to many patients who are complaining of chest pain. What are the causes? What are the assessment steps? And what type of care should be given? We will find that acute coronary syndrome covers several cardiac related problems, but we will also find out how to assess and care for these patients.

Student Performance Objective: Given information, resources, and opportunity for discussion and practice, at the completion of this session, EMTs will be able to describe signs and symptoms of acute coronary syndrome and demonstrate patient assessment and care procedures. EMTs will follow acceptable Maryland medical practice and Maryland Medical Protocols for Emergency Medical Providers.

Enabling Objectives

- Define acute coronary syndrome and related terms.
- List causes of acute coronary syndrome.
- List general risk factors of acute coronary syndrome.
- List general symptoms of acute coronary syndrome.
- Describe and demonstrate assessment and care of a patient suspected of having acute coronary syndrome.

Overview:

- Definitions
- Causes
- Risk Factors
- Symptoms
- Assessment and care

I. Definitions

A. Acute coronary syndrome

1. An umbrella term that includes any group of clinical symptoms of acute myocardial ischemia (AMI)
2. Includes unstable angina and heart attack
3. Chest pain or anginal pain and other symptoms resulting from too little oxygenated blood to the heart, which is caused by plaque build-up in the myocardial arteries
4. Includes chest and epigastric pain or discomfort; radiating pain to the arm, shoulders, or jaw; difficulty breathing, shortness of breath, sudden onset of sweating, nausea, vomiting
5. Any type of chest discomfort or signs and symptoms of acute coronary syndrome is serious and needs immediate treatment

B. Specific terms

1. Acute: sudden onset with severe, sharp pain (compared to chronic—long lasting or frequent recurrence)
2. Syndrome: a group of symptoms characteristic of a disorder or disease
3. Myocardial: referring to the muscle (myo-) tissue of the heart (-cardial)
4. Ischemia: a decrease of blood supply (and thereby oxygen) to a body organ, tissue, or part
5. Angina: a severe constricting pain with the sensation of choking or suffocating, often called angina pectoris, because it feels like the chest (pectoral muscles) is constricted and it is difficult to breathe
6. Heart attack: blockage of a coronary artery causing heart damage and tissue death
7. Plaque: A deposits of fatty material (cholesterol and other lipids) on the inner lining of an arterial wall, called atherosclerosis, that restricts blood flow

II. Causes

- A. Plaque, made up of lipids, which include cholesterol, accumulates in the arteries
- B. Plaque narrows arteries and blocks blood flow to the heart muscle (myocardium)
- C. Plaque build-up and narrowing of the arteries is called coronary artery disease
- D. Plaques that narrow the arteries cause angina
- E. Plaques that break away from the arterial wall can block an artery or create a thrombogenic area, a place that can produce a coagulation of blood, or clot, on which platelets accumulate, and block an artery causing a heart attack

III. Risk Factors and Patient History

A. Gender and age

1. Men (commonly)
2. Women 15 years post menopausal
3. Increased age

B. Medical

1. Diabetes mellitus (DM)
 2. Hypertension (high blood pressure)
 3. Hyperlipidemia: high lipid levels, or fats which include any of the organic compounds, such as fats, oils, waxes, sterols, nucleic acids, and triglycerides
 4. Hypercholesterolemia: high cholesterol level; cholesterol is a lipid
 5. Prior cerebrovascular accident (CVA) or stroke: Over 7% of patients with ACS have had prior stroke and have high-risk factors
 6. Inherited metabolic disorders
 7. Connective tissue disease: Affects connective tissues of the body. Commonly known diseases are the autoimmune diseases of lupus and rheumatoid arthritis and the inherited diseases, such as Marfan's Syndrome. Scurvy is also a connective tissue disease
- C. Other
1. Smoking history
 2. Methamphetamine use
 3. Occupational stress

IV. **Symptoms**

- A. Symptoms
1. Chest discomfort
 - a. May radiate to arm, shoulders, jaw, or back
 - b. May feel like crushing pain, muscle ache, or a toothache
 2. Anginal pain
 3. Shortness of breath (SOB) with exertion, especially as the disease progresses
 4. Shortness of breath when lying down (orthopnea)
 5. Paroxysmal nocturnal dyspnea: wakening in the middle of the night with an episode of long-lasting shortness of breath
 - a. Patients may stand by a window to catch their breath
 - b. Patients sleep on stacked pillows to elevate the head and chest, or sleep in a recliner
 6. Difficulty breathing

7. Sudden onset of diaphoresis (sweating), nausea and/or vomiting
 8. Palpitations
 9. Anxiety
- B. Possible findings on examination
1. Rales
 2. Jugular Vein Distention (JVD)
 3. Hypertension or hypotension

V. **Assessment and Care (and Practice)**

- A. Assessment: Perform General Patient Care (Maryland Protocols)
1. Size up the scene and gather information on approach
 2. Perform initial assessment
 3. Perform focused history and physical exam
 - a. Get a history of the present illness—OPQRST questions
 - b. Get a SAMPLE history
 - c. Take baseline vital signs
 4. Follow treatment protocols
 5. Communicate with hospital or other response personnel
 6. Disposition: determine priority and mode of transport
- B. Emergency care
1. Place the patient in a position of comfort
 - a. Patients with shortness of breath or difficulty breathing will want to sit up
 - b. Hypotensive patients will want to lie down
 - c. Patients with both: let them decide position and change position as needed
 2. Give high concentration oxygen—non-rebreather mask
 3. Be prepared for respiratory or cardiac arrest
 4. Transport immediately
 - a. Patient's first episode—no history of cardiac problems
 - b. Patient has a cardiac history but no nitroglycerin
 - c. Patient's systolic blood pressure is less than 100 mm Hg
 5. Assist the patient in taking his or her own nitroglycerin (Refer to Nitroglycerin protocol)
 - a. Repeat
 - 1) In 3-5 minutes if chest pain persists
 - 2) If blood pressure is greater than 90mm Hg
 - a) Medical consult for further doses if BP drops more than 20 mm Hg
 - 3) If pulse is greater than 60 bpm

b. Doses

- 1) CONTRAINDICATED if patient has taken medication for erectile dysfunction (Viagra™, Levitra™, Cialis™) within 48 hours—medical consult required
 - 2) Give a maximum of 3 doses (medical consult for additional doses)
 - 3) Includes patient and EMT-B assisted doses
6. Assess for shock signs and symptoms: provide care for shock if indicated
 7. Monitor the airway
 8. Reassess vital signs every 5 minutes

Summary:

Student Performance Objective: Given information, resources, and opportunity for discussion and practice, at the completion of this session, EMTs will be able to describe signs and symptoms of acute coronary syndrome and demonstrate patient assessment and care procedures. EMTs will follow acceptable Maryland medical practice and Maryland Medical Protocols for Emergency Medical Providers.

Review:**Acute Coronary Syndrome**

- Define the following terms
 - Acute coronary syndrome
 - Acute
 - Syndrome
 - Ischemia
 - Myocardial
 - Angina
 - Heart attack
 - Plaque
- List causes of acute myocardial syndrome
- Name the risk factors of acute myocardial syndrome
- Describe the symptoms of acute myocardial syndrome
- Explain the assessment and care of acute myocardial syndrome