

# Aspirin Administration by Emergency Medical Technicians

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## **HISTORY**

The Kansas Board of Emergency Medical Services recently adopted “EMT-Basic Advanced Initiatives” by regulation 109-6-4 that essentially allows Emergency Medical Technicians, with appropriate physician oversight, by either on-line medical control or written protocol to: (1) administer aspirin for chest pain, (2) monitor saturation of arterial oxygen levels of the blood by way of pulse oximetry, (3) administer bronchodilator by nebulization, and (4) monitor blood glucose levels. In order for each Emergency Medical Technician to perform any of the above activities, the Emergency Medical Technician must complete a course of instruction in each of the above listed areas. The following curriculum has been developed to meet the administration of aspirin for chest pain.

## **Learning Goal:**

Understanding the administration of aspirin in the pre-hospital and appreciate the importance of initiating treatment.

## **Objectives:**

1. Explain the pathophysiology of AMI.
2. List the signs and symptoms of AMI.
3. Identify the other medication(s) within the EMT-Basic scope of practice that will be used in conjunction with aspirin in the suspected AMI patient.
4. Explain when aspirin should be administered, according to the American Heart Associations ACLS guidelines.
5. Describe the importance of the administration of aspirin in the pre-hospital setting.
6. Describe the mechanism of action of aspirin.
7. List the indications for aspirin administration.
8. List the contraindications for aspirin administration.
9. List the side effects of aspirin.

10. State the dose of aspirin to be administered and the route of administration.
11. Be able to appropriately treat patient with suspected AMI when given a scenario.

### **TIME**

Lecture:        Approximately 45 minutes  
Lab:             Approximately 30 minutes  
Exam:            Approximately 30 minutes  
  
Total:            Approximately 1 hour and 45 minutes

### **EQUIPMENT**

Bottle of aspirin  
B/P Cuff, stethoscope  
Oxygen bottle with regulator and delivery device  
Nitroglycerine

### **MOTIVATION**

According to the American Heart Association, “In high-risk patients, aspirin reduced nonfatal MI by 30% and vascular death by 17%”. Aspirin is simple to administer, relatively safe, and remarkable effective as an adjunct in reducing mortality for AMI.

## **PROGRAM OUTLINE**

### **1. Pathophysiology of Acute Myocardial Infarction**

- 1.1. AMI occurs when the blood supply to the myocardium is interrupted long enough that the muscle dies
  - 1.1.1. Coronary artery disease
  - 1.1.2. Angina
  - 1.1.3. AMI

### **2. Signs and Symptoms**

- 2.1. Pain/Pressure
  - 2.1.1. Angina vs. AMI
  - 2.1.2. Silent MI
- 2.2. Diaphoresis (profuse sweating)
- 2.3. Dyspnea (difficulty breathing)
- 2.4. Nausea/Vomiting
- 2.5. Weakness
- 2.6. Dizziness
- 2.7. Palpitations
- 2.8. Feeling of Impending Doom
- 2.9. Denial
- 2.10. General appearance
  - 2.10.1. Anxious
  - 2.10.2. Frightened
  - 2.10.3. In pain
  - 2.10.4. Color
- 2.11. Vital signs
  - 2.11.1. Pulse
  - 2.11.2. Respiratory rate
  - 2.11.3. Blood pressure

### **3. Treatment of the Patient with Suspected AMI**

- 3.1. General Approach to the Patient with Non-traumatic Chest Pain
  - 3.1.1. BSI, ABC'S, SAMPLE history, focused history and physical exam
    - 3.1.1.1. History of chest pain? Heart disease?
    - 3.1.1.2. Onset of chest pain and progress since onset?
    - 3.1.1.3. Interventions taken?
  - 3.1.2. Oxygen therapy
  - 3.1.3. Assess baseline vital signs
  - 3.1.4. Prepare for immediate transport
  - 3.1.5. Nitroglycerine (patient assisted if applicable and indicated along with approval of medical direction)
  - 3.1.6. Aspirin (with approval of medical direction)
  - 3.1.7. Ongoing reassessment

### **4. Aspirin Administration**

- 4.1. According to the American Heart Association's ACLS guidelines, aspirin should be given in the immediate general treatment of "chest pain suggestive of ischemia".
- 4.2. The action of aspirin, when given in the event of AMI, has shown to decrease mortality.

### **5. Aspirin**

- 5.1. Mechanism of Action
  - 5.1.1. Inhibits platelet aggregation
  - 5.1.2. Mild analgesic and anti-inflammatory agent
- 5.2. Indications
  - 5.2.1. Unstable angina and AMI
  - 5.2.2. Non-traumatic chest pain not relieved by NTG, or lasting >15 minutes
- 5.3. Contraindications
  - 5.3.1. Patient unresponsive
  - 5.3.2. Known allergy to aspirin
  - 5.3.3. Patient unable to control swallowing
  - 5.3.4. History of active bleeding disorder
  - 5.3.5. Current ulcer or GI bleeding
  - 5.3.6. Taking aspirin within the last 24 hours
  - 5.3.7. Receiving anticoagulation therapy
  - 5.3.8. Possibility of aortic dissection
- 5.4. Side Effects

- 5.4.1. GI distress (cramping, heartburn, mild nausea)
- 5.4.2. May exacerbate bleeding disorders
- 5.4.3. GI bleeding
- 5.4.4. Low-grade toxicity may cause: ringing in the ears, headache, dizziness, flushing, tachycardia
- 5.5. Precautions
  - 5.5.1. Use with caution in patients with renal failure or vitamin K deficiency
- 5.6. Dose and Route
  - 5.6.1. 160-325 mg (2-4 Chewable children's aspirin tablets) by mouth

## **6. State and local policies concerning Aspirin Administration**

- 6.1. Successful completion of a course of instruction approved by the Board of Emergency Medical Service prior to performing administration
- 6.2. Medical Control approval
  - 6.2.1. Standing Orders/Protocols
  - 6.2.2. On-line medical direction
- 6.3. Documentation on patient care report (run form) of drug given
  - 6.3.1. Documentation should include
    - 6.3.1.1. Time given
    - 6.3.1.2. Amount given
    - 6.3.1.3. Route (PO)
    - 6.3.1.4. Complications encountered
  - 6.3.2. Name of provider administering
- 6.4. Verbal report to ALS intercept, if none than when turning over patient care in Emergency Department

## **7. Summary / Review**

- 7.1. Review objectives with class. Ensure that all participants fully understand all aspects of the medication and the skill

## **8. Practical Skill Application**

- 8.1. Have class break into groups of three. With one person plays the role of the patient, the second plays the role of the rescuer, and the third observes for adherence to the protocol and creates the scene for the scenario.
- 8.2. The instructor (and assistants if needed) should observe the groups and after the participants have had the opportunity to practice the protocol, should give the individuals a scenario. The instructor will evaluate the participant's ability to

correctly utilize the protocol. The participant should also be evaluated on their ability to perform an appropriate patient assessment

- 8.3. After all students have successfully demonstrated the ability to appropriately utilize the protocol, move on to the written examination.

## **9. Written Examination**

## Aspirin Administration for the Emergency Medical Technician Pre-Test

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1. An acute myocardial infarction is:
  - a. Constriction of the coronary blood vessels characterized by crushing chest pain lasting less than five minutes
  - b. Occlusion of a coronary blood vessel resulting in death of heart muscle
  - c. Constriction of a coronary blood vessel caused by the buildup of fatty deposits
  - d. Occlusion of the coronary blood vessels characterized by crushing chest pain lasting less than five minutes
  
2. List six (6) signs/symptoms of an AMI
  - 1.
  - 2.
  - 3.
  - 4.
  - 5.
  - 6.
  
3. In addition to aspirin, \_\_\_\_\_ and patient assisted \_\_\_\_\_ may also be utilized by Emergency Medical Technicians in the care of patients with suspected AMI.
  
4. According to the American Heart Associations ACLS guidelines, when should aspirin be administered to a patient with suspected AMI?
  - a. If chest pain has not resolved after 30 minutes
  - b. Immediately if transportation time to the hospital will be lengthy
  - c. If chest pain has not resolved after 10 minutes
  - d. Immediately, as part of general treatment
  
5. It is important to administer aspirin in the pre-hospital setting because:
  - a. The action of aspirin, when given in the event of AMI, has shown to decrease mortality.
  - b. Aspirin potentates the effects of Oxygen and Nitroglycerine.
  - c. Aspirin promotes collateral circulation which provides the heart with an increased supply of oxygen.
  - d. Aspirin doesn't really help patients experiencing a true AMI.
  
6. Describe the mechanism of action of aspirin.

7. List one (1) indication for aspirin administration.
  
8. List two (2) contraindications for aspirin administration.
  
9. List two (2) side effects of aspirin.
  
10. State the dose of aspirin to be administered and the route of administration.



## Aspirin Administration for the Emergency Medical Technician Post-Test

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11. An acute myocardial infarction is:
  - a. Constriction of the coronary blood vessels characterized by crushing chest pain lasting less than five minutes
  - b. Occlusion of a coronary blood vessel resulting in death of heart muscle
  - c. Constriction of a coronary blood vessel caused by the buildup of fatty deposits
  - d. Occlusion of the coronary blood vessels characterized by crushing chest pain lasting less than five minutes
  
12. List six (6) signs/symptoms of an AMI
  - 1.
  - 2.
  - 3.
  - 4.
  - 5.
  - 6.
  
13. In addition to aspirin, \_\_\_\_\_ and patient assisted \_\_\_\_\_ may also be utilized by Emergency Medical Technicians in the care of patients with suspected AMI.
  
14. According to the American Heart Associations ACLS guidelines, when should aspirin be administered to a patient with suspected AMI?
  - a. If chest pain has not resolved after 30 minutes
  - b. Immediately if transportation time to the hospital will be lengthy
  - c. If chest pain has not resolved after 10 minutes
  - d. Immediately, as part of general treatment
  
15. It is important to administer aspirin in the pre-hospital setting because:
  - a. The action of aspirin, when given in the event of AMI, has shown to decrease mortality.
  - b. Aspirin potentates the effects of Oxygen and Nitroglycerine.
  - c. Aspirin promotes collateral circulation which provides the heart with an increased supply of oxygen.
  - d. Aspirin doesn't really help patients experiencing a true AMI.
  
16. Describe the mechanism of action of aspirin.

17. List one (1) indication for aspirin administration.

18. List two (2) contraindications for aspirin administration.

19. List two (2) side effects of aspirin.

20. State the dose of aspirin to be administered and the route of administration.