


Section: Adult Medical  
Subject: CHEST PAIN OF SUSPECTED CARDIAC ORIGIN  
Section #: 340.18  
Issue Date: April 1, 2006  
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Approved By: 

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1. Basic ALS Treatment must include a 12 lead EKG.
  - a. Evaluate for STEMI Alert criteria [**HCFR CARDIAC STEMI (ST ELEVATION MI) protocol.**]
  - b. If STEMI Alert criteria are NOT met and, if you suspect that the patient's symptoms are cardiac in origin, continue with pharmacologic therapy.
2. Pharmacologic Therapy:
  - a. **Oxygen**
    - i. If the oxygen saturation is less than 94%, start with **oxygen** at 2 L/min via nasal cannula and titrate to maintain SaO<sub>2</sub> between 94% and 96%<sup>1 2</sup>
  - b. **Nitroglycerin (NTG)**
    - i. Determine if there is a contraindication to the use of **NTG** (see QA points below and **Section 348 – Drug Reference**)
    - ii. The patient's systolic blood pressure (SBP) must remain > 100 mmHg during treatment
    - iii. Administer **nitroglycerin** 0.4 mg SL q5 minutes PRN ongoing discomfort
      1. If the discomfort completely resolves with 1.2 mg or less of **NTG SL**, and the SBP permits, apply 1 inch of **NTG paste** to the chest.
      2. If the symptoms do not completely resolve with **NTG SL**, then proceed to intravenous **NTG (Tridil®)** when available
        - a. If **Tridil®** is not available, then continue with **NTG SL** as above until either the patient's symptoms resolve or the SBP is too low
      3. **Intravenous Nitroglycerin (Tridil®)**<sup>3</sup>
        - a. Use of an IV pump is required for administration of **Tridil®**
        - b. It is highly recommended that two paramedics accompany the patient in the back of the rescue when infusing **Tridil®**
        - c. The starting dose in 10 mcg/min IV/IO by infusion
        - d. Increase by 10 mcg/min IV/IO q5 minutes and titrate to symptoms
        - e. There is no maximum dose assuming the patient's SBP can tolerate it
        - f. If the SBP drops below 100 mmHg:
          - i. Pause the infusion and administer normal saline 200 mL IV/IO bolus once
      4. If there is no response to **nitroglycerin** at all, then reconsider if the patient is experiencing chest pain due to cardiac ischemia.
    - c. **Aspirin**
      - i. Confirm allergy status prior to administration
      - ii. Administer **aspirin** 324 mg PO if it has not been taken within the past 24 hours
        1. As part of the pre-arrival instructions EDC may have instructed the patient to take ASA prior to our arrival – confirm with the patient that they did or did not take ASA prior to your arrival and document findings.

<sup>1</sup> McNulty P.H., King N., Scott S., et al; Effects of supplemental oxygen administration on coronary blood flow in patients undergoing cardiac catheterization. Am J Physiol Heart Circ Physiol. 2005; 288:H1057-H1062.

<sup>2</sup> Moradkhan R., Sinoway L.I.; Revisiting the role of oxygen therapy in cardiac patients. J Am Coll Cardiol. 2010;56:1013-1016.

<sup>3</sup> Kaplan K., Davison R., Parker M., et al; Intravenous nitroglycerin for the treatment of angina at rest unresponsive to standard nitrate therapy. Am J Cardiol. 1983;51:694-698.

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- d. Nausea and vomiting is common in inferior and posterior wall AMI
    - i. **Ondansetron hydrochloride** 4 mg IV/IM PRN for severe nausea and /or vomiting
    - ii. May repeat the dose one time in 10 minutes, if needed
  - e. For chest pain or discomfort precipitated by cocaine or methamphetamine<sup>4</sup>
    - i. Administer **nitroglycerin** as above<sup>5</sup>
    - ii. In addition, administer **diazepam** 5 mg IV/IO once PRN discomfort<sup>6</sup>
    - iii. For agitation due to cocaine, or methamphetamine go to HCFR BEHAVIORAL EMERGENCIES protocol.
3. ALS Transport Criteria – Chest Pain:
- a. Patients with the following symptoms in conjunction with chest pain *shall* be transported by ALS:
    - i. Any discomfort suspected to be of cardiac origin
    - ii. Any combination of chest pain, dyspnea, diaphoresis, or syncope
    - iii. Suspected cocaine or other stimulant use
    - iv. Cardiac history (CAD, previous MI, HTN)
    - v. Altered vital signs
    - vi. Severe indigestion or nausea in a patient older than 35 years
    - vii. Chest pain with associated upper back pain
    - viii. New dysrhythmias
  - b. Other patients may be transported by ALS at the discretion of the charge medic on scene.
4. QA Points:
- a. Reproducible chest pains either by deep inhalation or palpation of the chest DOES NOT rule out a cardiac event.
  - b. Administer nitrates with caution in patients with an inferior or posterior wall AMI as both can have right ventricular involvement. In those cases, nitrates can cause a precipitous blood pressure drop and should be monitored closely.
  - c. Whereas in the past it was allowable with direct Medic-1 approval, **nitroglycerin** in all forms is now *contraindicated* in HCFR patients who have recently taken medications for erectile dysfunction. Because of their respective half-lives and duration of action, "recently" is defined for this protocol as being 24 hours for **sildenafil (Viagra®)**, and 48 hours for **varidenafil (Levitra®)** or **tadalafil (Cialis®)**.
  - d. When using **Tridil®** or **nitroglycerin** paste do not continue to use **nitroglycerin** SL.

<sup>4</sup> Watts DJ, McColleston L. Methamphetamine-induced myocardial infarction with elevated troponin I. *Am J Emerg Med* 2006;24:132–4.

<sup>5</sup> Baumann BM, Perrone J, Hornig SE, et al. Randomized, double-blind, placebo-controlled trial of diazepam, nitroglycerin, or both for treatment of patients with potential cocaine-associated acute coronary syndromes. *Acad Emerg Med*. 2000; 7: 878–885.

<sup>6</sup> Honderick T, Williams D, Seaberg D, Wears R. A prospective, randomized, controlled trial of benzodiazepines and nitroglycerin or nitroglycerin alone in the treatment of cocaine-associated acute coronary syndromes. *Am J Emerg Med*. 2003;21(1):39–42