

## CARDIAC-RELATED SIGNS & SYMPTOMS

### SIGNS & SYMPTOMS:

1. Typical or atypical chest pain w/ or w/o radiation
2. Feeling of impending doom & denial
3. Shortness of breath
4. Nausea & vomiting
5. Jugular vein distention, pedal edema and rales
6. Neuro: syncope, dizziness or weakness
7. Skin: pale, cyanotic, clammy or diaphoretic
8. Abnormal vital signs (fast, slow, high, low, irregular) or arrhythmias

### OBTAIN HISTORY OF:

1. Cardiorespiratory disease
2. Onset & duration
3. Quality & severity (on a scale of 1 - 10)
4. Relieving factors (nitro, rest, antacids)
5. Meds (esp. cardiac & impotence meds -see notes)
6. Recent illness or trauma
7. PMH/Meds/Allergies
8. Substance abuse
9. DNR status
10. Cardiologist (St. Joe's CLA)

### PRECAUTIONS:

1. This guideline refers to spontaneously breathing and perfusing patients.
2. Syncopal episodes in patients may be cardiac-related.

### BASIC LIFE SUPPORT CARE:

1. Administer oxygen with the goal to obtain a SaO<sub>2</sub> >95%.
2. Place patient in position of comfort and reassure.
3. Consider ALS response.
4. EMT with IV training- establish IV of NS TKO.
5. Initiate ECG monitoring. Obtain 12-lead ECG. (see Special Notes)
6. If indicated, assist patient with prescribed NTG as directed by private physician unless BP < 90/p.
7. BLS with IV training:
  - A. If systolic BP falls < 90, administer a 250 cc NS fluid bolus and repeat vitals.
  - B. For suspected myocardial ischemia: have patient chew 324 mg aspirin.
  - C. If IV is established and systolic BP is at least 110, contact medical control operator for orders to administer 0.4 mg NTG SL, may repeat once after 3-5 min. Further NTG orders must come from medical control physician.
8. Consider CPAP for pulmonary edema

### ADVANCED LIFE SUPPORT CARE: In addition to above and as appropriate:

1. Evaluate 12-lead ECG for ST-elevation and consider Cath Lab Activation (CLA)
2. **For suspected myocardial ischemia:**
  - A. Have patient chew 324 mg aspirin.
  - B. Administer 0.4 mg NTG tablet/spray SL to relieve pain if BP systolic BP > 90 (use caution in Inferior MI).
  - C. Repeat 0.4 NTG q. 3-5 min. or if BP > 110/P and patient tolerates 1<sup>st</sup> NTG, administer 1" NTG paste. Make sure to let ED staff and M.D. know that NTG paste has been applied.
3. Consider second TKO IV line if patient is potential thrombolytic candidate. Administer 250-500 fluid bolus for hypotension related to right sided MI.
4. For pain relief (goal is to eliminate pain):
  - A. Morphine Sulfate slowly titrated in 2 mg increments up to a total of 8 mg IV/IO/IM
  - B. Fentanyl 1 mcg/kg up to 100 mcg slow (>2min) IV/IO/IM.
  - C. Consider 1-2 mg Versed for anxiety related to cardiac symptoms if BP is > 90/P
- D. Nitrous Oxide may be used for chest pain and may be the most appropriate drug in hypotension.
- E. Contact Medical Control Pysichian for additional orders.
5. **For arrhythmias:**
  - A. Only symptomatic and significant PVC's (frequent, coupled, multiformed, or close-coupled), AICD firing, and nonsustained V-tach:
    1. Administer Amiodarone 150 mg IV/IO slowly (over 2-3 minutes).
  - B. **V-tach**
    1. Unstable V-tach (symptomatic):
      - a) Consider premedicating with Versed 1 - 2 mg slow IV if indicated and BP is > 90/P. RSI medics may consider Etomidate 0.2 mg/kg

- b) Perform synchronized cardioversion @ 100 J. Repeat @ 200, 300, 360 J or equivalent biphasic setting if no change.
  - c) Administer Amiodarone 150 mg IV/IO slowly (over 2-3 minute).
2. Stable V-tach
- a) Administer Amiodarone 150 mg IV/IO slowly (over 2-3 minutes).
  - b) Consider synchronized cardioversion @ 100 J. Repeat @ 200, 300, 360 J or equivalent biphasic setting if no change.

**C. Paroxysmal supraventricular tachycardia (PSVT):**

- 1. Unstable (symptomatic):
  - a) Consider premedicating with Versed 1 - 2 mg slow IV if indicated and BP > 90/P. RSI medics consider Etomidate 0.2 mg/kg
  - b) Perform synchronized cardioversion @ 100 J. Repeat @ 200, 300, 360 J or equivalent biphasic setting if no change.
- 2. Stable:
  - a) Consider Valsalva maneuver.
  - b) Administer Adenosine 6 mg rapid IV bolus followed by fluid flush. Obtain ECG while administering Adenosine.
  - c) If no change, repeat Adenosine 12 mg rapid IV followed by fluid flush. Contact Medical Control Physician for further orders.

**D. Atrial fib or flutter:**

- 1. Unstable (symptomatic):
  - a) Contact medical control physician if patient has been in Atrial fib/flutter for more than 48 hours.
  - b) Consider premedicating with Versed 1 - 2 mg slow IV if indicated and BP > 90/P. RSI medics consider Etomidate 0.2 mg/kg
  - c) Perform synchronized cardioversion @ 100 J. Repeat @ 200, 300, 360 J or equivalent biphasic setting if no change.
- 2. Stable: Continue monitoring with frequent reassessment.

**E. Bradycardia:**

- 1. Unstable (symptomatic):
  - a) Administer Atropine 0.5 mg IV push
  - b) If no change, begin IMMEDIATE pacing:
    - (1) Premedicate with Versed 1-2 mg slow IV if BP > 90/P.
    - (2) Set rate @ 80.
    - (3) Turn the pacer on.
    - (4) Begin output @ 0 mA and quickly ↑ by 5 or 20 mA until consistent electrical capture is observed.
    - (5) Assess for mechanical capture (check pulses).
    - (6) Increase mA by 10% to ensure patient remains in capture.
  - c) If no change, consider second dose of atropine 0.5 mg IV push.
- 2. Stable: Continue monitoring with frequent reassessment.

**6. For hypotension:**

- A. If no response to initial 250 cc NS fluid bolus, consider Dopamine infusion 1 - 20 mcg/kg/min. titrated to patient response. May repeat fluid challenge if hypotension continues.

**7. For pulmonary edema:**

- A. BP ≥ 140/p give 0.8 NTG SL q. 3-5 min to patient response, if BP 90/p-139/p administer 0.4 mg of NTG SL every 3 - 5 minutes titrated to patient response.
- B. Administer Morphine 1 - 8 mg IV slowly titrated to patient response.
- C. Start CPAP therapy if appropriate and available.
- D. Consider Albuterol/Atrovent neb if lung sounds are hard to assess or if rales are questionably wheezes.

**8. Further orders must come from monitoring physician.**

**PEDIATRIC CONSIDERATIONS:**

- 1. Do not administer any meds or perform cardioversion on any conscious patient < 12 years without physician order.

**SPECIAL NOTES:**

- 1. In the setting of an acute myocardial infarction, rapid assessment, treatment, and undelayed transport are essential to avoid further delays to in-hospital treatment, such as thrombolytics and angioplasty.
- 2. Patients complaining of cardiac signs and symptoms will have a 12-Lead ECG done as soon as possible. Because treatment can affect how ST-elevation looks on a 12-Lead, the 12-Lead should be performed with the initial set of vital signs.

3. ALL BLS providers who acquire a 12-Lead ECG and have the ability to transmit that 12-Lead to the receiving hospital are required to do so before arrival at that facility. ALS providers have the option to transmit the 12-Lead if they feel it is appropriate. All copies of 12-Leads should be also transmitted to the MRCC.
4. Patients with ST-Elevation should be transported to a facility that can have the patient in their cath lab within 60 minutes and have balloon inflation under 90 minutes. Regions Hospital EMS has received confirmation from Regions, United and St. Joe's Hospital that they can meet the above criteria.
5. Inclusion criteria for a "Code AMI" patient will include (consider activation of cath lab from scene):
  - ✓ Patient has cardiac symptoms
  - ✓ ST-elevation greater than 1 mm in two or more contiguous leads
  - ✓ QRS complex that is less than 0.12 sec. (120 ms or 3 small boxes)
6. Nitrates (NTG) are absolute contraindications when the person has taken VIAGRA or LEVITRA within 24 hours and CIALIS within 48 hours. Nitrates will cause a severe drop in BP.
7. Use caution when giving nitroglycerin to patients who have an Inferior MI.
8. Receiving hospital staff MUST be notified that nitro paste has been applied to avoid possible excessive dosing.