Suspected Cardiac Ischemia

Effective: February 8, 2013 TBD
Replaces: New February 8, 2013
Review: November 2014 TBD

I. BLS Treatment

A. Routine Medical Care – Adult (see 700-S04).
B. Treat for signs and symptoms of shock as necessary (see Shock 700-A10).
C. If the patient is or becomes pulseless, (see Cardiac Arrest 700-A07).
D. Assist patient to take his/her own medications, if they are alert and orientated enough to do so.

II. ALS Treatment

• Routine Medical Care – Adult (see 700-S04).

A. Obtain 12-lead EKG.
   1. First Responder Paramedics:
      If the 12-lead ECG suggests that the patient is having a STEMI (see STEMI Indicator table), transmit the 12-lead ECG to the most appropriate STEMI receiving facility before patient arrival (if your monitor is enabled to transmit). If your monitor is not enabled to transmit, the County Ambulance paramedic must obtain a 12-lead ECG to transmit to the closest receiving STEMI center before patient arrival to the hospital, regardless of ETA. The only exception to this is if the patient is in-extremis, in such cases the patient shall be transported to the closest facility (in-extremis does not include patients in cardiogenic shock or arrest).
   2. County Ambulance Paramedics:
      If the 12-lead ECG suggests that the patient is having a STEMI (see STEMI Indicator table), transmit the 12-lead ECG to the most appropriate receiving STEMI center before patient arrival to the hospital, regardless of ETA to the hospital. The only exception to this is if the patient is in-extremis, in such cases the patient shall be transported to the closest facility (in-extremis does not include patients in cardiogenic shock or arrest).
   3. Suspected STEMI:
      If the patient is symptomatic and a STEMI is suspected but not displayed by the 12-lead ECG, the paramedic may call the intended receiving facility to alert the facility of the findings and if requested.
transmit the ECG to the receiving facility. **Note: Do not** send ECGs that do not suggest a STEMI to receiving STEMI centers unless requested.

- If the 12-lead EKG reading is “STEMI” or “Acute MI Suspected”, transmit the 12-lead EKG (if monitor is enabled) to the receiving STEMI Center regardless of ETA.
- If the 12-lead EKG has been done by the ALS First Responder, the physical copy of the 12-lead will be given to the transporting paramedic to accompany the patient to the hospital. If time permits (or en route), the transporting paramedic can obtain and transmit a 12-lead to the receiving facility.
- If the patient is symptomatic of STEMI, yet the 12 lead is not diagnostic, the paramedic may call the intended receiving facility to alert the facility of his/her findings and if requested transmit the EKG to the receiving facility.

**B. Administer Aspirin 324 mg PO (chew in mouth).** (chewable) unless contraindications are noted.

**C. Administer Nitroglycerin 0.4 mg SL/TM every 3-5 minutes to a max of 5 doses, as long as pain persists, and if SBP >is above 100 mmHg, and no signs of hypotension. May repeat x 5.**
- Do not administer Nitroglycerin if SBP less than 100 mmHg.

**D. Administer Morphine Sulfate 2 mg SIVP only to alert and oriented patients if they are still symptomatic after 3 doses of NTG, or if NTG is contraindicated, and if SBP is above 100 mmHg. May repeat every 5 minutes to a max dose of 15mg.**

**E. If the patient displays signs and/or symptoms of nausea/vomiting, administer Zofran 4mg ODT/IV/IM. Zofran may be given alongside morphine to reduce the potential for nausea.**

**F. If the patient becomes hypotensive at any time, place in the shock position. If the patient shows no signs of improvement after 5 minutes see Shock Policy 700-A10.**

To avoid hypotension, withhold Nitroglycerine if patient has taken erectile dysfunction medication within specified time frames:
- Viagra (sildenafil) or Levitra (vardenafil) within past 24 hours.
- Cialis (tadalafil) within past 36 hours.
- Revatio (sildenafil) within 24 hours.
- Stendra (avanafil) within 24 hours.
G. Enroute to the hospital, providers shall notify the receiving STEMI center of an incoming “STEMI Alert” and, if known, relay which leads display abnormalities.

H. Do not announce “STEMI Alert” if the cardiac monitor does not suggest a STEMI, even if a STEMI is suspected. Call “STEMI ALERT” (do not call STEMI Alert unless either of the readings below are demonstrated on the 12-lead EKG) to closest open STEMI Receiving Center (SRC).

III. Special Considerations

STEMI Indicator Table

Please note that depending on the manufacturer of the cardiac monitor, STEMI indicators may vary. Know what indicators your manufacturer uses. Most manufacturers demarcate STEMIIs with three asterisks before and after the text, capitalized text, and bolded text. Below are common STEMI indicators:

- ***ACUTE MI***
- ***ACUTE MI SUSPECTED***
- ***ACUTE STEMI***
- ***MEETS ST ELEVATION MI CRITERIA***
- ***STEMI INDICATED***

- Transport patient only to designated STEMI Receiving Center if 12-lead EKG reads “ACUTE MI,” “ACUTE MI SUSPECTED,” or “Acute STEMI.” Patient preference shall be honored as practical.
  - If the patient becomes hypotensive after the administration of Nitroglycerin, place the patient in shock position, if possible.
    - If no improvement after 5 minutes, treat according to 700-A10.
  - Morphine Sulfate: 2 mg slow IVP if still symptomatic after three (3) Nitroglycerin doses, or if Nitroglycerin is contraindicated.
    - May repeat 2-4 mg slow IVP q 3-5 min. to a max. of 15 mg.
SUSPECTED CARDIAC ISCHEMIA

Effective: February 12, 2015
Replaces: February 8, 2013
Review: November 12, 2017

I. BLS Treatment

A. Routine Medical Care – Adult (see 700-S04).
B. Treat for signs and symptoms of shock as necessary (see Shock 700-A10).
C. If the patient is or becomes pulseless, (see Cardiac Arrest 700-A07).
D. Assist patient to take his/her own medications, if they are alert and orientated enough to do so.

II. ALS Treatment

A. Obtain 12-lead ECG
   1. First Responder Paramedics:
      If the 12-lead ECG suggests that the patient is having a STEMI (see STEMI Indicator table), transmit the 12-lead ECG to the most appropriate STEMI receiving facility before patient arrival (if your monitor is enabled to transmit). If your monitor is not enabled to transmit, the County Ambulance paramedic must obtain a 12-lead ECG to transmit to the closest receiving STEMI center before patient arrival to the hospital, regardless of ETA. The only exception to this is if the patient is in-extremis in such cases the patient shall be transported to the closest facility (in-extremis does not include patients in cardiogenic shock or arrest)
      2. County Ambulance Paramedics:
         If the 12-lead ECG suggests that the patient is having a STEMI (see STEMI Indicator table), transmit the 12-lead ECG to the most appropriate receiving STEMI center before patient arrival to the hospital, regardless of ETA to the hospital. The only exception to this is if the patient is in-extremis, in such cases the patient shall be transported to the closest facility (in-extremis does not include patients in cardiogenic shock or arrest)
      3. Suspected STEMI:
         If the patient is symptomatic and a STEMI is suspected but not displayed by the 12-lead ECG, the paramedic may call the intended receiving facility to alert the facility of the findings and if requested, transmit the ECG to the receiving facility. Note: Do not send ECGs that do not suggest a STEMI to receiving STEMI centers unless requested.
B. Administer **Aspirin 324 mg PO** (chewable) unless contraindications are noted.

C. Administer **Nitroglycerin 0.4 mg SL/TM** every 3-5 minutes to a **max of 5 doses**, as long as pain persists, and if SBP is above 100 mmHg.

D. Administer **Morphine Sulfate 2 mg SIVP** only to alert and oriented patients if they are still symptomatic after 3 doses of NTG, or if NTG is contraindicated, and if SBP is above 100 mmHg. May repeat every 5 minutes to a max dose of 15mg

E. If the patient displays signs and/or symptoms of nausea/vomiting, administer **Zofran 4mg ODT/IV/IM**. Zofran may be given alongside morphine to reduce the potential for nausea.

F. If the patient becomes hypotensive at any time, place in the shock position. If the patient shows no signs of improvement after 5 minutes **see Shock Policy 700-A10**.

G. Enroute to the hospital, providers shall notify the receiving STEMI center of an incoming **“STEMI Alert”** and, if known, relay which leads display abnormalities.

H. Do not announce “**STEMI Alert**” if the cardiac monitor **does not** suggest a STEMI, even if a STEMI is suspected.

### III. Special Considerations

#### STEMI Indicator Table

**Please note** that depending on the manufacturer of the cardiac monitor, STEMI indicators may vary. Know what indicators your manufacturer uses. Most manufacturers demarcate STEMIs with three asterisks before and after the text, capitalized text, and bolded text. Below are common STEMI indicators:

***ACUTE MI***
***ACUTE MI SUSPECTED***
***ACUTE STEMI***
***MEETS ST ELEVATION MI CRITERIA***
***STEMI INDICATED***