Protocol
C-03

SECTION: C-03

PROTOCOL TITLE: GENERAL CARDIAC CARE/ACS

REVISED: November 1, 2018

General Cardiac Care/A.C.S.

GENERAL COMMENTS: The community standard of care for AMI is rapid catheterization. Key components to rapid catheterization are: rapid assessment of the patient, early 12-lead EKG acquisition, and swift transmission of all pertinent data to the appropriate hospital to facilitate decreased door-to-cath time. In the case of likely MI (manifested by 12-lead changes, unstable angina patterns, or failure to respond to treatment), care should be provided with this goal in mind.

BLS SPECIFIC CARE:

- Basic BLS care and assessment including oxygen administration and v/s every 5 minutes
- AED at patient side; pads may be placed if patient appears in extreme distress (do not turn AED on unless pulses are lost)
- Consider assisted ventilations with signs of severe respiratory distress
- ***Assistance*** *with administration of patient's prescribed sublingual nitroglycerin (NTG.):*
    - Determine how many doses the patient has already self-administered
    - If the patient has not already administered/received a total of 3 doses, EMT-B may assist patient with sublingual administration of up to a total of 3 doses, waiting 5 minutes between doses
    - **DO NOT** administer if:
        - Patient's systolic BP < 100 mm Hg
        - The patient's medication has expired
        - The patient has taken a total of 3 doses prior to EMS arrival
        - The patient presents with altered mental status
        - The patient has taken medications for erectile dysfunction in the preceding 24 hours

Pharmacologic Therapy:

- Aspirin
    - Four (4) x 81 mg chewable tabs (324 mg total)
    - Administer even if patient has received normal daily dose within the past 24 hours
    - **DO NOT** administer if:
        - Patient history of aspirin allergy
        - Recent history of GI or other internal bleeding/disorders
        - Under 18 years of age

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AEMT/O.M. SPECIFIC CARE:

Obtain/Assist with 12 Leads (if feasible, indicated, and available):

- The following patients should have a 12 lead ECG obtained.
  - Any non-trauma patient with primary complaint of chest pain
  - Any patient with concern for cardiac etiology for their complaint (not limited to AMI)
  - Any patient with syncope
  - Patients with a primary complaint of shortness of breath **with any of the following factors:**
    - Diabetic
    - Over the age of 50
    - Altered mental status or dementia
    - History of heart disease
- 12-lead ECGs will only be transmitted for the following:
  - STEMI
  - On-line medical direction consult regarding the12-lead ECG

Vascular Access

- IV access (to a max of 3 attempts) or IO access if needed due to severity of underlying injury or illness, otherwise consider deferring until arrival of ALS providers
  - **IV:** crystalloid solution at a TKO rate, may administer 200-500 ml if S/S of dehydration are present, repeat PRN, max total dose 2 liters
  - Withhold fluids and maintain IV at TKO rate if patient is hemo-dynamically stable or signs and symptoms of fluid overload are present
- *Limit fluid administration unless symptomatic, hypotensive, and with clear lung sounds*
- In acute onset, an end goal of 2 x IV is desirable to facilitate cath lab/thrombolytic care.
  - Preference is to avoid the right wrist as an IV site.
  - *Preference* is to have at the minimum 1 single lumen IV established using a 20g or larger.

ALS SPECIFIC CARE:

Nitrates *(See physician PEARLS*):**

- NTG Spray: For discomfort suspicious ACS/Angina/STEMI
    - **SL:** 0.4 mg SL spray/tab, repeat every 3-5 minutes PRN
    - Hold for systolic BP < 100 mm Hg, or Viagra use (or similar drug) within previous 24 hours
    - Use with caution in suspected right-sided MI
- NTG Paste: Initiate if NTG is successful in reducing discomfort
    - **TD:** 0.5-1.5 inches applied topically (TD) to non-hairy area of trunk.
    - Hold for systolic BP < 100 mm Hg, or Viagra use (or similar drug) within previous 24 hours
    - Use with caution in suspected right-sided MI
    - Wipe off if hypotension develops

Analgesics and/or Sedatives:

- Discontinue or do not administer if:
    - Signs and symptoms of hypoperfusion are present or develop
    - Respiratory rate, SpO_2 and/or mental status diminishes
    - Contact OLMC to exceed maximum doses
    - The paramedic MAY reduce the dose of any analgesic/sedative to achieve needed results
- Morphine sulfate: For discomfort suspicious of cardiac origin. Use with caution in patients with unstable angina.
    - **IV/IM/IO:** 0.1 mg/kg initial dose, given slowly over 2 min, may repeat every 10 minutes PRN with 0.05 mg/kg, max single dose 10 mg, max total dose 20 mg
        - Hold for B/P <90
- Fentanyl: Use if morphine allergy
    - **IV/IO/IM/IN:** 1 mcg/kg given slowly over 2 min (with the exception of IN route), may repeat every 10 minutes PRN, max single dose 100 mcg, max total dose 200 mcg
- Dilaudid: Use if morphine allergy
    - **IV/IM:** 0.5 mg slow IV push over 2 minutes, may repeat every 10 minutes PRN, max total dose 2 mg

Antiemetics:

- Zofran (ondansetron) IV/IM/IO:
    - **IV/IO/IM:** 4 mg, may repeat once at 15 minutes
- Benadryl (diphenhydramine)
    - **IV/IO/IM:** 25-50 mg

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PHYSICIAN PEARLS:

Nitroglycerine is of uncertain mortality benefit, and has risks of hypotension. Therefore, it should not be used in undifferentiated chest pain (chest pain that is not suspected of cardiac origin).

Nitroglycerin should be limited to:

- Patients with suspected ACS based on history and exam of symptoms suspicious of cardiac origin
- Patients with a history of coronary artery disease (CAD), angina, or previous heart attack, as indicated by medications or reported history
- Suspected ACS with EKG changes (ST Depression, T wave inversion)
- Patients with a history of angina, and current presentation is similar to previous angina discomfort

The primary concern with nitroglycerine use is iatrogenic hypotension relative to the myocardial demand, which may increase mortality and morbidity.

Even if pain is resolved with less than 3 SL NTG spray, consider following with transdermal NTG paste (as long as hemodynamic status is maintained). Use nitrates with caution in patients with a suspected right ventricular infarction.

Regarding 12 leads, remember that many patients will have atypical presentations, including: female patients, diabetics, the elderly, and those with a history of hyperdynamic drug use. Many recent studies also suggest that women and younger patients are under-triaged for cardiac events. The provider should keep a high index of suspicion for ACS/STEMI and assess (*i.e. apply a 12-lead*) accordingly.

12-lead ECG transmission is a crucial component of decreasing “E to B” (Emergency 911 to Balloon) time. All 12-lead ECGs shall be transmitted to the receiving hospital whenever there is a suspected STEMI or a physician consult on an ECG.

The 12-lead ECG will include patient name, DOB, and cardiologist if available. If the 12-lead is interpreted as an ST segment elevation MI, the receiving facility shall be informed of an incoming STEMI patient as soon as possible.