EMS Insight into STEMI Triage & Transport

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Chest Pain

Oh lordy! This is the big one! I'm comin' to join you, Elizabeth! This is it!
Benign Causes

- Musculoskeletal (Costochondritis)
- Gastroesophageal Reflux (GERD)
- Esophagitis
- Bronchitis (Chest Pain secondary to cough)
- Shingles
- Cultural practices (Sundance)
- Recently placed nipple rings
- “Non-Specific Chest Pain” *

*Most common – means we don’t know, but it is not going to Kill you.
History matters!

- **Location**: Central, left, or right
- **Associated symptoms**: SOB, sweating, nausea
- **Timing**: Gradual or sudden onset
- **Provocation**: What makes worse or better?
- **Quality**: Visceral vs somatic
- **Radiation**: Back, neck, arm
- **Severity**: Scale of 1-10
The Rest of the History

- **PMH** – Does it Matter?
- **Meds** – Cardiac meds? Nitro? ASA? Plavix? Coumadin?
- **Allergies** – Always important!
- **Social** – Smoker? Alcoholic? Cocaine?
- **Family** – Sudden Death? Early MI? DVT? PE?
Patient Care Goals

- Provide early identification of patients and early notification of the hospital for suspected cardiac ischemia or STEMI
- Utilize an assessment tool that may reduce the time from onset of symptoms to receiving definitive cardiac interventions at the receiving hospital
Obtain 12-lead ECG on:

- Chest pain or persistent discomfort above the waist
- Chest pressure or tightness
- “Heartburn” or epigastric pain
- Complaints of “heart racing”
- Complaints of “heart to slow”
- A syncopal episode or severe weakness in patients
- New onset stroke symptoms
- Difficulty breathing
- Cardiac arrest
- Recent cocaine or illicit drug use
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First Treatment

- Administer O2 at 2 LPM to maintain SpO2 > 92%
- Obtain Systolic/Diastolic BP in both arms
- Administer chewable Aspirin 324mg PO
- If chest discomfort present and Systolic BP > 100 mmHg, administer SL nitroglycerine 0.4mg every 5 minutes up to 3 doses. Check BP before each dose. Do not administer if Systolic BP < 100 mmHg
Basic Patient Care first....... 

- ABC’s
- Treat the Patient not your monitor.
Tactful and Respectful

- Public area calls…..
- Alert and cooperative patients can remove their own bra/undergarments.
- Consider stocking hospital gowns from your local hospital to help cover up.
- Some of us Men are shy too!
- Use the back of your hand to control the breast when during placement.
- You likely have some of your best practices in Obtaining 12-Leads on Females, so share them!
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- Transmission
  - Prior to acquisition add cell phone number and patient initials or identifier to 12-lead ECG
  - Transmit 12-lead ECG to receiving hospital and call ASAP to verify receipt and interpretation. Label the 12 lead.
  - Provide patient report including full name and date of birth.... Did I mention label the 12 lead.
  - Continue to monitor 12-lead ECG for changes and transmit updates to receiving facility every 10 minutes
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- Transport Guidelines
  - Request ALS Intercept per local protocol
  - Prepare patient for immediate transport with indicated medications administered en route to hospital (attempt to limit scene time to short as possible)
  - On arrival at the hospital, a printed copy of the 12-lead ECG should be presented to the receiving RN or MD staff as part of the PCR
Transport Guidelines

If ground transport time is less than 75 minutes to PCI Center

○ Consider transport directly to PCI center after consultation to confirm STEMI with local medical control

If ground transport is greater than 75 minutes to PCI Center

○ Transport to closest Non-PCI Regional Center
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- Transport Guidelines
  - Transmit 12 lead to Regional Center, call ASAP with patient report and consider activation of Local Air Transport
  - Continue to monitor 12 lead EKG for changes and transmit updates to receiving facility every 10 minutes.
  - Prepare patient for immediate transport with indicated medications administered en route to hospital. Attempt to limit the scene time to the shortest time possible.
What's your estimated transport time to Local non-PCI vs. PCI Center??
Transport Guidelines

If “PH STEMI”, destination and patient transfer should be directly to the Cardiac Catheterization Lab, or to the CCU (if patient has received fibrinolytics with evidence of successful reperfusion) at a PCI Center, unless the patient is unstable and/or has any of the following Diversion Criteria requiring ED evaluation:

- Possible need of head CT or neurological intervention / Confusion
- Emergent intubation Immediate circulatory stabilization
- Chest trauma or MVC victims
- DNR Status
- Presence of a unconfirmed new Left Bundle Branch Block
Medications

- Establish IV access - Normal Saline 500 ml KVO
- Establish an additional IV Line as time & manpower allows if available.
- Administer Chewable Aspirin, 324 mg PO
- Administer Nitroglycerine 0.4 mg SL, may repeat every 5 mins.
  - Hold Nitroglycerin for Systolic BP < 100 mmHg or Erectile Dysfunction medication taken within 48 hrs. they could die from Nitro...
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- Medications
- Establish Nitroglycerine IV Drip if chest discomfort is unrelieved
  - Start @ 5 ug/min & titrate in increments of 5 ug/min to maintain a systolic BP of 100 mmHg or greater
- If Pain is Unrelieved by Nitroglycerine:
  - Morphine Sulfate 2 mg. IV/IO may repeat every 5-10 min. as needed up to total of 20 mg
    - Or:
      - Administer Fentanyl 50 mcg IV/IO may repeat every 5-10 min. as needed up to 200 mcg total
  - Administer Plavix 600 mg PO
  - Administer Heparin bolus 70 units/kg (maximum dose of 5,000 units) IV
  - Start a Heparin drip to run at 15 units/kg/hr (max dose of 1,000 units/hour) if transport time >75 minutes
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Documentation Key Points

- On arrival at the hospital, provide the receiving staff a printed copy of the 12-lead ECG
- Attach an electronic copy of the 12-lead to your documentation
- If STEMI/AMI alert is provided at the hospital, record the time of activation.
Things that make you say: O #@#$%
Inferior MI
ALS considerations.

After an Inferior MI Interpretation is indicated by the 12-lead. Think ahead and remember the dark side!

• Nitro/drip should be used with caution per protocol. (watch for hypotension, use caution in confirmed inferior MI), reassess vitals maintaining systolic blood pressure of 100 systolic per protocol.

• Consider:
  • antiemetic for nausea.
  • R) sided 12 Lead are strongly recommend to confirm the Inferior MI.
“The Dark Side of the Moon”

- 15 lead ECG consists of taking a second "12 lead ECG" but moving 3 electrodes to V4R, V8 and V9.
- V4 moves to V4R;
- V5 moves to V8;
- V6 moves to V9.
“The Dark Side of the Moon”

- The last three leads on the 12 lead printout (V4, V5, V6) are re-labeled V4R, V8, V9—

- You as the provider are reading the (now 15 lead) ECG as the last leads of the printout are all in a line and show a quick view of the right ventricle (V4R), and the posterior wall (V8, V9).
15 lead with the 12 Lead

- Move your V leads 4 to the back.
Does this change treatment?

- All MI pts. can develop hypotension with NTG.
- But patients with right ventricular infarction (often accompanies inferior wall myocardial infarction) are particularly susceptible to drops in B/P. (Even without the use of nitrates) The idea is to prevent harm by withholding NTG, or at least performing a preemptive fluid bolus prior to NTG, when you suspect this condition.
Learn: Rapid STEMI ID Education for ND Licensed Paramedics
In Summary:
At all levels, We all should be promoting the 12 lead.
We can all do more with tools but remember the Basics.
Questions?

THANK YOU!