The Montgomery County Hospital District Paramedic Podcast
Episode 79: The Serial Killers Series - Chest Pain
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Take Home Points

- Remember the Five "Serial Killers"- (ACS/MI, PE, TAD, PTX, and Tamponade)
- Vitals are **VITAL**
- Use the 12-lead in conjunction with patient presentation severity
- Don't forget the exam - Murmur, Absent BS, Pulses, Calves, Neuro
- Don't forget specific risk factors - PE/Dissection/PTX/TAD

When people call with chest pain – what things can kill them emergently?

1. Acute Coronary Syndrome/ Myocardial Infarction
2. Pulmonary Embolism
3. Thoracic Aortic Dissection
4. Pneumothorax
5. Pericardial Tamponade

Where to start?

• **Think about your diagnosis en route**. Always approach chest pain calls considering the Killer 5.

• **Your Vitals are VITAL**. When you have limited objective information from the patient, turn to your vitals

• **Obtain a 12 lead as quickly as possible**.

• **Complete a Physical Exam**. Make sure to cover specific areas of concern (breath sounds/murmurs/pulses/JVD)

• **Gather a substantial Pain History.** "PQRST"- (Provoke/Palliate, Quality, Radiation, Severity, Timing)

• **Review Medical History** – PMHx/medications

The Killer 5:

1. ACS/MI

• **Early acquisition of 12 lead needed**. Examine for ST/T wave changes, STEMI, and STEMI mimics/equivalents.

• **High Risk Presentation/History: Nausea, Diaphoresis, Jaw/Shoulder Pain, Pressure.** Don't forget the atypicals: Shortness of Breath and Nausea only in Females/DM/Elderly.

• **High Risk PMHx:** Known CAD, DM, HTN, smoking, cocaine use, RA/SLE.

• **HEART Score is a tool used for cardiac risk stratification in the ED setting:**

-**H**istory
-**E**KG
-**A**ge
-**R**isk Factors
-**T**roponin

2. Pulmonary Embolism

• **Chest Pain + SOB + Clear Lungs = PE until proven otherwise**.

• **Look for tachycardia and hypoxia on vitals**. (But…These are not always present.)

• **High Risk PE/DVT History:** Sedentary, Surgery/Hospitalization, Travel, OCP, past DVT/PE, tobacco use, pregnant/post-partum.

3. Thoracic Aortic Dissection

• **"Tearing" or "Ripping" Chest Pain and radiation to the back is the classic presentation**. This only accounts for 50% of the TAD diagnoses. 1 TAD for every 600 ACS and 1/4 TAD will die prior to diagnosis.

• **Chest Pain + Neuro Deficits = Thoracic Aortic Dissection**

• **High Risk History:** HTN/cocaine, connective tissue dx (Marfans, Ehlers-Danlos), pregnant, past TAD

• **Check for UE pulses and bilateral BP's during your exam.** You should consider TAD with unequal pulses and/or lower BP on left (occurs in ~20% of TAD's).

4. Spontaneous Pneumothorax

• **Most commonly sharp chest pain, worse with breathing, and/or SOB.**

• **High Risk History:** Past Pneumothorax, smoking, COPD, tall/thin males

• **Listen for Lung Sounds.** There will often be an absence of breath sounds on exam (unless anterior).

• **Signs of a Tension PTX**: Low Blood Pressure, Tachycardia, Absent Unilateral Breath Sounds. Consider needle thoracostomy IF UNSTABLE.

• **Perform a Point of Care Ultrasound (POCUS) if available.** Examining for Absent Lung Sliding.

5. Pericardial Tamponade

• **Beck's Triad:** Hypotension, Muffled Heart Sounds, and JVD

• **Recent viral illness/URI** could mean a possibility of peri/myocarditis.

• **High Risk History:** Uremia/ESRD, malignancy, recent surgery (pacemaker)

• **ECG:** Electrical alternans and/or low voltage

• **Treatment:** Push preload by providing patient with fluids. Perform a POCUS if available.

References:

http://www.emdocs.net/em-in-5-approach-to-chest-pain

https://litfl.com/ecg-findings-in-massive-pericardial-effusion