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Chest Pain – ER Care

Vitals requiring emergent care & transfer to ER

- Airway obstruction
- RR <10 or > 29
- O2 sats <92%
- Pulse <50 or >120
- Systolic BP <90mmHg or >180mmHg (or >160mmHg if pregnant)
- GCS <12

Symptoms (Danger signs in red)

Symptom \ Diagnosis	MI	Ischemia	PE	Pneumothorax	Arrythmia	Aortic Dissection	Pneumonia	Myopathy	COPD/Asthma[1]	Pericarditis	Myocarditis	Costochondritis
Fatigue	In women or the elderly, treat as a surrogate symptom of chest pain											
Abrupt onset	×		×	×	×	×						
Crescendo symptoms	×[2]							×[3]	×[4]			
Constant pain	×		×			×[5]	×					
Dyspnea	×[6]		×	×	×[6]		×					
Pain < 30s	Not a concern unless has DM (neuropathy can mask signs/symptoms)											
With exercise		×			×			×	×			×
Pleuritic pain			×	×						×[7]		
Cocaine use	×				×	×					×	
Anxiety/panic	Can be secondary to the Dx or the cause of the chest pain itself											

[1] Especially relevant in children. [2]Impending MI. [3] Worsening myopathy.
[4] Worsening COPD or asthma. [5]"Tearing pain radiating to back" is classic.
[6]Dyspnea due to 2° heart failure. [7]With pleural inflammation

MYO. INFARCT

Inv: Serial ECGs, troponin, imaging
Tx: ASA, oxygen, nitro, morphine, ß-blocker, heparin, consider PCI. For STEMI: thrombolysis/PCI.

CARD. ISCHEMIA

Inv: ECG, troponin
Tx: If crescendo or new onset: ASA, oxygen, nitro, anticoag. If known and stable, ensure ASA.

ARRYTHMIA

Inv: ECG, echo, rhythm strip, electrophysiology studies.
Tx: Dependent on rhythm. Look for underlying cause.

MYOCARDITIS

Inv: CXR, ECG, bloodwork (CBC, ESR, troponin), echo.
Tx: Supportive care. Anticoag. Restrict physical activity. Look for underlying cause.

PNEUMOTHORAX

Inv: CXR (inc. expir.)
Tx: Heimlich valve; chest tube if 1° PTX with sx and/or >20% collapse.

COSTOCHONDRITIS

Inv: Diagnosis of exclusion.
Tx: acetaminophen or NSAIDs.

AORTIC DISSECTION

Inv: CXR, ECG, TEE/CT/MRI.
Tx: Urgent surgical consultation & control BP.

PE: WELLS CRITERIA	*Points*
Clinical signs/sx of DVT	3
Other dx less likely than PE	3
Heart rate > 100/minute	1.5
Immob. or surgery in past 4 wks	1.5
Previous DVT or PE	1.5
Hemoptysis	1
Malignancy	1
Total points: >6 points = high risk; 2 to 6 points = mod. risk; <2 points = low risk	

Inv: Very low risk: Patient <50 yo, Wells scores = 0, oxygen sat >94%, and no hormone use → do not invest. for PE. Low/Moderate Risk: ELISA D-Dimer → If -ve, no P; if +, proceed as for high risk. High risk: CXR → If —, VQ scan or CT arteriography → If VQ or CT —, no PE; if CXR or VQ or CT +, treat. If non-diagnostic or still high suspicion, additional testing required.
Tx: Anticoagulation.

PERICARDITIS

Inv: ECG. If low BP: TEE or CT or MRI. Pericardiocentesis (for dx or tx).
Tx: ASA. 2nd line: NSAIDs or glucocorticoid (prednisone).

Key References: Laird, C., Driscoll P, Wardrope, J. The ABC of community emergency care: chest pain. *Emerg Med J.* 2004 Mar;21(2):226-32. Tapson V. Acute Pulmonary Embolism, *NEJM* 2008;358:1037-52. Lee T., Goldman L., Evaluation of the Patient with Acute Chest Pain, *NEJM* 2000, 342:1187. Kline JA, Mitchell AM, Kabrhel C, Richman PB, Courtney DM. Clinical criteria to prevent unnecessary diagnostic testing in emergency department patients with suspected pulmonary embolism. *J Thromb Haemost* 2004; 2: 1247-55.