Cardiology Red Flags

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Objectives

- Identify pertinent subjective and objective findings that would be red flags for:
  - Atypical Chest Pain
  - Hypertensive Emergency
  - Pulmonary Embolus

Cardiology Red Flag Case Studies

- 55 yo female presents with complaints of chest discomfort lasting a few seconds worse with riding her bike
- PMH: Type 1 diabetes
- PSH: 15 pack year history tobacco dependence, social weekend alcohol consumption
Cardiology Red Flag
Case Studies

• Family history: father with MI age 54, HTN
• Physical exam: BP 110/70, pulse 88, respiratory rate 18, 99.2 F temp, lungs CTA, S1,S2,S4
• Labs, Imaging: CXR normal, cardiac biomarkers elevated troponin 22.5, ECG changes

Differential Diagnosis

Life Threatening Causes of Chest Pain

• Acute coronary syndrome (unstable angina, NSTEMI, STEMI)
• Aortic dissection
• Pulmonary embolism
• Pneumothorax
• Tension pneumothorax
• Pericardial tamponade
• Mediastinitis (e.g. esophageal rupture)
### Typical vs Atypical Chest Pain

**Typical Red Flags**
- Characterized as discomfort/pressure rather than pain
- Time duration >2 mins
- Provoked by activity/exercise
- Radiation (i.e. arms, jaw)
- Does not change with respiration/position
- Associated with diaphoresis/nausea
- Relieved by rest/nitroglycerin

**Atypical Red Flags**
- Pain that can be localized with one finger
- Constant pain lasting for days
- Fleeting pains lasting for a few seconds
- Pain reproduced by movement/palpation

### ECG Red Flags

![ECG Diagram]

### ECG Changes

- Inferior: II, III, AVF
- Anterior: V1-V6
- Lateral: I, AVL, V5, V6
Plan

- Cardiac catheterization: medical treatment, angioplasty/stenting, or open heart surgery
- Telemetry
- ASA, Beta Blocker, statin, sl Ntg, ACE
- Cardiac Rehabilitation

Cardiology Red Flag Case Studies

- 55 yo male presents with complaints of chest discomfort
- PMH: Colon cancer
- PSX: Tobacco dependence with 50 pack year history
- Recent travel to Greece with 10 hour nonstop flight
- Physical exam: BP 90/60, pulse 105, respiratory rate 22, Pulse ox 88% Rm air, afebrile, anxious
- Differential: ?

Pulmonary Embolus Red Flags

- Diagnostic testing
  - Pulmonary angiography (Gold standard)
  - Spiral CT (CT-PE protocol)
  - V/Q scan (helpful for detecting chronic VTE)
  - D-dimer (<500ng/ml helps exclude PE in patient with low/moderate pre-test probability)
Pulmonary Embolus

- **Red Flag Risk Factors**
- Surgery/trauma within 3 months
- OCP use/hormone therapy
- Lower limb fractures/joint replacements
- Neurologic injury: stroke, paresis, paralysis
- DVT
- Immobilization
- Malignancy
- Chronic heart disease
- Autoimmune diseases
- Women, heavy smoking history, obesity

Pulmonary Embolism

- Treatment of PE
  - Anticoagulant therapy is primary therapy for PE
  - Unfractionated heparin
  - LMWH
  - For unstable patients, catheter embolectomy or surgical embolectomy are options
  - For patients at risk for bleeding, IVC filter is an alternative
### Cardiology Red Flag Case Studies

- 48 yo male presents with complaints of chest discomfort
- PMH: CAD s/p PTCA with DES LAD
- PSX: Type A personality
- Physical exam: BP 235/115, pulse 90, respiratory rate 16 pulse ox 95%, afibrile
- Denies any neurological symptoms or deficits
- Differential: ?

### Hypertensive Emergency Red Flags

**Table 1: Hypertensive Emergency versus Asymptomatic Markedly Elevated Blood Pressure**

<table>
<thead>
<tr>
<th>Term</th>
<th>Criteria</th>
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</thead>
<tbody>
<tr>
<td>Hypertensive Emergency</td>
<td>SBP &gt; 180 or DBP &gt; 120 mmHg AND End-Organ Dysfunction</td>
</tr>
<tr>
<td>Asymptomatic Markedly Elevated BP</td>
<td>SBP &gt; 160-180 mmHg or DBP &gt; 100-120 mmHg</td>
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</tbody>
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**Diagram**: Flowchart outlining the treatment and diagnosis of hypertensive emergencies.