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, SI, S2, S4
- Labs, Imaging: CXR normal, cardiac biomarkers elevated troponin 22.5, ECG changes

Differential Diagnosis

- 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 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%, Am 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 disease
- 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%, afebrile
- Denies any neurological symptoms or deficits
- Differential: ?

Hypertensive Emergency Red Flags

<table>
<thead>
<tr>
<th>Terms</th>
<th>Criteria</th>
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<tbody>
<tr>
<td>Hypertensive Emergency</td>
<td>SBP &gt; 180 mm Hg OR DBP &gt; 120 mm Hg AND End-Organ Dysfunction</td>
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<tr>
<td>Markedly Elevated Blood Pressure (formerly hypertensive urgency)</td>
<td>SBP &gt; 180-180 mm Hg OR DBP &gt; 100-100 mm Hg</td>
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Conditions:
- Aortic dissection
- Severe preeclampsia or eclampsia
- Pheochromocytoma crisis
Red Flags of Neurology

Jesse V. McClain DNP, APRN

Disclosures

- Speakers bureau for Genentech
Weakness

- The majority of weakness evaluated in the ED
  - Toxic/metabolic causes
    - Dehydration
    - Medication side effects
    - Infection related
  - Acute neurological causes of weakness
    - Stroke
    - Multiple sclerosis/transverse myelitis
    - Guillain Barré Syndrome (GBS)
    - Myasthenia Gravis

Guillain Barré Syndrome (GBS)

- Rare disease where your own body begins attacking the covering of your nerves.
- Weakness and tingling are typically the first sign but it can quickly spread throughout your entire body.
- 90% with GBS begin in feet and progress upwards
- 10% begin in a person’s face (Miller-Fisher Syndrome)
- Usually follows a respiratory or digestive tract infection

Guillain Barré Syndrome (GBS)

- Foot drop
- Absence of reflexes
- Hyponatremia at times (release of antidiuretic hormone)
- Nerve Conduction Velocities
- Cerebrospinal fluid testing
  - Elevated protein
  - Low to normal WBC
Case Study

- 67 year-old man admitted with a 2 month history of dysarthria and generalized weakness. Denies recent infection. Denies fever. Does note slight weight loss of about 10 pounds but “needed” to lose some weight anyway. On exam you find stable VS, normal physical exam, dysarthria, diminished gag reflex, motor exam demonstrates atrophy of both hand intrinsic and both shins without isolated weakness. Sensory exam remains intact to LT, PP and vibration. Reflexes are hyperreflexic in elbows, wrists, knees and unsustained clonus is noted in both ankles with bilateral Babinski present.

Case Study

- 2 month weakness
- Weight loss
- VSS
- Diminished gag – dysarthria
- Atrophy
- Hyperreflexia
- Babinski

Amyotrophic Lateral Sclerosis

- Atrophy – lower motor neurons
- Hyperreflexia & bilateral Babinski – upper motor neurons

- Both lower and upper motor neuron involvement is almost pathognomonic for motor neuron disease
- Most common type of motor neuron disease in adults is ALS
Headache

- 2% of all Emergency Department visits
- Vast majority of headaches are benign.
  - Migraine
  - Tension
- Failure to recognize a serious headache can have serious consequences.
  - Permanent neurologic deficit
  - Vision loss
  - Death

Migraine headache

- Common, episodic disorder
- Primary neuronal dysfunction leads to a sequence of changes intracranially and extracranially.
- Four phases
  - Prodrome
  - Aura
  - Headache
  - Postdrome

Migraine

- Prodrome
  - Yawning
  - Euphoria
  - Food craving
  - Neck stiffness
- Headache
  - Unilateral
  - Pulsations
  - Photo and phonophobia
- Aura
  - Visual
  - Sensory
  - Motor
- Postdrome
  - Drained/exhausted
  - Hangover
  - Euphoria
38 year-old woman came into the emergency department with an hour complaint of an excruciating thunderclap headache. She was at a friend’s house when she suddenly developed this severe headache. She denies any previous history of headaches but admits that her friends and she were using cocaine. Shortly after her headache started, she developed nausea and had numerous bouts of emesis. Her mother suffers with migraines but she has never had one so she called her Primary Care Advanced Practice Registered Nurse. The office was closed for the day so she came to the ED.

Case Study

- No previous headaches
- Severe and of sudden onset
- Cocaine abuse
- Thunderclap – “worst headache of my life”
- Severe nausea and vomiting

Subarachnoid Hemorrhage

- Females > males
- 50% less than 55 years-old
- 3% of all headaches
- Risk factors
  - HTN, tobacco, substance abuse (cocaine)
- Misdiagnosed at a rate of 12.25%
  - Failure to perform CT is the most common error
Dizziness

- Arguably the most vague complaint in medicine
- Cardiology and EP think lightheadedness
- Neurology think spinning or unsteadiness
- Average of 6% of all ED cases
  - 32% vestibular
  - 21% cardiovascular
  - 12% respiratory
  - 11% neurologic
  - 4% cerebrovascular
  - 19% other causes

Benign Positional Vertigo

- Acute in onset
- Typically when first awakening; rolling over
  - “bed spinning”
- Positional
  - Stare at an object
  - Close your eyes
- No hearing complaints
- No focal neurological complaints outside of “dizzy”

Benign Positional Vertigo

- Risk for recurrent attacks
- Treat with meclizine, diazepam, Benadryl
- Dix-Hallpike maneuvers / Epley maneuvers
- Meniere’s typically is more severe, with ringing in the ears as well as hearing loss.
Case Study

- 72 year-old woman admitted with sudden onset of “dizziness.” She was at home with family watching “The APRN’s” a new daytime talk show with APRNs sitting around discussing common medical conditions.
- During the program, she started to feel the room spinning. She became nauseous and bout recurrent bouts of emesis.
- Her family called 911 and she was brought into the ED. She reports a history of vertigo.
- On exam, you notice no focal arm or leg weakness, no facial weakness but nystagmus with gazing to the right. She has no sensory deficits but appears ataxic with FN testing. You attempt to stand her but she is unable to because she has recurrent bouts of emesis.

Previous history of vertigo
Sudden onset
Severe nausea and vomiting
Nystagmus
Ataxia right arm

Right Cerebellar Stroke

- 3.2% of dizziness, in the ED, related to stroke
- Typically no focal weakness, but rather, clumsiness (ataxia)
- Medical emergency d/t swelling
- Consult neurosurgery
Cerebellar Stroke

- Embolic stroke workup
  - Cardiac source
- Ultrasound
  - Obtain CTAs instead if able or MRAs
- Therapy
  - DAPT

Neurology Recap

- GBS – Guillain Barre Syndrome
- ALS – Amyotrophic Lateral Sclerosis
- Migraine
- SAH – Subarachnoid Hemorrhage
- BPPV – Benign Paroxysmal Positional Vertigo
- Cerebellar Stroke

References

- Amyotrophic Lateral Sclerosis Association (2018). als.org
- GBS/CIDP Foundation International (2018) gbs-cidp.org
RED FLAGS IN GASTROENTEROLOGY

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DISCLOSURES

- Speaker Bureau for Allergan, Abbvie and Salix Pharmaceuticals

GI BLEED
A 26-year-old female presents to ED with chief complaint of rectal bleeding. She states this started about 2-3 weeks ago, initially it was bright red blood with small amounts of soft brown stool every couple of days. It has progressed to bright red blood with loose stool 2-3 times a day. She denies any nausea, vomiting or constipation. She denies any abdominal pain or cramping prior to stool bowel movement. She has had previous uterine leiomyoma removed. She denies any rectal pain. She denies any tenesmus but has noticed a little more urgency lately. She denies any fever or chills. She denies any recent travel.

**PMH:**
- None

**Social:**
- Non-smoker
- ETOH 2-3 times a week mostly weekends
- College student

**Family:**
- Dad with HTN
- Mother and siblings healthy

**Medications:**
- Occasional Acetaminophen

**Physical exam:**
- VS HR 88, BP 104/68, resp 18, BMI 22
- Abdominal soft, tender to palp to bilateral lower quadrant
- Rectal exam no masses, external hemorrhoids, small BRB with no stool

**Labs:**
- Hgb: 11 g/dL
- BMP WNL

**What are your differentials?**

**What are your concerning findings?**

**What would you do next?**
RED FLAGS

- Orthostatic hypotension
- Weight loss
- Iron deficiency anemia
- New onset pain
- Over the age of 50

- Early satiety
- Palpable mass on exam
- Fever
- Change in bowel habits
- Fecal incontinence


PLAN

- Labs
  - CBC/CRP
  - Consider CT abdomen/pelvis
  - Stool studies
- Medications
  - Possible Ciprofloxacin/Metronidazole
  - Prednisone?
- Referral
  - Gastroenterology for colonoscopy

GERD/DYSPEPSIA
A 55 year old male presents to your office for sick visit. Established patient. C/o heartburn that has increased in the last 2 months. He has associated chest pain that is occasional and mid sternal. Mostly occurring after eating and lasting a couple minutes. Has been taking calcium carbonate a couple of times a week for years but 2 weeks ago started taking Omeprazole OTC daily. Denies any nausea, vomiting, melena or hematemesis. Denies any weight loss or abdominal pain. States has occasional dysphagia with solids that seems to progressively getting worse. Denies any history of EGD in the past.

PMH
- HTN
- CAD
- COPD
- Obese
- Social
  - Smokes 1 pack
  - ETOH 1-2 beers a week
  - Works as an accountant
- Family history
  - Father with CAD, HTN
  - Mother with breast cancer
- Medications
  - Aspirin 81 mg daily
  - Omeprazole 20 mg daily
  - Lisinopril 40 mg daily

Physical exam
- Vitals
- HR RR
- LCTA
- Abdomen large, obese non tender. BS x4

What are his differentials?
What are his concerning findings on his presentation?
What would you order/prescribe next?
RED FLAGS

- Weight loss
- Anemia
- Chronic heartburn > 5 years
- Melena/coffee ground emesis
- Guaiac + stools
- Dysphagia
- Odynophagia
- Over the age of 55
- Long-term NSAID use
- Persistent hoarseness
- Chest pain
- Smoker or history of
- History of heavy ETOH use
- Failure to improve with treatment

PLAN

- Labs
  - CBC
  - GG
- Medications
  - PPI or H2 blocker
- Referral
  - Gastroenterology
  - EGD vs Esophogram

ABDOMINAL PAIN
Patient is a 64 year old female presents to your office c/o abdominal pain in the upper abdomen for the last couple days. States the pain comes in waves but is more consistent the last 24 hours. Rates the pain 4/10 and describes it as aching pain with no aggravating factors but better with Acetaminophen which she has been taking 1000 mg every 6 hours. States some nausea but no vomiting. Has a decrease in appetite. Denies any diarrhea or constipation. Denies any melena, hematemesis, hematochezia. Denies any fever, chills or prior c/o pain like this in past. Has noticed her urine to be a little darker the last 24 hours as well. Denies any travel other than to visit her daughter in North Carolina 6 weeks ago. Last colonoscopy 13 years ago and was "normal".

PMH
- CAD
- GERD

Social
- Glass of wine each night with dinner
- History smoking 20 pack year but stopped 10 years ago

Family
- Father with COPD
- Mother with CVA
- Sister with HTN

Medications
- Acetaminophen 1000 mg every 6 hr x 3 days
- Pantoprazole 40 mg daily
- Aspirin 81 mg daily
- Physical exam
- VS stable
- LFTs
- LCBAs
- Abdominal soft and tenderness with palp to upper abdomen Rp+4

What are your differentials?

What would you order next?
CBC:
- WBC: 10.2 /L
- Hb: 13.7 g/dL
- Platelets: 176,000 /mcL

CMP:
- Na: 136 mEq/L
- K: 3.6 mmol/L
- Cl: 100 mEq/L
- Mg: 2.4 mg/dL
- Calcium: 9.0 mg/dL
-Albumin: 4.7 mg/dL
- AST: 175 U/L
- ALT: 172 U/L

TB: 2.8 mg/dL

AST/ALT: 164/172 U/L

Alkaline phosphatase: 220 IU/L

Acetaminophen level: None detected

Lipase: 560 U/L (range 40-390)

What are concerning findings with this patient?

RED FLAGS

- Pain out of proportion to exam
- Rectal bleeding/Hematochezia
- Weight loss
- Early satiety
- Change in bowel habits
- Fever, leukocytosis
- Abdominal distention
- New onset >50
- Radiated to shoulder or back
- Anemia
- Increase LFT/jaundice
- Abnormal physical exams
- Rectal tenderness
- Guarding
- Bruises
PLAN

- Labs/imaging
  - CA 19-9
- Education
- Stop ETHOH
- Stop Acetaminophen
- Referral
  - Gastroenterology for possible ERCP/MRCP/EUS

REFERENCES