Common Complaints of the Cardiovascular System

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Disclosures

• No Disclosures

• May discuss off-label uses for medications
Indications for Referral

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Murmur

• Most common indication for referral in hospital
  – 18.5%²
• Result of turbulence across a valve or structure
Murmur

- Pulmonary Flow
- Peripheral Pulmonary Stenosis
- Still’s
- Venous Hum

Pulmonary Flow

55 days

55 years
Peripheral Pulmonary Stenosis

- Normal until 6 months

Branch Pulmonary Artery Stenosis

- Persists beyond 6 months of age
  - Williams Syndrome
  - Alagille Syndrome
Valvular Pulmonary Stenosis

Still’s Murmurs

- 3 years to adolescence
- Vibratory/musical quality
- Fades with upright posture
- Varies with respiration
- Exact cause unknown
Venous Hum

- School age to Teenage
- Low pitched continuous
- Fades with neck position

Concerning Signs and Sounds

- Very harsh/loud
- Diastolic
- No change with position
- Poor feeding
- Poor growth
Cost Analysis

• In general, better to refer to cardiology
  – Will determine need for echo
• Little Benefit
  – Chest x-ray
  – EKG

Chest Pain
Chest Pain

- 5% of cardiology consults
- 13% of pediatrics ED visits

Chest Pain

- Costochondritis
  - Tietze Syndrome
- Precordial Catch
- Trauma
- Pulmonary
- Pericarditis
Costochondritis

- Adolescents
- Often preceded by respiratory illness
- Pain at costochondral junction
  - 2-4 joints
- Tietze Syndrome
  - Single costochondral joint
- Pain to Palpation

Precordial Catch

- 6-12 years
- Brief, sharp pain
- Typically on left
- Worse with inspiration
- May occur at rest or exercise
  - Able to resume activities
**Trauma**

- Pain reproducible with palpation
- Significant trauma
  - Myocardial contusion
  - Hemopericardium

**Pulmonary**

- Reactive Airway Disease/Asthma
  - 5-20% chest pain evaluations
- Pneumonia
- Pleuritis
Pericarditis

- Preceding viral illness
  - May be 2-3 weeks prior
- Squeezing, sharp, or dull
- Pain better when leaning forward
- Friction rub
**Pericarditis**

Diffuse ST elevation with PR depression

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**Echocardiogram Appropriate Use Criteria**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate Use</td>
<td>Exertional Chest Pain</td>
</tr>
<tr>
<td></td>
<td>Nonexertional pain with abnormal EKG</td>
</tr>
<tr>
<td></td>
<td>Chest pain with FHx cardiomyopathy or sudden death</td>
</tr>
<tr>
<td>May be Appropriate</td>
<td>Chest pain with symptoms, benign FHx</td>
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<tr>
<td></td>
<td>Chest pain with FHx early coronary artery disease</td>
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<tr>
<td></td>
<td>Chest pain with fever</td>
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<td></td>
<td>Chest pain with recent illicit drug use</td>
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<tr>
<td>Rarely Appropriate</td>
<td>Chest pain without signs or symptoms, benign FHx</td>
</tr>
<tr>
<td></td>
<td>Nonexertional chest pain with normal/no EKG</td>
</tr>
<tr>
<td></td>
<td>Reproducible chest pain with respiration/palpation</td>
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</tbody>
</table>
Palpitations and Arrhythmias

- 13.7% of consults
- Anxiety
- Wolff-Parkinson-White
- Hypertrophic Cardiomyopathy
**Anxiety**

- Graduated increase and cool down
- Heart rate variable

**Characteristics of Arrhythmias**

- Sudden onset and cessation
- Fixed heart rate
- Independent of exercise
  - Can be triggered by catecholamines
Wolff-Parkinson-White

Short PR interval and slurred QRS (Delta wave)
Hypertrophic Cardiomyopathy

• Must be ruled out if syncope with exercise
  – #1 cause sudden cardiac death in children/adolescents
Hypertrophic Cardiomyopathy

Inverted T waves V5/V6
May Have Left Ventricular Hypertrophy

Long QT Syndrome

• Must be ruled out if syncope with exercise
  – #2 cause sudden cardiac death in children/adolescents
Long QT Syndrome

QTc >460
Questions?

I CAN'T BELIEVE YOUR HEAD EXPLODED.

References

4. Allen, Shaddy, Penny, Feltes, Cetta. Moss and Adams’ Heart Disease in Infants, Children, and Adolescents, Including the Fetus and Young Adult. 9th edition. Wolters Kluwer