PEDIATRIC CHEST PAIN & EKGS

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INQUIRE

- Congenital or acquired cardiac disease
  - Surgeries
- Family history of heart disease
- Fever
- Constitutional symptoms or other symptoms
- Skin peeling
- Lymphadenopathy
- Strawberry tongue
- Preceding upper respiratory infection

IDENTIFY

Benign Causes

- About 99.5% are noncardiac
  - 60% musculoskeletal
  - 15% respiratory
  - 25% miscellaneous
    - infectious
    - pulmonary
    - gastrointestinal
    - psychiatric
    - hematologic
    - oncologic (mediastinal mass, breast tissue)
- Texidor's Twinge/Precordial Catch Syndrome
  - acute, sudden onset, non-radiating left-sided chest pain in an adolescent
  - exacerbated during inspiration and resolves in a few minutes

Serious Presentations

- If ill-appearing, consider:
  - myocarditis
  - cardiac failure
  - pericarditis
  - Kawasaki
  - rheumatic heart disease
  - cardiac failure

Normal EKG in children

- HR greater than 100; marked sinus arrhythmia; RVH from high pulmonary pressures (normalizes at around 6 months); transient Wenckebach during sleep
- Dominant R wave; RSR pattern in V1; peaked P waves
- Short PR interval (less than 120 ms) and QRS duration (less than 80 ms); Q waves in inferior and left precordial leads; QTC less than 6 months: 490 ms
- All of the above reach adult values by 13 years old
- T waves; usually upright in most leads for the first 7 years; downwards until adolescence; T wave inversions in V1-3 ("juvenile T-wave pattern"); notched T waves normal in V2 and V3

INTERVENE

DO

- ABCs, features of hemodynamic compromise, and compromised cardiac output (failure)
- Use fluids judiciously - about 10 ml/kg bolus or maintenance fluids
- Consider inotropes and vasopressors early on if required
- Consider fever, pain, dehydration, agitation, anxiety, crying, and medication effects while evaluating heart rate; re-evaluate regularly

DO NOT

- Routinely obtain chest x-rays or EKGs if the clinical examination is suggestive of noncardiac etiology
- Obtain troponins, D-dimers, coagulants, brain natriuretic peptides (BNP), and fibrinogen routinely, unless otherwise indicated

DISPOSITION

Benign Causes → Depends on clinical status and response to therapy

Serious Presentations → Depends on clinical status and response to therapy

PEM NUGGETS

- For every 1℃ rise in temperature, heart rate rises by approx 10 bpm.
- Tachycardia is the earliest manifestation of shock in a pediatric patient.
- Tachycardia worsening after a fluid bolus is suggestive of cardiac failure.
- Cardiac disease in an otherwise healthy child who appears clinically well is very rare.