

Heart disease in children

Andrew Ying-Siu Lee, MD, PhD.

(I) Manifestation of heart diseases in children

Heart Murmurs

- Physiological murmur (innocent or functional murmur) eg. hypermetabolic conditions (anemia, infection, anxiety etc)
- Pathological murmur eg. increased volume of blood flow (eg. shunts), increased velocity of blood flow (eg. obstructive or regurgitant lesions)

Cyanosis

- Pulmonary causes
- Cardiac causes
- Hematologic causes

Exercise intolerance

- Cardiac causes eg. cardiomyopathy, heart failure, myocarditis, Kawasaki ds, congenital heart ds, valvular heart ds etc.
- Noncardiac causes eg. obesity, pulmonary ds, anemia, diabetes, neuromuscular ds etc.

Chest pain

■ Cardiac causes (rare):-

1. anatomic eg. aortic stenosis, aortic aneurysm, coarctation of aorta, coronary anomalies, mitral valve prolapse, arrhythmogenic right ventricular dysplasia etc.
2. acquired eg. cardiomyopathy, endocarditis, myocarditis, Kawasaki ds, myocardial ischemia, pericarditis, pulmonary hypertension etc.
3. arrhythmias

■ Noncardiac causes (mostly):-

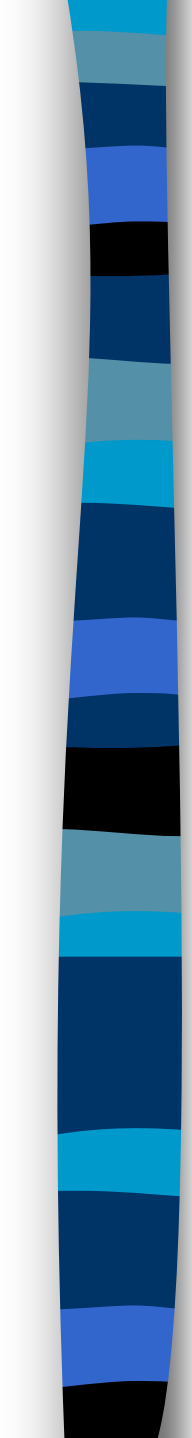
1. musculoskeletal
2. pulmonary ds eg. pneumothorax, pneumonia, chronic cough, pleural effusion, pulmonary embolism
3. gastrointestinal eg. esophagitis, peptic ds
4. psychiatric
5. idiopathic

Palpitation

- Cardiac causes: arrhythmias (<10%). Majority = sinus tachycardia
- Noncardiac causes: fever, anxiety, hyperventilation, exercise, muscle spasm, thyroid ds, neoplasm, pheochromocytoma

Syncope

- Autonomic (vasovagal): neurocardiogenic eg. reflex or situational (breath-holding, swallowing, cough, micturition, defecation), excessive vagal tone, orthostatic, anemia, hypovolemia or dehydration, postural orthostatic

- 
- Cardiac: arrhythmias, obstruction (eg. aortic, pulmonary or mitral valve stenoses, hypertrophic cardiomyopathy, pulmonary hypertension, Eisenmenger's syndrome, tamponade, constrictive pericarditis, myxoma etc.), myocardial dysfunction (eg. cardiomyopathy, muscular dystrophy)
 - Neurologic: seizure, migraine, increased intracranial pressure
 - Metabolic: hypoglycemia, anorexia nervosa, drugs, toxins, electrolytes
 - Psychogenic: hyperventilation, hysteria etc

(II) Common heart diseases in children

- Congenital heart ds
- Acquired heart ds
(refer to respective slide presentations)

- **Kawasaki disease**
= self-limited vasculitis with unclear etiology
(probably immunologic to infectious agents
in genetically susceptible patients)
affecting infants and children, usually
associated with preceding respiratory
illness, eczema.

■ Diagnostic criteria:

Fever (persisting ≥ 5 days) plus ≥ 4 following features:

- changes in extremities eg. erythema of palms and soles, edema of hands and feet, periungual peeling of fingers and toes
- bilateral conjunctival injection
- injection of oropharynx, erythema and crackiing of lips, strawberry tongue
- cervical lymphadenopathy
- polymorphous exanthema

■ Complications:

- coronary and peripheral arterial aneurysms
- inflammation of pericardium, myocardium, endocardium, valves and coronary arteries
- myocardial infarction
- peripheral vasculitis → gangrene
- musculoskeletal eg. arthritis, arthralgia
- gastrointestinal eg. diarrhea, vomiting, abdominal pain
- hepatitis, jaundice
- pneumonia, pleural effusion

- ## ■ Treatment = aspirin, intravenous immunoglobulin, steroid, antithrombotic, coronary intervention etc.