

The Child with a Heart Murmur

BACKGROUND

- Congenital heart disease (CHD) affects 8 per 1,000 live born infants
- VSD is the commonest congenital heart lesion
- Incidence of CHD increases significantly with positive family history and chromosomal abnormalities
- All newborn infants should have pulse oximetry performed prior to discharge to detect cyanotic CHD

COMMON DEFECTS

- VSD
 - ✓ Harsh pansystolic murmur ± thrill
- ASD
 - ✓ Fixed split of HS 2
- Aortic stenosis
 - ✓ Harsh ejection systolic murmur radiating to neck ± click
- Pulmonary stenosis
 - ✓ Ejection murmur ± click
- PDA
 - ✓ Loud machinery murmur

DIFFERENTIALS

- Left-to-right shunts (acyanotic)
 - ✓ VSD
 - ✓ ASD
 - ✓ PDA
- Obstructive lesions
 - ✓ Coarctation of the aorta
 - ✓ Hypoplastic left heart
 - ✓ Aortic stenosis
 - ✓ Pulmonary stenosis
- Cyanotic CHD
 - ✓ Tetralogy of Fallot
 - ✓ Transposition of great arteries
 - ✓ Tricuspid atresia
 - ✓ Truncus arteriosus

REFERENCES

- Paediatr Child Health 2009; 19(1):25-29
- Acta Paediatr 2005; 94:1590-6

HISTORY

- Symptoms in infants
 - ✓ Sweating
 - ✓ Poor feeding
 - ✓ Recurrent infections
 - ✓ Failure to thrive
- Symptoms in older children
 - ✓ Shortness of breath
 - ✓ Decreased exercise tolerance
 - ✓ Palpitations
 - ✓ Chest pain
- Birth/maternal history
- Family history

EXAMINATION

- Centiles
- Measure BP & O₂ saturations
- Signs of respiratory distress
- Dysmorphic features
- Full cardiovascular exam
 - ✓ Pulses
 - ✓ Clubbing
 - ✓ Surgical scars
 - ✓ Murmurs, thrills, heaves
- Palpate liver

INVESTIGATIONS

- CXR and ECG are not helpful in distinguishing innocent from pathological murmurs
- Echocardiography is the investigation of choice but requires cardiology referral

CARDIOLOGY REFERRAL

- If paediatrician or parents are not confident that the murmur is innocent

TAKE HOME MESSAGES

- Newborns with clinical features suggesting heart disease require urgent referral
- Most murmurs seen in older children are innocent
- Careful cardiovascular exam is key

REFERRAL

- Red flags in the history or examination
- Cyanosis
- Urgent referral of newborn at risk of haemodynamic compromise
- Timely referral of children with suspected CHD based on risk of the suspected underlying defect

RED FLAGS

- Cyanosis
- Dysmorphic features
- Absent/reduced pulses
- Hepatomegaly
- Respiratory distress
- Clubbing
- Poor perfusion
- Hypertension

INNOCENT MURMURS

- Soft
- Systolic
- Asymptomatic
- Localised
- Musical/buzzing quality
- Vary with posture/respiration

Types of innocent murmurs

- Venous hum
 - ✓ Best heard above clavicles
 - ✓ Pansystolic
 - ✓ Increased by sitting forward
 - ✓ Decreased by neck pressure or lying supine
- Stills murmur
 - ✓ Vibratory murmur along left sternal edge
 - ✓ Children aged 3-8 years
 - ✓ Decreases with Valsalva and standing
- Pulmonary flow murmur
 - ✓ Soft blowing murmur at upper left sternal edge
 - ✓ Older children