

# 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 & O<sub>2</sub> 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