CONGENITAL HEART DISEASE
NEWBORN DETECTION AND MANAGEMENT

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Outline
- Case 1, 2, 3
- Prenatal screening
- Newborn pulse ox screening

How common?
- Incidence: 8/1000 live births
- Most common birth defect
- Most present at < 1 year
- #1 cause of infant death from birth defects
Cases – 3 infants w/respiratory distress

1. Term neonate @ 24hrs - cyanosis, no murmur
2. Term neonate @ 24hrs - shock, no murmur
3. 1-month-old

Exam?
CXR helpful?

Difference in physiologies?

*acyanotic vs. cyanotic defects*

Cyanotic newborn
Cyanotic newborn (case #1)

?Respiratory Disease
- Exam
- CXR
- Oxygen administration
- Blood gas: pH 7.18  PO2 :35 PCO2: 35 BE :-16

Differential

PPHN? (PFC)
Case 2

- Neonate:
  - Shock
  - Cardiomegaly
  - Severe metabolic acidosis with respiratory distress
  - Seemed normal at birth.
  - Murmur noted soon after birth

Management

- R/o sepsis
- ?Prostaglandin Rx
- +/- Inotropes
- Correct acidosis
- Glucose - check

PG E₁ (Alprostadil)

- IV
- Side effects:
  - Apnea
  - Fever
  - Gastrointestinal
CHD & shock

- Coarctation
- Interrupted aortic arch
- Critical aortic stenosis
- Hypoplastic left heart syndrome
Diagnosis

Case 3: 1-month-old w/tachypnea

- Cardiac possibilities?
L→R Shunts ("Acyanotic" CHD)

- **Defects**
  1. VSD
  2. PDA
  3. ASD
  4. AVSD (or complete atrioventricular canal)
- **May not be apparent in neonate due to high PVR (ie - bidirectional shunt)**

Newborn pulse oximetry screening
• Normal newborn exam
  —does not exclude CHD

• Normal newborn pulse ox
  —does not exclude CHD

How good is prenatal diagnosis?

– 20 weeks is optimal
– Detection rate
  • average: 25%
  • range: 3–70%
– Advantage
  • early treatment
  • delivery in surgical unit
  • psychological/adaptive
Types of CHD

- **Cyanotic**
  - less common
  - ‘terrible T’s

- **Acyanotic**
  - Left to right shunt lesion
  - ASD, VSD, PDA, AV canal

- **Obstructive lesions**
  - AS, PS, coarctation, HLHS

Summary

- Incidence 8/1000 births; #1 birth defect
- Changes in circulation occur at birth
- Acyanotic (L-R) vs. Cyanotic (R-L)
- Obstructive lesions
- Role of prenatal dx, newborn screen and ductus arteriosus