NETS WA

NEWBORN EMERGENCY TRANSPORT SERVICE MEDICAL GUIDELINES

CLINICAL GUIDELINES

Congenital Heart Disease
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Newborn Emergency Transport Service Medical Guidelines
King Edward Memorial/Princess Margaret Hospitals
Perth Western Australia
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Congenital Heart Disease (CHD)

Key Points:
Symptomatic patients with CHD either present with cyanosis, or in cardiac failure

- **Cyanosis presenting Day 1**

  Differential diagnosis:
  - Transposition of the great vessels
  - Pulmonary atresia / critical pulmonary stenosis / Tetralogy of Fallot / other forms RV outflow tract obstruction

  Management:
  - May be difficult to distinguish cyanotic CHD from PPHN. Hyperoxia test may help (see section on PPHN.)
  - **If unsure whether the infant has CHD or PPHN, it is safer to administer oxygen, & commence PGE1 infusion**
  - Asymptomatic, non-acidotic infants: minimal intervention.
  - Unstable & / or acidotic: consider intubation, ventilation, PGE1 infusion ± Sodium bicarbonate infusion.
  - PGE1 improves systemic circulation in obstructive left heart conditions, & the pulmonary circulation in cyanotic CHD.
  - Common side effects of PGE1 include
    - vasodilation (& therefore hypotension). May need fluid bolus ± inotrope.
    - Apnoea (at higher doses). May need ventilation
    - Typical starting dose is 25-50ng/kg/min. At lower doses (≤25ng/kg/min) apnoea is less likely, & intubation not usually necessary.
    - For longer transports, sick infant, or higher dose of PGE1, consider elective intubation. Discuss with the on-call neonatologist.

- **Cardiac Failure**

Often present > Day 3 life (when PDA closes)

Differential diagnosis:

- Coarctation of aorta/ interrupted aortic arch
- Hypoplastic left heart
- VSD & other large L-R shunts (usually present much later)
- Arrhythmias

Management:

- Administer Oxygen to maintain normal SPO2
- CPAP or ventilation (positive pressure reduces afterload)
- Diuretics (Frusemide 1mg/kg)
- Inotrope support (Dobutamine or Dopamine.) See section on Shock.
- Consider Sodium bicarbonate infusion in cases of severe acidosis
- PGE1 infusion may be indicated, to be discussed with on-call neonatologist and/or cardiologist
    - PGE1 might be deferred until arrival at PMH in a stable patient and/or short trip back to PMH (<30min) after discussion with the neonatologist/cardiologist.