Neonatal collapse

Non specific presentation: hypothermia, respiratory distress, poor pulses
Sepsis and cardiac disease are commonest causes

NORTH EAST CHILDREN'S TRANSPORT AND RETRIEVAL

1. INITIAL EVALUATION & RESUSCITATION

- Oxygen to achieve SaO_2 96-98% (aim 75-80% if known cyanotic congenital heart disease)
- IV access (use intraosseous if difficult)
- Push 20mL/kg 0.9% sodium chloride IV
- If no signs of heart failure and still shocked, repeat fluid bolus
- Blood culture; IV cefotaxime 50mg/kg + amoxicillin 100mg/kg

Consider duct dependent heart lesion: early Prostin →

2. SECONDARY ASSESSMENT

HR/rhythm, murmur, femoral pulses, liver, rash, bruising, GCS

3. IMMEDIATE INVESTIGATIONS

- Blood gas, lactate, glucose, U+Es, LFTs, FBC, clotting, G+S
- Ammonia if seizures or encephalopathy
- CXR / ECG / ECHO (if available)
- Urinalysis / urine culture. Consider LP if no contraindication

4. Fluid refractory shock = ↓BP despite 40ml/kg fluid

- Start peripheral adrenaline at 0.1micgrog/kg/min
- Intubate and ventilate
- Continue fluid boluses if response (HR improves, liver not ↑)
- Central IV access

5. Resistant shock

- Consider increase in adrenaline if poor pulses, cold.
- Noradrenaline if warm, bounding pulses. Start 0.1microg/kg/min
- Consider early ECMO referral if not improving

Prostin

- Maintains patency of ductus arteriosus to provide pulmonary or systemic blood flow depending on congenital heart defect.
- Use alprostadil (Prostin VR) or dinoprostone (Prostin E2)

Preparation:

- Add 500 microg Prostin to 500mL 5% glucose
- Draw off 50mL of the mixture into a syringe
- 0.6mL/kg/hour = 10 nanograms/kg/min

Starting dose (give peripherally, centrally or IO):

- 10 nanog/kg/min (cyanosed infant who is well, not acidotic)
- 20 nanog/kg/min (acidotic / unwell infants)
- Higher doses may be recommended by cardiologist once intubated/ventilated.

Side effects:

- Apnoea (esp. doses > 15nanog/kg/min)
- Hypotension, flushing

Discuss early with oncall paediatric cardiologist at Freeman Hospital via NECTAR

Hypoglycaemia treatment:

- If <3mmol/L, bolus 2mL/kg 10% glucose IV
- Start 10% glucose/0.9% NaCl infusion
- Monitor glucose regularly and aim >4mmol/L

(Guideline adapted from STRS)

DIFFERENTIAL DIAGNOSIS includes:

Sepsis	GBS, E coli, Listeria	PROM, maternal GBS, fever in labour	→ Cefotaxime 50mg/kg IV, amoxicillin 100mg/kg IV
	Herpes simplex	Seizures, ↓GCS, coagulopathy, ↑ALT	→ Add aciclovir 20mg/kg IV. Cold sore history may be absent
	Resistant e.g. MRSA	No response 1st line antibiotics, positive contact	→ Broaden antimicrobial cover
Cardiac	Coarctation of aorta	Weak/absent femorals, >20mmHg arm/leg gradient	→ Urgent Prostin, support with ventilation/inotropes
	Hypoplastic left heart	Poor pulses, may be pink=pulmonary overcirculation	→ Prostin. Avoid O2 – cause overcirculation. Aim sats 75%
	Transposition (TGA)	Pre-ductal sats < post-ductal sats	→ Urgent Prostin. If preductal sats<70% despite Prostin, time critical transfer for emergency septostomy
	TAPVD (obstructed)	Shocked & cyanosed, CXR plethoric	→ Prostin may make worse. Urgent surgery if shock
	SVT	Fixed HR, narrow QRS, absent/abnormal P waves	→ Support (intubate/ventilate). Discuss with cardiology
	Myocarditis	Cardiomegaly, hepatomegaly, tachycardia, small QRS	→ Support (inotropes, ventilation). Consider ECMO referral
Metabolic	Urea cycle defect	↓GCS, seizures, ↑ammonia, alkalosis	→ Ammonia > 150µmol/L. Repeat to confirm. Urgent dialysis
	Organic acidosis	Profound metabolic acidosis, ketones negative	→ Metabolic consult. May co-present with sepsis
	Mitochondrial	↑lactate, seizures, cardiomyopathy	→ Metabolic consult. May co-present with sepsis
Other	Intracranial bleed	↓GCS, focal signs, raised fontanelle, retinal bleed	→ Head CT ? neurosurgery. ? NAI ? haemorrhagic tendency
	Intraabdominal	Distension, abdominal bruising	→ AXR or abdominal CT. ?NAI ? viscus perforation
	Addisonian crisis	Dehydration, ↓glucose, ↓Na, ↑K	→ Check cortisol and 17-OH progesterone. Consider hydrocortisone 2mg/kg IV

Author: LP Ferguson Version: 1.0 Effective: Review by: