NECTAR Guideline

Neonatal collapse

Summary:

This guideline outlines the initial assessment, investigations, differential diagnoses and management of the collapsed neonate.

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This clinical Pathway was produced by NECTAR hosted by Newcastle Upon Tyne Hospital Trust. To be used by nurses, doctors, ACCPs and ambulance staff to refer to in the emergency care of critically ill children. This guideline represents the views of NECTAR and was produced after careful consideration of available evidence in conjunction with clinical expertise and experience. The guideline does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient.	

Change History		
Date	**Change history Details**	**Approved By**

Neonatal Collapse

1. Initial Evaluation & Resuscitation

- Oxygen to achieve SaO2 96-98%
- 75-80% if known/suspected CHD
- IV/IO access
- 5-10mls/kg fluid bolus – repeat if required
- Blood culture
- IV cefotaxime and amoxicillin (meningitis doses)

Consider duct dependent heart lesion and prostin treatment

2. Secondary Assessment

- Heart rate/rhythm/murmur
- Femoral pulses/hepatomegaly
- Rash
- Bruising
- GCS

3. Immediate Investigations

- FBC, U&E, LFT, Coag, G&S, gas, BG, Lactate
- Ammonia (seizures/encephalopathy)
- CXR, ECG, ECHO (if available)
- Urine
- LP (if no contraindications)

4. Fluid refractory shock

- Call NECTAR
- Start peripheral adrenaline as per drug guideline
- Intubate and Ventilate
- Give further boluses if responsive (HR improves, no hepatomegaly)
- Central IV access

5. Resistant Shock

- Consider ECMO referral if not improving
- Increase adrenaline to achieve blood pressure
- Noradrenaline addition if inadequate response to adrenaline or warm shock (as per drug charts)
- Vasopressin if poor response to above
- Consider hydrocortisone

Prostin

- Maintains patency of the duct to provide pulmonary or systemic blood flow restricted by defect
- Use alprostadil or Dinoprostone

Preparation

- Add 500mcg of Prostin to 500mls 5% Dextrose
- Draw up 50mls of mixture into a syringe
- 0.6ml/kg/hr = 10nanograms/kg/min

How to start

- Can give peripherally, centrally or IO
- 10ng/kg/min if cyanosed but well, without acidosis
- 20ng/kg/min if acidotic or unwell
- Higher doses may be used on advice of NECTAR/Cardiology once intubated

Side Effects

- Apnoea
- Hypotension
- Hypoglycaemia
- Flushing

Discuss early with Paediatric Cardiology via NECTAR

Hypoglycaemia Treatment

- If <3mmol/L 2mls/kg 10% glucose IV
- Start 10% glucose 0.9% NaCl IVT
- Monitor Glucose aiming for >4mmol/L

Differential Diagnosis:

Sepsis

GBS/Ecoli/Listeria
↓
Intrapartum RF sepsis
↓
Cefotaxime and Amoxicillin

Herpes Simplex
↓
Seizures, reduced GCS, coagulopathy, raised ALT
↓
Aciclovir

Cardiac (Consider ECMO referral for all known/suspected conditions with profound hypoxaemia+/-hypotension)

Coarctation
↓
Weak/absent pulses, pre-post ductal sats/Bp differential
↓
Prostin, ventilation, inotropes

Hypoplastic left heart
↓
Poor pulses
↓
Prostin, Aim sats>75%

TGA
↓
Cyanotic pre and post ductal
↓
Prostin, if sats<70% time critical transfer

TAPVD
↓
Shocked and cyanosed, congestive CXR (pulmonary oedema type)
↓
Prostin may worsen, urgent surgery if shocked

Myocarditis
↓
Cardiomegaly, hepatomegaly and tachycardia
↓
Ventilation/inotropes, consider ECMO

Metabolic

Urea Cycle Defect
↓
Low GCS, seizures, high ammonia
↓
Scavengers/dialysis

Organic Acidosis
↓
Non-ketotic acidosis
↓
Metabolic consult, consider sepsis

Mitochondrial
↓
Raised lactate, seizures, cardiomyopathy
↓
Metabolic consult, consider sepsis

Other

CAH
↓
Dehydration, hypoglycaemia, hyponatraemia, hyperkalaemia
↓
Hydrocortisone, check cortisol/17OH, endocrine

Intra-abdominal
↓
Distension/bilious vomits
↓
Fluid/NGT/NBM/AXR surgical consult

Intracranial Bleed
↓
Reduced GCS, focal neurology, seizures, bulging fontanelle
↓
CT head/NS consult. ?NAI