

NHS Children's Acute Transport Service



Clinical Guidelines

Neonatal Collapse

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Introduction

Children less than 44 weeks of completed gestational age are neonates. This group of children present with nonspecific symptoms and have potential differential diagnoses that require prompt treatment.

1. Assessment

Attain history and examination considering the following features:

Diagnostic Group	History	Examination	Specific Treatment
Sepsis	PROM, maternal GBS, fever in labour, HSV, fever in child	Fever, tachycardia, long CRT, hypotension, rash, hyperlactataemia	Antibiotics (Cefotaxime, Amoxicillin to cover listeria, Vancomycin if line or MRSA possible). Consider aciclovir
Cardiac Disease	Cyanosis, breathlessness, tachypnoea, poor feed tolerance	Hepatomegaly, murmur, gallop rhythm, poor pulse volume, cardiomegaly, systolic BP gradient >20mmHg, pre/post ductal SpO2 difference, HR >220, hyperlactataemia	Prostaglandin (be aware of apnoeas, hypoglycaemia, hypotension, hyperthermia) Cautious fluid resuscitation. Discuss with cardiology
Metabolic Disorder	Consanguinity, deterioration after feeds, seizures	Hyperventilation, hypertonia, seizures, metabolic acidosis, hypocapnic alkalosis, hyperlactataemia, low GCS, long CRT	Check ammonia Treat hyperammonaemia (see metabolic guideline). Treat possible sepsis Discuss with metabolic team
Neurology, NAI and trauma	Drowsiness, hypotonia, poor feeding, injury, social issues	Fontanelle, pupil changes, hypo or hypertonia, bruising (head, abdomen, body), anaemia	Treat any raised intracranial pressure Consider CT head and/or abdomen Discuss with neuro or general surgeon Consider need for blood

2. Initial management of neonatal collapse

- Ensure airway patent
- Deliver oxygen
- Assess for shock and consider signs of cardiac failure
- Establish IV/IO access, send bloods including gas, sugar, ammonia, clotting, group and save and cultures
- Administer 20ml/kg fluid bolus, assess for cardiac failure, if none present this may need to be repeated
- Antibiotics
- If signs of cardiac disease start prostaglandin, perform CXR, ECG, 4 limb BP, pre and post-ductal saturations and refer to CATS congenital heart disease guideline
- Chase urgent ammonia (**particularly if apnoeas are part of history**), if metabolic disorder likely, prepare infusions and refer to CATS metabolic guideline
- Check for signs of trauma and intracranial haemorrhage; consider cranial ultrasound scan or CT imaging. Check gas for haemoglobin and consider blood, treat any signs of raised intracranial pressure (hypertension, bradycardia), see CATS neurosurgical guideline
- If likely sepsis, further fluid boluses should be administered. Consider the need to start inotropes. **Adrenaline may be started peripherally (see CATS drug calculator)** and noradrenaline may be started via IO or CVL. If there is a high inotrope requirement with low sugars, consider hydrocortisone. Refer to CATS sepsis guideline

3. Management following intubation

- This depends on the likely underlying pathology
- Ventilate with EtCO₂ in situ. Target saturations according to pathology
- Monitor BP regularly and administer fluid and inotropes to support this monitoring for signs of heart failure
- Ensure antibiotics have been administered
- Perform CXR
- Chase ammonia
- Consider requirement for imaging
- Consider requirement for more venous or arterial access
- If a child is likely to have a cardiac or metabolic condition this must be clearly communicated to the CATS team so an appropriate PICU bed is arranged

4. Transport considerations

- Target saturations according to pathology, if cardiac you may need air and oxygen to deliver a lower FiO₂ on transport
- Cardiac: prostaglandin may cause apnoeas in non-ventilated patients. If high dose prostaglandin is required children should be intubated and ventilated. Prostaglandin can also cause hypotension, hypoglycaemia, hyperthermia, which require monitoring
- Metabolic: apnoeas can occur if non-ventilated. Glucose should be checked and monitored. These children may develop seizures; therefore prepare doses of anti-seizure medication for transfer (lorazepam)
- Sepsis: children should be intubated and ventilated if they have an ongoing fluid requirement after 60ml/kg or increasing inotrope requirement. Have more fluid boluses prepared for transport. Have an escalation plan for inotropic support. Check and monitor glucose. Consider if the child requires blood, FFP, cryoprecipitate or platelets before transport
- Confirm with the CATS Consultant the suspected cause of neonatal collapse and that the child has a bed in the appropriate PICU

