

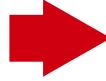
Therapeutic Hypothermia (TH) for Hypoxic Ischaemic Encephalopathy (HIE) - Neonatal Transfers.



Refer **EARLY** to KIDSNTS for advice - 0300 200 1100

HIE refers to acute brain dysfunction following critical lack of cerebral blood flow and oxygen delivery. Infants with HIE often have additional multi-organ failure requiring intensive care. Current evidence shows that moderate hypothermia (33-34°C) with continuous temperature monitoring, started within 6 hours after birth, can improve neurological outcomes at both 2 and 6 years of age and is the recommended standard of care.

Decision to initiate therapeutic hypothermia (TH) is made between referring unit and accepting NICU.
KIDSNTS contacted when NICU accepts baby.



Transfers for TH are classified as an **Uplift**. NTS should be at the bedside **within 4 hours of referral**.
 If active cooling is **not available** in the referring hospital - **Time Critical Transfer**

Establish and Agree on an accurate timeline for future decision making.

- On arrival— record: 1) perinatal events. 2) full birth history including resuscitation, 3) classification of HIE on arrival.
- Reaffirm eligibility criteria + record time of commencing TH (including mode i.e. passive or active TH).
- If any dispute on classification of HIE - conference call with Referring, Receiving and KIDSNTS Consultant.

Rectal Temperature monitoring is required on arrival at unit. Record core temperature at handover

**Airway/
Breathing**

- Ventilatory support as required dependent on respiratory drive and blood gas results.
- Aim for PaCO₂ 5.0-7.0 kPA and Aim Sats > 94% whilst avoiding hyperoxia.
- Bicarbonate is not recommended in this situation due to effects on CO₂ and risk of reperfusion injury



Circulation

- **Monitor markers of cardiac output - HR, BP, pulses, lactate, urine output.**
- **Bradycardia 80- 100 bpm is normal in TH.** A rise in HR > 100 -120 may be due to distress/pain, hypovolemia, hypotension, Seizures or inotropes.
- Avoid excessive fluid boluses and consider early inotropic support to improve cardiac output (dobutamine or adrenaline).
- Consider urinary catheter if urine output < 1ml/kg/hr



Disability

- Ensure adequate sedation and analgesia - morphine 10-20 micrograms/kg/hr.
- Maintain glucose > 2.6 mmol/L. If required, increase glucose concentration before total fluid volume.
- Treat seizures if confirmed on EEG, associated with physiological disturbance > 3 minutes, or frequency > 3 per hour. **First line therapy for uplift is phenobarbitone 20mg/kg loading dose over 20 minutes.**
- Consider prolonged drug clearance during TH and adjust drug dosages accordingly.
- **Transfer on CRITICOOL© - set range 33 -34°C.**



Haematology

- **Disseminated intravascular coagulopathy (DIC)** is a risk after hypoxic injury to the liver.
- Clotting sample should be sent on arrival at referring centre if not already sent.
- Treatment with clotting factors and/or platelets can be addressed with KIDSNTS consultants + receiving consultants prior to departure.



Pre-departure

- Check Blood Gas and Glucose and consider additional morphine bolus if infant agitated or HR elevated.
- Consider drawing up additional phenobarbitone bolus 10mg/kg to carry in Ambulance if loading dose was required.