Hypoxic Ischaemic Encephalopathy (HIE) - Summary Clinical Guideline Derby & Burton

Reference No: NIC NE 01

Summary guideline

Therapeutic hypothermia provides neuroprotective effects in those babies suffering from moderate to severe HIE. The aim of the treatment is to reduce the core temperature of the neonate and thus reduce neuronal cell death.

Infants must be ≥ 36 weeks' gestation AND within 6 hours of birth AND they must have at least one of the symptoms/signs set by criteria A, B and C to benefit from therapeutic hypothermia.

Resuscitation should be as per the Newborn Life Support (NLS) Guidelines set by the Resuscitation Council. Once the patient has been resuscitated and stabilised, the possibility of HIE should then be considered using the criteria outlined.

Cooling should be considered only once cardiorespiratory stability has been achieved, including heart rate and oxygenation. A baseline core rectal temperature should be taken before commencing cooling on arrival to the neonatal unit. Maintain normothermia whilst undergoing assessment for moderate/severe HIE.

Proper supportive measures are essential in the management of the encephalopathic neonate. Areas to address are airway and ventilation, circulation, fluids, neurology and sepsis.

If baby has clinical seizures, ideally they should have correlating aEEG as antiepileptic medication can affect neurological examination and may therefore impair decision making. Manage seizures as per the neonatal seizure guideline.

Neonates who are born with risk factors under Criteria A but are not encaphalopathic immediately after birth should have repeated careful neurological examination, preferably from a middle grade doctor or above.

Generally, all babies having therapeutic hypothermia should be transferred to tertiary care centres. Under special circumstances and situations, cooling may be managed locally at Derby NICU after liaison with the Tertiary consultant and transport consultant (criteria listed)

Burton neonatal unit does not have access to aEEG/CFAM and does not offer active cooling. All babies will require transfer to a cooling centre, therefore early discussions with a tertiary centre or the transport team is essential.

Inclusion Criteria

The UK Cooling TOBY Register sets out criteria for the consideration of treatment

with cooling. This criteria focuses of two elements, the first focuses upon the risk factors for developing hypoxic ischaemia followed by clinical findings that suggest moderate or severe encephalopathy. There must be evidence for both of these elements in order for therapeutic cooling to be considered.

The criteria below will outline the framework and algorithm for treating suspected HIE.

Risk factors of hypoxic ischaemia (Criteria A):

Used to identify infants who may develop encephalopathy and who may benefit from neuroprotective hypothermia.

Infants must be **≥ 36 weeks' gestation** (if between 34 and 36 weeks discuss with Centre) **AND within 6 hours of birth AND** they **must have at least one of the following:**

1. Apgar score of ≤5 at 10 minutes after birth **OR**
2. Continued need for resuscitation, including endotracheal or mask ventilation at 10 minutes after birth **OR**
3. Acidosis within 60 minutes of birth (defined as any occurrence of umbilical cord, arterial or capillary pH <7.00) **OR**
4. Base deficit ≥ 16 mmol/L in umbilical cord or any blood sample (arterial, venous or capillary) within 60 minutes of birth

Please refer to the full guideline for further information.