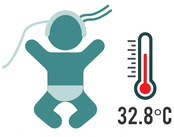
HYPOXIC-ISCHEMIC ENCEPHALOPATHY

HOW DOES BRAIN COOLING TREATMENT HELP BABIES WITH HIE?

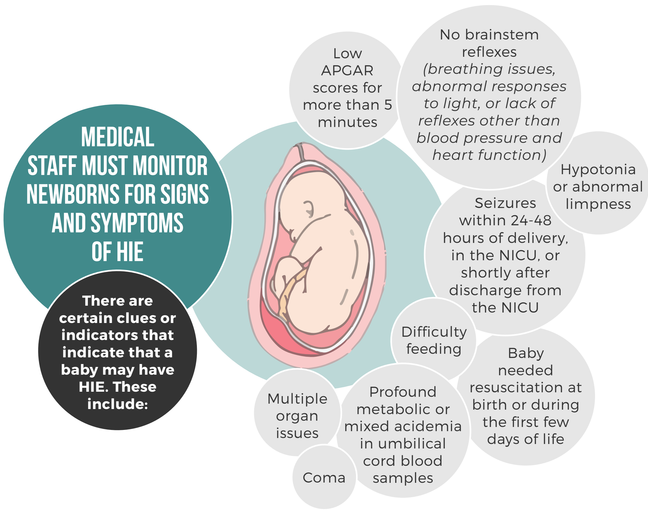


In **brain cooling therapy**, a cooling blanket is applied to the baby's head or wrapped around the body. A machine circulates water through the blanket at specific temperatures to ensure moderate cooling of the baby to around **32.8°C**.

This is done for **72 hours** and then the infant is warmed back to normal temperature.

By lowering the baby's temperature, the **metabolic rate slows**, allowing cell recovery over a longer period of time. This avoids further damage that can occur if **normal oxygenation** or blood flow is restored too quickly to injured cells.

WHAT CRITERIA DO DOCTORS USE TO DECIDE WHETHER A BABY SHOULD GET HYPOTHERMIA THERAPY?



WHEN SHOULD DOCTORS PERFORM THERAPEUTIC HYPOTHERMIA?

Infant who benefit from hypothermia are at least 36 weeks gestational age and not more than 6 hours of age and who meet either treatment Criteria A or B and also meet criteria C:

Criteria A

Severe acidosis (Cord pH **less than** or equal to **7.0** or base deficit **greater than** or equal to **-16**)

pH ≤ 7.0 | BD ≥ -16

Criteria B

Abnormal blood gasses (pH 7.01 to 7.15 or base deficit -10 to -15.9 on cord gas or blood gas within 1 hour) AND: - a complicated delivery (such as cord prolapse, placental abruption or uterine rupture) AND
Apgar scores of less than or equal to 5 at ten minutes OR at least 10 minutes of positive pressure ventilation

pH **7.01 to 7.15** | BD **-10 to -15.9**

Criteria C

Evidence of moderate to severe encephalopathy demonstrated one of the following:

- Seizures
- At least 3 clinical signs of moderate to severe encephalopathy such lethargy or stupor/coma;
- Deceased or no activity;
- Abnormal posture;
- Hypotonic or flacid;
- Weak or incomplete reflexes;
- Abnormal pupils/heartrate or breathing.

OPTIMIZING HYPOTHERMIA THERAPY

OPTIMAL TIMING

Head Cooling must begin within **6 hours** of injury, and recent research suggests that the sooner treatment begins, the better. - current reports on feasibility and safety indicate that referring centers can begin hypothermia therapy, given adequate staff education. The Recent ICE trial research confirms that it is possible for referring hospitals to use simple ice packs to begin hypothermia therapy while waiting to transfer the infant to an NICU capable of providing full hypothermia therapy.

OPTIMAL DURATION

Current literature suggests providing hypothermia therapy for **72 hours**, though some research suggests that the greater the initial injury severity, the longer the duration of hypothermia needed to optimally protect the brain. A currently-ongoing study is looking into the impact of longer and deeper hypothermia therapy cooling.

OPTIMAL METHOD

Currently, infants are cooled in one of two ways - **selective head cooling** and **whole-body cooling**. The merits and shortcomings of each (relative to each other) are as yet unknown.

OPTIMAL REWARMING TIME

Rewarming the infant is critical, as reperfusion injury can make existing brain injury worse. Clinical trials **rewarm** infants gradually **over 6-8 hours.**

OPTIMAL SELECTION OF NEWBORNS FOR TREATMENT

The CoolCap trials suggested that the infants with the **most severe aEEG changes** may not have benefitted from head cooling, and that the procedure was beneficial only to infants with **less severe aEEG changes**. Further research must be done into assisting infants with the most severe grades of HIE.

Talk To Our Trusted Hypoxic-Ischemic Encephalopathy LAWYERS For Legal Help at 1-800-300-BILA (2452)