



Hypoxic-Ischemic Encephalopathy and Hypothermia Treatment



Therapeutic hypothermia is a special “rescue” treatment for your baby. It involves cooling the body temperature on purpose to help slow the baby’s functioning and to decrease potential injury to the brain caused by lack of oxygen or blood flow.

This information sheet will help you understand common questions parents have about hypoxic-ischemic encephalopathy (HIE) and therapeutic hypothermia. Please talk to your baby’s doctor or nurse if you have other questions.

What is hypoxic-ischemic encephalopathy (HIE)?

This condition occurs when too little oxygen (hypoxia) and blood (ischemia) go to the brain.

When does HIE occur?

It can happen any time before, during or soon after birth.

Why do some babies develop HIE?

In many cases, the cause is unknown. Maternal bleeding or problems with the uterus, placenta or umbilical cord can cause HIE.

Why is it important to treat my baby for HIE?

A lack of oxygen and blood supply can hurt the brain, lungs, heart, liver and kidneys. If the lack of oxygen or blood supply is for a very short time, the body may recover without damage.

If the period is longer, permanent injury may occur. Brain injury can be mild, moderate or severe. If the brain injury is moderate or severe, your baby may have seizures.

Later in childhood, your baby may develop problems with learning, thinking, speaking, walking and coordination. Hypothermia treatment may reduce the brain injury and decrease the seriousness of cognitive and motor problems.

What is hypothermia treatment?

Your baby’s normal body temperature is 98.6 degrees Fahrenheit (37 degrees Celsius). Using a special blanket, we will cool your baby to about 92 degrees Fahrenheit (33.5 degrees Celsius). The cooling treatment lasts for 72 hours (3 days).

How will my baby be monitored during treatment?

We will monitor your baby very closely the entire time your baby is being cooled and re-warmed. During the 72 hours, your baby will ...

- Have its temperature monitored continuously.
- Have vital signs monitored regularly (heart rate, respiration, blood pressure).
- Have regular lab tests.
- Be given medicine for pain or discomfort, as needed.
- Receive IV fluids until re-warmed and stable.
- Receive other regular intensive care along with cooling treatment.
- Be re-warmed slowly after 72 hours. During re-warming, seizures and heartbeat changes may occur, but should last only a short time.
- Have the warming bed turned on after re-warming is complete. The baby will seem to “shiver” every now and then, which is typical.

During treatment, your baby may need ...

- Medicine for seizures.
- Medicine to keep blood pressure normal.
- Nutrition through an IV.
- Help from a breathing machine.
- An EEG to record brain activity. Brain waves are measured using tiny electrodes placed on the skin of the baby’s head. NOTE: These electrodes do not send electricity into your baby’s head, but record the electrical activity inside the brain.
- An MRI of the brain after re-warming to help evaluate the type and extent of injury that may have occurred.

Who will care for my baby?

Our Bryan Neonatal Intensive Care Unit (NICU) has a team of highly skilled neonatologists, neonatal nurse practitioners, respiratory therapists and NICU nursing staff. A pediatric neurologist also will be part of your baby’s medical team.

Other staff, including case management professionals, lactation consultants and family support specialists, can provide guidance and help.

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When will I know if there is permanent brain damage?

Those caring for your baby will be best able to answer this question. Often, the answer only is known over time.

While your baby is in the hospital, the doctors and nurses will update you regularly as to how your baby is doing and what the tests are showing. Babies are most likely to have long-lasting problems if they have an abnormal EEG or if it takes more than 2 weeks for normal behavior to develop, such as learning to feed.

It is important for babies who have had HIE to receive close follow up on their development through a neonatal follow-up program. Before your baby's discharge, we will refer you to the Neurodevelopmental Follow-up Clinic, which will evaluate your baby's motor, language, cognitive and social skills, and provide guidance if needed.

What can I do for my baby?

- Ask questions. It's important for you to understand your baby's progress. If you think of questions outside of the hospital, write them down so you can ask them later.
- During treatment, it's important that the environment around your baby is quiet so that your baby's brain can rest. We will do our best to keep all stimulation to a minimum.
- Speak softly to your baby.
- Use gentle touch on your baby's body.

Always discuss your questions or concerns with the doctor.

The information contained is provided for educational and informational purposes only and is not a substitute for medical advice and treatment or consultation with qualified physicians and other healthcare professionals regarding your individual needs. The March of Dimes® is not engaged in rendering medical advice or recommendations. "Hypoxic-Ischemic Encephalopathy (HIE) and Hypothermia Treatment: A Guide for Parents" was developed by March of Dimes in partnership with Children's Hospital of Greenville Health System. It was adapted from Helen DeVos Children's Hospital.