



## Family Information and Education

### Hypothermia Treatment for Cerebral (Brain) Protection Information Guide for Parents

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Your baby's doctors are proposing a special treatment for your baby called "**hypothermia**". This means cooling the body on purpose. They believe your baby may have had one or both of these conditions: **hypoxia**, a decrease (drop) in the supply of oxygen to your baby's blood; or **ischemia**, a decrease in blood flow going to his or her body.

This combination (**hypoxia-ischemia**) can cause injury to the brain and other organs. Cooling the body will slow down your baby's metabolism (the process that energizes the body) and can lessen this injury.

We hope the questions and answers in this guide will help you understand why we are recommending this treatment for your baby. Please read this information carefully. Talk to your baby's doctors about any questions or concerns you have.

#### Why is it important to treat my baby for hypoxia-ischemia?

Decreased oxygen and blood supply can affect the brain as well as other organs including the lungs, heart, liver and kidneys. A serious decrease in oxygen and blood supply to the brain can cause brain injury. If the injury is severe, a baby can develop seizures. Later in childhood, a baby can develop problems learning, thinking, or speaking. These are called "**cognitive problems**". A baby can also develop problems with walking or coordination. These are called "**motor problems**". Hypothermia may lessen the brain injury.

#### Why is hypothermia treatment being recommended for my baby?

Several large research studies have shown that when babies with hypoxia-ischemia are treated with hypothermia, they can have less brain injury and fewer cognitive and motor problems than when they are not treated with hypothermia. This is why we recommend hypothermia treatment for this problem.

#### How does hypoxia-ischemia affect organs besides the brain?

Babies who experience hypoxia-ischemia may develop problems with breathing. The lack of oxygen and blood supply can also affect the heart, liver and/or kidneys. Babies with hypoxia-ischemia may also develop infections or they may have problems with bleeding and blood clotting. Hypothermia treatment does not treat any of these other possible problems. Hypothermia is only used to protect the brain.

#### What exactly is hypothermia treatment?

Your baby's normal temperature is 37° Celsius (98.6° Fahrenheit). We will cool your baby's body temperature to about 33.5° Celsius (92.3° Fahrenheit) by using a cooling blanket under your baby. We will watch your baby's temperature by using a special internal thermometer that we place through the nose or mouth into the esophagus. The cooling treatment lasts for about 72 hours (3 days). Then your baby will be re-warmed to normal body temperature slowly over several hours using the same blanket. We will watch your baby's temperature very closely during the entire procedure.

Our procedure is based on the research studies mentioned above, and was developed by working closely with specialists from Children's Hospital Boston. The Children's Hospital specialists will also be very involved in the care of your baby.

**What if my baby has a problem during the hypothermia treatment?**

If your baby has a problem during the hypothermia treatment, your baby’s doctors will discuss whether this problem might be due to the treatment itself, and if so, whether to stop the treatment. If the treatment is stopped early, we will warm the baby back to normal temperature as if the treatment were complete.

**How will my baby be monitored during the treatment?**

We will monitor your baby very closely during the entire period of cooling and for several days afterwards. A special device called a “**cerebral function monitor**” will be used to monitor your baby’s brain activity. This monitor is similar to an electroencephalogram (EEG). The monitor measures your baby’s brain waves using three tiny electrodes placed on the skin of your baby’s head. These electrodes **do not** send electricity into your baby’s head. They record the electrical activity that is occurring naturally in your baby’s brain. We will keep this cerebral function monitor on your baby for the entire time that your baby’s body is being cooled. We may add more electrodes for a standard EEG study. All other aspects of your baby’s care will be the same as for any other baby needing neonatal intensive care.

**What are the possible side effects of hypothermia treatment?**

The problems mentioned above (heart, breathing, bleeding, liver, and kidney problems) that may come from hypoxia-ischemia are also potential side effects of the hypothermia treatment. These include irregular or slow heart beat, bleeding, skin changes, and discomfort. The research studies did not show differences in the rates of these problems between infants who received hypothermia treatment and those that did not. We would not recommend this treatment for your baby if we did not believe it was safe. If your baby develops serious complications such as bleeding problems or infection, or if we find another major problem, we will stop the cooling early. Your baby’s comfort will always be a very important concern which we will monitor closely.

**How will I know if my baby’s hypothermia treatment has been successful?**

While your baby is in the hospital, the doctors, nurse practitioners, and nurses will update you regularly about how your baby is doing and what the various tests are showing. We will also contact your baby’s pediatrician to discuss your baby’s condition and recommendations for future tests and evaluations.

While your baby is still a newborn, it may be difficult to determine what your baby’s long-term outcomes will be. We will use all of the information available to us to help you understand any injury your baby may have experienced. However, it may not be possible to know for sure how your baby will develop as it grows older.

We will also refer your baby to the Neonatal Neurology Program at Children’s Hospital Boston. The staff from that Program will follow your baby’s development along with your pediatrician, and will work with you to make sure your baby is receiving any special services that may be helpful.

**Is this a research study?**

Hypothermia treatment for protection against hypoxic-ischemic brain injury is **not an experimental treatment** at Beth Israel Deaconess Medical Center. If you agree with our recommendation for your baby’s treatment with hypothermia, it is not the same as giving your consent for a research study. However, we are working closely with the neurologists (brain and nerve specialists) from Children’s Hospital who will help with your baby’s care here at Beth Israel Deaconess Medical Center. The neurologists are planning a research study about how effective the hypothermia treatment is here in the Boston area. You may be asked later to allow them to use some of your baby’s information for this research purpose.