

UNDERSTANDING Hypoxic Ischemic Encephalopathy

HIE



What is hypoxic ischemic encephalopathy?

Hypoxic ischemic encephalopathy, or HIE, is a medical term that means brain injury resulting from too little blood flow or oxygen delivery to the brain. This condition is also called neonatal encephalopathy.

- **Hypoxic** (hye-POK-sik): not enough oxygen
- **Ischemic** (is-KEM-ik): not enough blood flow
- **Encephalopathy** (en-sef-a-lo-path-ee): a sign of possible brain injury

What causes HIE?

There are many causes of HIE, and sometimes the exact cause cannot be found. Some possible causes are:

- Too little oxygen supplied by the placenta during labor
- A blockage in the baby's umbilical cord
- A clot in the baby's brain
- Shock or sudden blood loss
- Infection

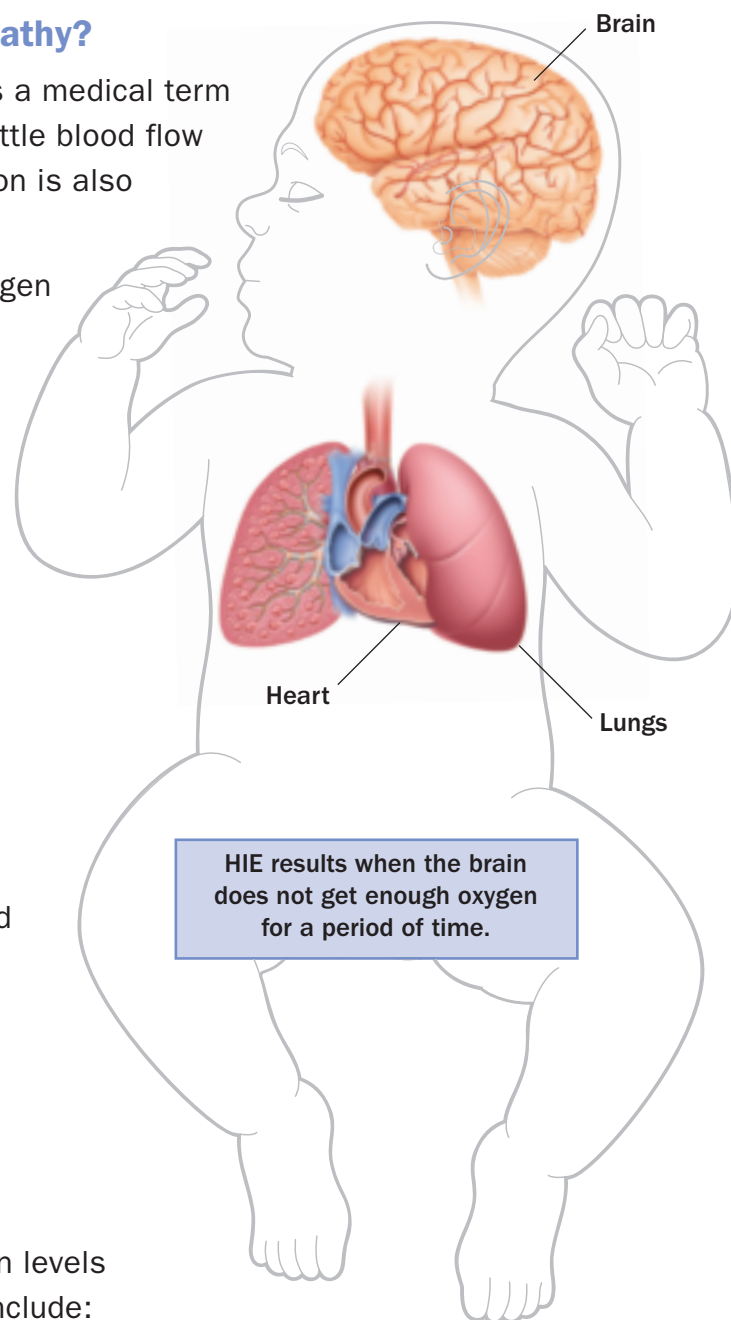
What are the symptoms of HIE?

Symptoms of HIE depend on how low oxygen levels dropped and for how long. Symptoms can include:

- Pale skin
- Weak muscles ("floppy")
- Weak or absent breathing
- Seizures
- Lethargy (low energy)
- Coma
- Decrease in certain reflexes

How common is HIE?

In the US and other Western countries, HIE occurs in 1 to 8 out of every 1,000 births.



Treating Hypoxic Ischemic Encephalopathy

How is HIE diagnosed?

Doctors diagnose HIE by observing the baby's symptoms and performing a physical exam. They may also run tests to see how well the baby's brain and heart are working.

What treatment will my baby receive?

Most treatments for HIE are meant to keep the baby comfortable and prevent any further damage due to low oxygen levels. Babies with HIE may need help breathing or may need extra fluids to maintain enough blood flow to the brain. If needed, the baby may receive medicine to control seizures.

Some babies may benefit from **hypothermia** (cooling) of either the head or the whole body. During this treatment, doctors decrease the baby's temperature for a few hours to a few days. The lower temperature is thought to limit the amount of damage to the brain.

What will happen next?

HIE is a serious and life-threatening condition. For babies who survive, the long-term effects of HIE depend on the amount of brain damage. Babies with moderately severe or severe HIE often have serious long-term complications, such as learning disorders, delayed development, or cerebral palsy.

Every baby is different. Talk to the health care team. They can answer any questions you have about your baby.

Glossary

CT (or CAT) scan – painless test that uses X-rays to create a picture of the brain

EEG (electroencephalogram) – test that measures electrical activity in the brain

EKG or ECG (electrocardiogram) – test that measures electrical activity in the heart

Encephalopathy – brain injury

Hypothermia – decreased body temperature

Hypoxic – not enough oxygen

Intravenous (IV) – through a vein

Ischemic – not enough blood flow

Mechanical ventilator – a machine that helps your baby breathe by moving air in and out of the lungs

MRI – painless test that produces an image of structures inside the brain. MRI machines do not use radiation

Ultrasound – painless test that uses sound waves to create a picture of the brain

Ask the health care team when you have questions—they are there to help.

NOTES:

Signature: _____ Date: _____ Time: _____