



Hypoxic Ischaemic Encephalopathy

Parent/Caregiver/Whānau Information – Neonatal Services

Becoming a parent is an exciting time, but it can also be stressful particularly if your pēpi/baby is unexpectedly unwell. This leaflet has been designed to accompany the individualised discussions you will have about the care of your pēpi who was not very well at birth because his/her brain is showing signs it was not receiving enough oxygen and/or blood flow from the placenta during and around the time of birth.

What is hypoxic ischemic encephalopathy?

Hypoxic ischemic encephalopathy (HIE) is a type of brain dysfunction that occurs when the brain doesn't receive enough oxygen or blood flow for a period. Hypoxic means not enough oxygen; ischemic means not enough blood flow; and encephalopathy means the brain is not functioning normally.

HIE affects the brain but if the rest of the body has also not been receiving enough oxygen, damage to other organs, including the heart, liver, kidneys, and bowels may occur. These organs usually return to normal function. However, if the brain has sustained an injury, it may not recover fully. The length of time the brain was without oxygen usually determines the severity of the damage to the cells in the brain.

What causes HIE?

It is not always possible to know what causes HIE. Potential causes of HIE during labour and delivery can include:

- Placenta coming away from the uterus wall too soon (abruption of the placenta)
- Tearing of the uterus (uterine rupture)
- Excessive bleeding from the placenta
- A difficult delivery due to abnormal fetal position, such as a breech position
- Prolonged late stages of labour
- Very low blood pressure in the mother

Signs of HIE

Signs of HIE can include:

- Hyper alert – appears very awake even with little sleep
- Irritable – dislikes noise, touch and light
- Eye rolling or unusual movements (fits)
- Pauses in breathing
- Reduced level of awareness

When HIE is diagnosed (identified) it is graded as mild, moderate or severe. It can result in long term mild, moderate or severe disability and in some cases can sadly result in death. The grade of HIE will determine the treatment that is recommended for your pēpi.

Tests

Tests might include (but are not limited to) the following.

A brain wave or Electroencephalography (EEG) provides information about the electrical activity produced by the brain as well as if seizures (fits) are occurring and will be used on your pēpi. (In addition to explaining this to you, your doctor or nurse can will give you a parent leaflet on EEG.)

Head ultrasound scan

A head ultrasound scan (like the abdominal scans you had during pregnancy) is used to look at images of your pēpi brain as it can tell us if there are any areas of bleeding or swelling.

MRI

An MRI scan gives a very detailed picture of areas of your pēpi brain and shows if there has been any injury.

Blood tests

Regular blood tests will be done to see if organs such as the liver and kidney have been affected.

Tests and their results will be discussed with you.

Treatment

Most pēpi with mild HIE recover quickly. If your pēpi has mild HIE he/she will be monitored closely to make sure they do not need further treatment after the initial lack of oxygen.

In most pēpi who have moderate or severe HIE a treatment called body cooling will be used. If the doctors feel your pēpi may benefit from this form of treatment, they will explain the treatment to you. The treatment needs to be started within 6 hours of birth. Parent leaflet on cooling will also be given to you.

Please remember all the doctors and nurses in NICU are there to look after your pēpi and help support you. Do not hesitate to ask any questions or express any concerns you may have.

Long term effects of HIE

While some pēpi may recover fully and have no long-term problems, others require support and help from health care professionals. How long this support and help will be required depends on your pēpi progress. Some pēpi develop cerebral palsy, epilepsy (fits), behavioural or learning difficulties and you, your family and pēpi will receive long term support and help.