Neonatal Jaundice and Phototherapy

Parent/Caregiver Information

Capital & Coast District Health Board
ŪPOKO KI TE URU HAUORA

Women and Children's Health Service

What is Jaundice?
Jaundice is a common and normal finding in newborn babies. It most frequently appears after 24 hours of age and affects over fifty per cent of babies. Jaundice can occur in any race or skin colour. This type of jaundice is called 'physiological' – it is normal, probably not preventable and often requires no treatment.

While in the womb your baby requires a high level of haemoglobin to attract enough oxygen from the placenta. Haemoglobin is contained within red blood cells and these carry oxygen and give blood its red colour. Following birth your baby breathes independently and no longer requires such a high level of haemoglobin.

The red blood cells are then broken down by the liver to make bilirubin. Bilirubin drains into the intestine through tubes and is digested. Bilirubin gives bowel motions their normal brown colour. During the first few days of life, the baby's liver has to work very hard to excrete the build-up of bilirubin.

Jaundice occurs when too much bilirubin builds up in the blood. This is stored in the skin, muscles and other places causing the skin and whites of the baby's eyes to take on a yellowish appearance.

What puts my baby at risk of getting jaundice?
There are a number of conditions that increase the chance of your baby getting jaundiced. These include:

- incompatibilities between the baby's and mother's blood types (Rhesus disease and ABO incompatibility)
- some inherited conditions (G6PD deficiency, hereditary sphercytosis and others)
- your baby is born more than two weeks early
- infection that begins before or after birth
- other uncommon medical conditions such as cystic fibrosis and thyroid disorders

What is Rhesus disease?
Rhesus disease can only happen if a mother's blood type is Rhesus negative and her baby's blood type is Rhesus positive. The mother's immune system produces antibodies that react against her baby's blood. This leads to more bilirubin being produced than normal and a higher chance of jaundice developing.

A mother's blood type is routinely checked at the beginning of pregnancy. All women who are Rhesus negative have extra blood tests during their pregnancy to check whether (or not) they are making Rhesus antibodies. The baby's blood group is not known at this stage but is checked at birth.

What is ABO incompatibility?
ABO incompatibility occurs when the mother's blood group is O and the baby's blood group is A or B. The mother's immune system may react and make antibodies against her baby's red blood cells. ABO incompatibility is milder than Rhesus disease and rarely affects baby until birth. Your baby may become jaundiced on day 1 or 2 after being born.

What is G6PD deficiency?
G6PD deficiency (glucose-6-phosphate dehydrogenase deficiency) can cause jaundice at any age. It is inherited and more common in males.

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G6PD is more common in babies with parents of Asian, African, or Mediterranean descent.

Which babies need to be observed for jaundice?

- Those born more than 2 weeks before their due date
- Breastfeeding that is taking a while to establish
- Those with bruising or bleeding under the scalp following labour and /or birth
- Any baby who looks jaundiced in the first few days of life

Can jaundice be harmful?

A high level of jaundice may be harmful if it is left untreated. Acceptable bilirubin levels vary and depend upon the length of time you were pregnant, how many hours old your baby is, and his/her weight. Some reported complications of very high and prolonged bilirubin levels have included hearing loss, cerebral palsy and brain damage.

What tests are carried out?

If your baby looks jaundiced a blood test may be required to check the bilirubin level. This test is done by taking blood from a prick on baby's heel.

What is the treatment of jaundice?

The treatment varies and will depend on baby's bilirubin level. Mild to moderate jaundice may be managed by simply monitoring and observing your baby. Frequent breastfeeding is encouraged because colostrum has a laxative effect. This causes the baby to pass frequent bowel motions reducing the amount of bilirubin in baby's system.

If your baby is sleepy it may be necessary to stimulate your baby for feeding. Your midwife/nurse can help you with this.

What is Phototherapy?

Phototherapy involves using a light to break down bilirubin through the skin and can be administered by three techniques;

1) Baby is placed in a warm incubator or Babytherm cot (depending on where your baby is being cared for). A phototherapy light is shone overhead and onto the baby's skin. As much skin as possible needs to be exposed to the light so baby's clothing will be removed. Baby's eyes will be covered to protect them from the light. Every baby responds differently to the phototherapy lights. Some babies miss being tightly wrapped in their blankets and become unsettled. Others sleep contentedly.

2) Baby will be placed in a bilibed, a phototherapy system that consists of a base unit with a special blue light that fits onto a cot. Baby is positioned on a soft mattress which is placed on the base unit. Baby is held in place by means of a Bilicombi blanket (a sort of stretch and grow). Baby will only wear a nappy and the Bilibcombi blanket. The baby's arms must be put in the sleeves to stop him/her moving under the blanket.

3) Or baby is placed in a Biliblanket. The biliblanket is placed directly against baby's skin. Baby can wear a nappy but it must be folded down. A stretch and grow can be worn over the biliblanket.

If options 2 or 3 are used, the phototherapy lights shine up through the base of the bed so your baby does not need to have their eyes covered.

How long will my baby need phototherapy for?

Phototherapy works by changing the bilirubin in the skin to a form that will not cause deafness or brain damage. Phototherapy is required until the

level of bilirubin has dropped to a safe level. The length of your baby's treatment will depend upon their bilirubin levels. It is not uncommon for babies to need phototherapy for 48 hours or longer. While your baby is having phototherapy blood tests will need to be taken to monitor the bilirubin levels. Generally these are taken every 12 hours.

While having phototherapy, baby usually has frequent and loose bowel movements. In some cases, the baby's stools are greenish in colour. This is temporary and should stop once phototherapy is finished.

Frequent feeding is encouraged while your baby is jaundiced and having phototherapy. Jaundice can cause sleepiness and phototherapy can be dehydrating so feeding every 3 hours is recommended. It is perfectly safe for your baby to have intermittent periods without phototherapy for breastfeeding.

When your baby has finished feeding, return them to the incubator, bilibed or biliblanket and resume the phototherapy treatment. You will need to keep a record of your baby's feeds and output during this period. Your midwife/nurse will be happy to help you with this.

Admission to Neonatal Intensive Care Unit (NICU)

Sometimes your baby's bilirubin level and the reason for their jaundice means they may require intensive phototherapy and admission to the NICU.

Your baby may have to be nursed without a nappy and not be allowed to come out from under the phototherapy lights for breastfeeding. This will be discussed with you along with other means of providing fluids/nutrition to your baby.

You will be kept fully informed and your consent obtained with regard to all decisions about your baby's care, treatment and management. If you have any questions or concerns you can speak to a staff member at any time.