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Jaundice in the Newborn

Partly adapted from Pomegranate Midwives

What is jaundice?

A common condition in newborns, jaundice refers to the yellow color of the skin and eyes caused by excess bilirubin in the blood. Bilirubin is produced by the normal breakdown of red blood cells.

Normally bilirubin passes through the liver and is excreted as bile through the intestines. Jaundice occurs when bilirubin builds up faster than it is cleared from the body. Reasons for this include:

- Bilirubin is being made faster than the liver can clear it from the body.
- Too large an amount of bilirubin is reabsorbed from the intestines before the body gets rid of it in the stool.

What causes jaundice?

Before birth the baby produces high levels of hemoglobin in the bloodstream. After birth, their immature body is tasked with the job of breaking down the extra red blood cells. The bilirubin (yellow colour in the skin and eyes) is the by-product of that breakdown and is usually considered a normal process. However, occasionally, when the levels of bilirubin are high there can be health effects to the baby. Then it is called jaundice. Such effects can include a sleepy, sluggish baby who does not want to feed which then reduces the baby's ability to excrete bilirubin and leads to further build-up. In very rare but serious cases, extremely high levels of bilirubin can cause brain damage.

There are several types of newborn jaundice. The following are the most common:

- *Physiological (normal) jaundice*: occurring in more than 50% of term newborns, this jaundice is due to the immaturity of the baby's liver, which leads to a slow processing of bilirubin. It generally appears at 2 to 4 days of age and disappears by 1 to 2 weeks of age.
- *Jaundice of prematurity:* this occurs in 75% of premature babies since they take longer to adjust to excreting bilirubin effectively.
- *Breast milk jaundice*: in 1-2% of breastfed babies, jaundice can be caused by substances produced in breast milk that can cause the bilirubin level to rise. These substances can prevent the excretion of bilirubin through the intestines. It starts at 4 to 7 days and normally lasts from 3 to 10 weeks.
- *Blood group incompatibility (Rh or ABO problems):* if a baby has a different blood type than the pregnant person, the pregnant person might produce antibodies that quickly destroy the infant's red blood cells. This creates a sudden buildup of bilirubin in the baby's blood. Incompatibility jaundice usually begins during the first 24 hours of life.

How common is jaundice in the newborn?

It is difficult to determine the incidence of jaundice/hyperbilirubinemia since it is a normal process, which sometimes requires treatment. Risk factors that increase the chance of developing jaundice are: family history of newborn jaundice; poor breastfeeding; delay of passage of meconium; excessive weight loss of the newborn; prematurity; blood type incompatibility; infection; vacuum or forceps birth; bruising; delayed feeding; a low birth weight and certain ethnic backgrounds (East Asia or Native American).

How can Jaundice affect my baby?

Newborn jaundice usually appears around the second or third day of life. It begins at the head and progresses downward. A jaundiced baby's skin will appear yellow first on the face, followed by the chest and stomach, and finally, the legs. It can also cause the whites of an infant's eyes to appear yellow.

Jaundice can make babies sleepy, which in turn can lead to feeding problems (a sleepy baby may not wake itself to feed and/or maintain a strong latch). This in turn can lead to significant weight loss (>10% of body weight). Because of this, it is recommended that jaundiced babies be fed frequently, even if it means waking them.

Extremely high levels of bilirubin – usually above 20 mg – can cause deafness, cerebral palsy, or brain damage in some babies. In rare cases, jaundice may indicate the presence of hepatitis.

What can we do to help prevent excessive jaundice?

Effective, early, and frequent feeding is the best means to reduce the level of bilirubin in the newborn. Measuring bilirubin levels through a heel-prick blood test done in combination with the metabolic testing provides a more accurate indication of the bilirubin levels than just monitoring the colour of the skin. If the levels of bilirubin are found to be high the treatment involves placing the baby over/under lights (called phototherapy) which speeds up the breakdown of bilirubin.

How is jaundice diagnosed?

A simple test for jaundice is to gently press your fingertip on the tip of your child's nose or forehead. If the skin shows white, there is no jaundice; if it shows a yellowish color, your baby has jaundice. It is most accurate to do this while holding your baby in natural light. It should be noted that this is a subjective test, resulting in over-diagnosis of jaundice in babies of Asian descent.

The most accurate test for jaundice involves taking a small sample of your baby's blood with a heel-prick to measure the bilirubin level.

How is jaundice treated?

- Mild increases in bilirubin level usually don't require treatment.
- Frequent feedings (at least 10 to 12 times in 24 hours) can speed up the rate that stool passes through the intestine. This can reduce the amount of bilirubin that is reabsorbed from the bowel.

- Moderate jaundice can be treated with at-home phototherapy. The baby is exposed, with as little clothing as possible, to sunlight through a sunny window (never direct sun), making sure to not let him/her get chilled.
- Higher bilirubin levels can be treated with in-hospital phototherapy. This is where the baby is placed, with as little clothing as possible, under a special type of light (often called a bili-lamp). This light causes a chemical change to occur in the bilirubin molecules in the tissues under the skin. Once this chemical change occurs, the bilirubin can be excreted by the liver without the liver having to convert (conjugate) it. During the treatment, the baby will be placed in an isolette to keep him/her warm and his/her eyes will be protected from the bright light with eye patches.

If your baby needs this type of phototherapy, you may be eligible for the Home Phototherapy Program. Ask your care provider.

Dangerously high bilirubin levels can also be treated by performing exchange blood transfusions (replacing the blood high in bilirubin with blood that is lower in bilirubin).

When to call your care provider

You should call your care provider if jaundice is noted during the first 24 hours of life, the jaundice can be seen in the arms or legs, your baby develops a fever over 38 degrees Celsius (100.4 degrees Fahrenheit), or if your child starts to look or act sick.

Key Points

- Jaundice in the newborn is normal but high levels can be dangerous.
- The best way to prevent newborn jaundice is early and frequent feeding
- A blood test via heel-prick done at day 2-3 postpartum identifies those babies needing treatment by phototherapy
- It is important to watch for signs of a sick baby from jaundice: sleepy, sluggish, not wanting to feed, and significant yellowing of the skin