

dear doctor

[SIG of R. Nathan Landefeld]

Dr. R. Nathan Landefeld

is a board-certified pediatrician with Physicians' Primary Care of Southwest Florida.

[HED]

Jaundice and bilirubin

[DEK]

Yellowish skin on a newborn needs monitored

Q: The doctors and nurses are monitoring my newborn for jaundice. Is this dangerous?

A: Jaundice is simply a medical term for the yellowish color in the skin that is caused by a molecule called bilirubin. We all make bilirubin as our red blood cells break down. Under normal circumstances, the bilirubin is processed in the liver, and then dumped into the GI tract where it is excreted as part of the stool. In an older child or adult, total blood bilirubin levels would normally be less than 1.2 milligrams per deciliter.

This number may be slightly distressing to you as you may be hearing your doctors and nurses discussing numbers seem much higher, numbers like 5, 10, 15 or even higher. Bilirubin levels are normally higher in newborns than in older patients, because before a baby is born, the mother's liver is doing most of the work. It takes a little while for a newborn's liver to "turn on" and start doing the job on its own. Also, a newborn has a lot more red blood cells (per volume) than older patients and, therefore, has more bilirubin to process.

There are other reasons why bilirubin levels can rise in a newborn, including dehydration, abnormal red blood cells (they may break down more quickly), antibodies from the mother's immune system (that mark red blood cells for destruction), excessive bruising (bruises are simply more blood that must be broken down), abnormalities of the liver and the liver enzymes that process bilirubin, infections, prematurity, factors in breast milk and related to breast-feeding and many other reasons.

If the levels get too high, bilirubin can permanently deposit in the newborn's brain and cause damage called "kernicterus." This can result in mental retardation, deafness, balance problems and cerebral palsy. Obviously we never want this to happen, and that is why we are so vigilant about monitoring bilirubin levels.

The levels of bilirubin that can cause kernicterus depend on a number of variables (such as prematurity and protein levels in the blood) but are generally in the 20's or higher.

Doctors can monitor an infant's bilirubin levels with a device that measures levels through the skin or, more accurately, with a blood test involving a few drops of blood from the heel. Generally speaking, we tolerate higher levels of bilirubin as your baby

ages. For example, a bilirubin level of 10 would be concerning if it occurred on the first day of life, but not at all on day four. It is also important to keep in mind that premature infants are more susceptible to the harmful effects of bilirubin, and require intervention at lower levels than a term newborn.

If the levels start to cause concern, we may want to temporarily supplement breastfeeding with some formula. This helps with dehydration and also causes more stooling which eliminates the bilirubin in the GI tract before it can be reabsorbed into the bloodstream.

We may also want to use phototherapy. That's when we expose the newborn's skin to visible light, either through special light banks in the hospital, or with some indirect sunlight through a window or on a porch. The light helps change the bilirubin molecule into a more easily excreted form. If we use phototherapy on your newborn, it is important that as much skin be exposed to the light source as possible, so they should be undressed except for a diaper. Also, the air temperature must be warm enough for a mostly naked baby.

Very, very rarely, in some of the worst cases with very high bilirubin levels, an exchange transfusion of blood may be necessary.

When a newborn's bilirubin levels are elevated, we may need you to come into the office frequently or even daily for a while to make sure they remain in a safe range. We realize that this is not a great time to be traveling, but we need to do what is safest for your newborn.

To prevent problems from jaundice and kernicterus, first make sure you come to the hospital follow-up as instructed no more than two to three days after hospital discharge. This is when bilirubin levels are often at their highest and we can catch them before they become a problem. Also, if you notice your newborn's skin looking a bit yellow at any time, whether it's the first day of life, one week old or one month old, he or she should be seen that day with no exceptions.