Neonatal Hyperbilirubinemia

Bilirubin is one of the products that is formed when red blood cells are broken down. Bilirubin is taken up by the liver and changed by an enzyme (protein that speeds up chemical reactions in the body) in the liver. It is then excreted through urine or stool. In newborn infants, this enzyme may work slowly or may not be present in large enough quantities to help remove bilirubin efficiently. This often causes jaundice, a yellowing of the skin and whites of the eyes, and is usually considered a physiologic (normal) jaundice that does not need to be treated. If infants have certain risk factors or become dehydrated because they are not drinking enough breast milk or formula, they might not be able to excrete bilirubin. This can lead to abnormally increased levels of the unchanged bilirubin in newborn infants’ blood, a condition called neonatal hyperbilirubinemia.

RISK FACTORS
These may prompt physicians to check bilirubin levels soon after birth:
- **ABO incompatibility.** This happens when a mother’s blood type is group O and her infant’s is either group A or B. Maternal antibodies (proteins that are part of the body’s immune response) to group A or B blood are transported to the fetus and can cause a breakdown of red blood cells (hemolysis) in the infant, leading to hyperbilirubinemia.
- Heavy bruising from delivery. Bruises can result in old blood collecting under the skin, which can result in increased production of bilirubin.
- Family history of any disorders that lead to increased hemolysis, like glucose-6-phosphate dehydrogenase deficiency.
- Infants born before the 35th week of pregnancy.
- A sibling who required treatment for hyperbilirubinemia at birth.
- East Asian race, as identified by the infant’s parents.
- Jaundice noted within the first 24 hours of life.
- Excessive weight loss, which might signal that the infant is not getting enough breast milk or formula.

SCREENING
The American Academy of Pediatrics recommends that newborn infants be looked at frequently while they are in the newborn nursery to see if they are jaundiced. Additionally, many hospitals check infants’ bilirubin levels before they are discharged home regardless of risk factors and their appearance on examination. Hospital physicians may also recommend that infants’ bilirubin levels be checked again by their pediatrician at the first newborn visit, a few days after discharge from the hospital.

TREATMENT
Whether a particular bilirubin level is considered high depends on the infant’s age (in hours) when the blood was drawn as well as whether the infant is full term or premature or has any of the risk factors.
- **Phototherapy** (treatment by exposure to light). Infants are placed in incubators, under ultraviolet (blue) lights with their eyes covered. The lights change the structure of bilirubin so that it is easily excreted in urine or stool. The intensity of phototherapy can be varied depending on the bilirubin level.
- **Exchange transfusion**, removing the infant’s blood and replacing it with blood matched for blood group that is free of bilirubin. This treatment is used when bilirubin levels are extremely high or are increasing too quickly to be treated by phototherapy. Extremely high levels of bilirubin can injure the brain (kernicterus) and lead to severe neurological impairment.

Sources: American Academy of Pediatrics, Centers for Disease Control and Prevention, Mayo Clinic

FOR MORE INFORMATION
- Centers for Disease Control and Prevention www.cdc.gov/ncbddd/jaundice/hcp.html
- Mayo Clinic www.mayoclinic.com/health/infant-jaundice/DS00107

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