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Breastfeeding-Associated Neonatal Hyperbilirubinemia
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Pathophysiology

- 70-90 day life span for newborn red blood cells (RBCs)
- RBCs destroyed by macrophages in spleen
- Heme turns to biliverdin by means of heme oxygenase
- Biliverdin converts to unconjugated bilirubin by the enzyme, biliverdin reductase
- Unconjugated bilirubin not water soluble, must bind to protein in blood (albumin).
- Bilirubin bond to albumin is carried to liver and disassociated from albumin prior to entering liver cell.
- In liver cell, unconjugated bilirubin becomes conjugated bilirubin by enzyme catabolism.
- Water soluble conjugated bilirubin which enables bilirubin to be secreted in bile.
- Bile secreted into intestinal tract for conjugated bilirubin to be excreted by urine and stool. (Gardner et al., 2016)

What is breastfeeding-associated hyperbilirubinemia?

Neonatal jaundice is one of the most common conditions in neonates, with 60-80% of infants experiencing some degree of increased serum bilirubin levels (Itoh, Okada, Kubi, & Kasuka, 2017). Physiological jaundice is most commonly noted in the first week of life, with rising and peak levels occurring between day of life three to five (Moncrieff, 2018) All infants experience a rise in serum bilirubin following birth due to their immature liver’s inability to clear the byproduct of red blood cell breakdown, bilirubin, from the blood. (Gardner et al., 2016). Hyperbilirubinemia can be caused by a variety of factors including, but not limited to, infection, breast feeding, hemolytic disease of the newborn, maternal-fetal blood type incompatibility, drugs, gestational diabetes, birth trauma, prematurity, hypothyroidism, and galactosemia. The most common seen cause of hyperbilirubinemia in the outpatient setting is breastfeeding. (Gardner et al., 2016)

Why breastfeeding-associated hyperbilirubinemia?

- Commonly seen in outpatient setting
- Adequate identification necessary
- Timely treatment needed to prevent extreme hyperbilirubinemia leading to kernicterus (Moncrieff, 2018)

Implications for Nursing Care

- Initiate breastfeeding within 1 hour of delivery.
- Encourage at least 10 breastfeeding in 24-hour period.
- Teach effective breastfeeding practices to ensure proper nutrition and dehydration prevention. (Moncrieff, 2018)
- Delay discharge from hospital until effective breastfeeding is established.
- Educate caregivers on signs and symptoms of rising serum bilirubin levels. (Wells, Ahmed, & Musser, 2013)
- Infant should be observed by lactation-trained healthcare provider within first 48-72 hours post discharge from hospital (ECD, 2016)
- Encourage physicians to comply with protocols to identify hyperbilirubinemia in the early stages (Wells et al., 2016).
- Monitor infants on phototherapy.
- Once serum bilirubin levels fall below the hour-specific value, discontinue phototherapy and check for rebound hyperbilirubinemia within 24 hours. (Gardner et al., 2016)

References


