

# Hyperbilirubinemia of the Newborn (Jaundice)

Self Learning Module

Post Test Answers

Southern Health – Santé Sud

L Cassan Regional Obstetrical Education Facilitator RN BN

2014





### Question 1

What is physiological jaundice?

*Physiological jaundice is considered 'normal jaundice' and is the jaundice that newborns acquire due to the relative polycythemia, short erythrocyte life span, immature liver and an increased enterohepatic circulation. Levels usually rise by day 3-4 of life and resolve spontaneously. The bilirubinemia is mild unconjugated (indirect).*

### Question 2

What is the difference between breastfeeding failure jaundice and breast milk jaundice?

*Breast feeding failure jaundice is when the infant does not receive enough breast milk. The resulting dehydration causes decreased urine output and an increase in bilirubin levels. This jaundice can be resolved by increasing the fluid intake of the newborn.*

*Breast milk jaundice is persistent jaundice beyond the first week of age. It occurs in infants who are exclusively breast fed and may last up to 12 weeks. Causes are thought to include inhibition of normal bilirubin metabolism and immature infant liver/intestines. The exact cause is unknown. It is self limiting and self resolving.*

### Question 3

Why is pathological jaundice more severe than physiological jaundice?

*Physiological jaundice is self limiting and self resolving (except for breastfeeding failure jaundice which is resolved by increasing the infant's intake).*

*Pathological jaundice is jaundice that is not normal and will require interventions in order to keep levels from becoming dangerous and causing permanent disabilities. Causes may include sepsis, rubella,*

*cholestasis, toxoplasmosis or blockages of pathways (e.g. ileus) or certain disorders. The bilirubin is often conjugated (direct).*

---

---

#### Question 4

What is the definition of hyperbilirubinemia?

*Hyperbilirubinemia is a disorder of the newborn where the bilirubin level in the newborn rises to above the 95<sup>th</sup> percentile on the Bhutani nomogram.*

---

---

#### Question 5

Name three causes of hyperbilirubinemia.

*Increased production of bilirubin, decreased clearance of bilirubin and increased enterohepatic circulation.*

---

---

#### Question 6

Name three risk factors for severe hyperbilirubinemia.

*Any of the following: cephalohematoma, exclusively breastfeeding, jaundice within 24 hours of life, prematurity, TB above the 95<sup>th</sup> percentile, hemolytic disease, sibling with previous hyperbilirubinemia, excessive weight loss post birth, East Asian/Native American, genetic factors, drugs, infections (TORCH)*

---

---

#### Question 7

Why is indirect (unconjugated) bilirubin more dangerous than direct (conjugated) bilirubin?

*Indirect (not attached to albumin) bilirubin can cross the blood brain barrier easily and can cause significant damage. Direct bilirubin can only cross if the blood brain barrier is damaged.*

---

---

### Question 8

What signs may lead you to hypothesize that the jaundice of a newborn is pathological and not physiological?

*Jaundice prior to 24 hours of age or after 2 weeks of life, TB level higher than the 95<sup>th</sup> percentile, TB*

---

*Rising by more than 0.2 mg/dL per hour or 5 mg [86 micromol/day], direct bilirubin concentration*

---

*Is > 1 mg/dL if the total bilirubin is <5 mg/dL or if the direct bilirubin is more than 20% of the total*

---

*Bilirubin, if the total bilirubin is >5mg/dL*

---

### Question 9

Place in order of occurrence

- A) Conjugation – the bilirubin in the hepatocytes conjugates with glucuronic acid forms direct bilirubin
- B) Bilirubin is taken up by albumin again
- C) Hepatic uptake - Bilirubin is taken to the liver by the albumin, separates from the albumin and is taken up by hepatocytes
- D) Bile, with the conjugated bilirubin, is excreted into the digestive tract where it is unconjugated due to the lack of bacteria in the newborns gut
- E) Bilirubin is attached to albumin
- F) Breakdown of hemoglobin from red blood cells to form bilirubin
- G) Unconjugated bilirubin passes out the intestinal wall to be recycled into circulation (enterohepatic circulation)

*F, E, C, A, D, G, B*

---

### Question 10

Would you start phototherapy on an infant who was born at term, with no risk factors, with a TB level of 260 at 37 hours of age?

- A) Yes ✓
- B) No

Question 11

Lumirubin is primarily excreted in the \_\_\_\_\_ Urine \_\_\_\_\_ while urobilin is primarily excreted in the \_\_\_\_\_ Stool \_\_\_\_\_.

Question 12

What test(s) would you order if a newborn was jaundice under 24 hours and the mother was Rh negative? Why

- TB to determine levels plus you would suspect an ABO incompatibility and order a direct AGT test. A

---

*blood type and Rh status should have already been done, but if not, then this would need to be ordered*

---

*as well. Other tests to consider would be a CBC with reticulocyte count, G6PD, direct bilirubin.*

---

---

