

NEONATAL JAUNDICE

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ABSTRACT

70-80% neonates present with some percentage of hyperbilirubinemia, after birth jaundice is the common morbidity in the neonatal period, however only 7-12% would require therapy to prevent damage or treat the cause of neonatal jaundice. Neonatal jaundice can be mainly classified into physiological and pathological jaundice. Increased bilirubin production, reduced hepatic clearance and enhanced enterohepatic circulation are the sole causes of increased prevalence of jaundice in newborn. Phototherapy is accepted as the primary treatment of hyperbilirubinaemia. This treatment also puts the baby at risk of important complications including retinal injury, dehydration, diarrhoea and bronze baby syndrome. Therefore, searches in order to reduce the time of phototherapy by a safer treatment have been considered for many years.

KEYWORDS: Neonates, hyperbilirubinemia, phototherapy.INTRODUCTION^[1]

Jaundice is the most common morbidity in the first week of life, occurring in 70-80% of preterm newborn. Jaundice is the most common cause of readmission after discharge from birth hospitalisation.

Jaundice is visible in skin and eyes when total serum bilirubin concentration exceeds 5-7 mg/dl. In contrast, adults have jaundice visible in the eyes. When TSB concentration exceeds 2 mg/dl. Increased TSB concentration in neonates results from varying contributions of three mechanisms, mainly increased production from degeneration of red cells, decreased clearance by the immature hepatic mechanism and reabsorption by enterohepatic circulation (EHC). High serum bilirubin levels carry a risk to cause neurological impairment in a small fraction of jaundiced babies. In most cases jaundice is benign and no intervention is required. Approximately 5-10% of them have clinically significant jaundice that requires treatment to lower serum bilirubin levels in order to prevent bilirubin brain damage.

Types Of Neonatal Jaundice^[2]

- 1 Physiological jaundice
- 2 Pathological Jaundice
- 3 Breast Feeding Jaundice
- 4 Unconjugated Bilirubin Toxicity

Physiological Jaundice- Jaundice attributable to physiological immunity of neonates to handle increased bilirubin production is termed as physiological jaundice. Visible jaundice usually appears between 24 to 74 hours of age. TSB level usually rises in term infants to peak level of 12 to 15 mg/dl. It may take weeks before the TSB level falls under 2 mg/dl in both term and preterm infants.

Pathological Jaundice: Pathological jaundice is said to be present when TSB concentration is not in the physiological jaundice range, which is defined arbitrarily and loosely as more than 5 mg/dl on first day, 10 mg/dl on second day, and 12-13 mg/dl thereafter in term neonates.

Breast Feeding Jaundice: Increased beta glucuronidase activity in breast milk helps absorption of unconjugated bilirubin from gut. Thus, there is increased enterohepatic shunting. Jaundice appears in 3rd week; may last for 3 months. TSB is 15-20 mg %.

Unconjugated Bilirubin Toxicity 1 Acute (encephalopathy) 2. Chronic (kernicterus)

- Acute Bilirubin Encephalopathy- When features of brain damage occur.
- Chronic Bilirubin Encephalopathy (Kernicterus)- Usually TSB is 25-35 mg%. Risk depends on duration of hyperbilirubinemia. Involvement of basal ganglia and brain stem nuclei occurs.

Presents Choreoathetoid cerebral palsy (extra pyramidal), hearing impairment (auditory brainstem response is absent), gaze abnormality (limitation of upward gaze). A Follow up with serial bilirubin estimations from same laboratory helps in diagnosis. Do coombs test, G6PD etc whatever necessary.

Treatment^[3,4]

1 Phototherapy- Blue green spectrum of light (425-475nm. Wave length) is absorbed by UC bilirubin in skin, to water soluble stereo isomer, then can be excreted in bile without getting conjugated. effective light dose is 10-30 $\mu\text{w}/\text{cm}^2$. increase the body exposure surface or move the light source closer. blue fluorescent tubes labelled as F₂₀T₁₂/BB or TL52/20W are available. TSB decreases by 30%-40% in 24 hours. Eyes shielded to prevent retinal damage. Oral feeding to prevent enterohepatic shunting (formula/cow milk). Traditionally castor oil is given (2TSF) daily. This probably binds bilirubin and expel through faces, thus preventing E.H. Shunt. In neonate's castor oil (boiled) does not produce loose motions.

Suryadarshana & Chandradarshana^[4]

- In Kashyapa Samhita, there is indication of Suryadarshana (placing the baby in sunlight) and Chandra Darshana (placing the baby in moonlight) of baby during 1st month of life.
- It may be a type of phototherapy for preventing the neonatal Jaundice on that time.
- It shows that Acharya Kashyapa knew well about the need of light for the new born baby.

2 Exchange Transfusion- Double volume exchange transfusion (160-200ml/kg. Body weight) decrease TSB by 50% and removes 805 abnormal RBC. Albumin 1G/kg. Helps in binding serum bilirubin.

3 Breast Milk Jaundice Treatment- Temporarily stop breast feeding give formula milk/cow milk inhibits absorption of unconjugated bilirubin from gut. Mechanically empty breast every 2 hours to keep flow of milk.

CONCLUSION

Jaundice is the visible men infestation of chemical bilirubinemia though phototherapy is suggested as treatment of neonatal jaundice. Blue green light is most effective for phototherapy as it both penetrates the skin and is absorbed by bilirubin to have the photochemical effects.

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