Neonatal jaundice – Common Terminologies

Dr Dipika Mashalkar Bhosle

Neonatal jaundice is a physiological phenomenon occurring in the majority of full-term infants(60%) and virtually in all preterm infants (80%).

Common definitions –

Jaundice :

- Jaundice is the yellowish discoloration of skin and sclera in a newborn by bilirubin accumulation.
- Jaundice in neonates is visible in skin and eyes when total serum bilirubin (TSB) concentration exceeds 5 to 7 mg/dL

Hyperbilirubinaemia :

- Increased level of bilirubin in the blood.
- Hyperbilirubinemia is defined when the total serum bilirubin (TSB) rises above the 95th percentile for age (high-risk zone as per Bhutani's hour specific nomogram) during the first week of life.

Indirect hyperbilirubinemia (Unconjugated hyperbilirubinaemia):

- Increased levels of unconjugated (lipid soluble) bilirubin.

Direct hyperbilirubinemia (Conjugated hyperbilirubinaemia)

- Increased levels of conjugated (water soluble) bilirubin.
- When the measured level of conjugated bilirubin concentration is greater than 20% of total bilirubin then it is considered direct hyperbilirubinemia.

Physiologic Jaundice:

- Jaundice attributable to physiological immaturity which usually appears on third day . It peaks between 4th and -5th days in term neonates and in preterm neonates around 7th day. It disappears by 10–14 days of life.
- Unconjugated bilirubin is the predominant form and usually its serum level is less than 15 mg/dl.
- Based on the recent recommendations of the AAP, bilirubin levels up to 17–18 mg/dl may be accepted as normal in term healthy newborns.

Pathological hyperbilirubinemia

Bilirubin levels with a deviation from the normal range and requiring intervention would be described as pathological jaundice

It includes

- Jaundice within 24 hours after birth
- Rapidly rising total serum bilirubin concentrateion (TSB) increasing more than 0.2 mg/dl/hour or more than 5 mg/dl/ in 24 hours.
- If TSB concentration more than 95centile as per hour-specific bilirubin nomogram
- Signs of acute bilirubin encephalopathy or kernicterus
- Clinical jaundice persisting beyond 2 weeks in term and 3 weeks in preterm neonates
- Elevation of the **serum conjugated bilirubin** level to **>2** mg per dL or more than 20% of the total serum bilirubin. This is considered as Direct hyperbilirubinemia and warrants separate set of investigations and management.

Severe hyperbilirubinemia :

- A total serum bilirubin (TSB) concentration greater than 340 μmol/L (20 mg/dl) at any time during the first 28 days of life.

Critical Hyperbilirubinemia:

- A TSB concentration greater than 425 μmol/L(25 mg/dl) during the first 28 days of life.
- It is important to note that safe level of Hyperbilirubinemia in a preterm or a sick neonate is unknown. Hence it is wiser to avoid levels going at critical levels in this set of neonates.

Acute bilirubin encephalopathy :

- A clinical syndrome, in the presence of severe hyperbilirubinemia, of lethargy, hypotonia and poor suck, if untreated may progress to hypertonia (with opisthotonos and retrocollis) with a high-pitched cry and fever, and eventually to seizures and coma.

Chronic bilirubin encephalopathy :

- The clinical squeal of acute encephalopathy with athetoid cerebral palsy with or without seizures, developmental delay, hearing deficit, oculomotor disturbances, dental dysplasia and mental deficiency.

Kernicterus :

- The pathological finding of deep-yellow staining of neurons and neuronal necrosis of the basal ganglia and brainstem nuclei seen on autopsy.