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RESEARCH ARTICLE

NEONATAL JAUNDICE: AN OVERVIEW

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Abstract

Jaundice is the most common problem of newborns. Around 60% term and 80% preterm neonate develop neonatal jaundice during first week of life. Neonatal jaundice is defined as yellowish discoloration of skin and sclera. Icterus appear on face when serum bilirubin level exceeds 5mg/dl. This is called physiological jaundice. It is usually noticeable when the baby is 2 to 4 days old. Most of the time, it does not cause problems and goes away within 2 weeks. Symptoms may include excess sleepiness or poor feeding. Complications may include seizures, cerebral palsyor kernicterus. The condition affects over half of babies in the first week of life. Of babies that are born early about 80% are affected. Globally over 100,000 late-preterm and term babies die each year as a result of jaundice. The need for treatment depends on bilirubin levels, the age of the child, and the underlying cause.Treatments may include more frequent feeding, phototherapy, or exchange transfusions.In those who are born early more aggressive treatment tends to be required.Physiologic jaundice generally lasts less than seven days.

Introduction:-

Jaundice is the most common condition that requires medical attention and hospital readmission in new-borns. The yellow coloration of the skin and sclera in newborn with jaundice is the result of accumulation of unconjugated bilirubin. In most infants, unconjugated hyperbilirubinemia reflects a normal transitional phenomenon. However, in some infants, serum bilirubin levels may rise excessivelywhich can be cause for brain because unconjugated bilirubin is neurotoxic and can cause death in new-borns and lifelong neurologic sequelae in infants who survive.

New born jaundice occurs when a baby has a high level of bilirubin in the blood. Bilirubin is a yellow substance that the body creates when it replaces old red blood cells. The liver helps break down the substance so it can be removed from the body in the stool. A high level of bilirubin makes a baby's skin and whites of the eyes look yellow. This is called jaundice.

Risk factors of Jaundice
J: Jaundice within first 24 hours of life
A: A sibling who was jaundiced as neonate

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U: Unrecognized haemolysis
N: Non-optimal sucking
D: Deficiency of G6PD
I: Infection
C: Cephalohematoma/ Bruising
E: East Asian/ North Indian

Causes of Jaundice

1. **Appearing within 24 hours of age**

- Haemolytic disease of new-born
- Infection: TORCH, malaria, bacterial
- G6PD deficiency

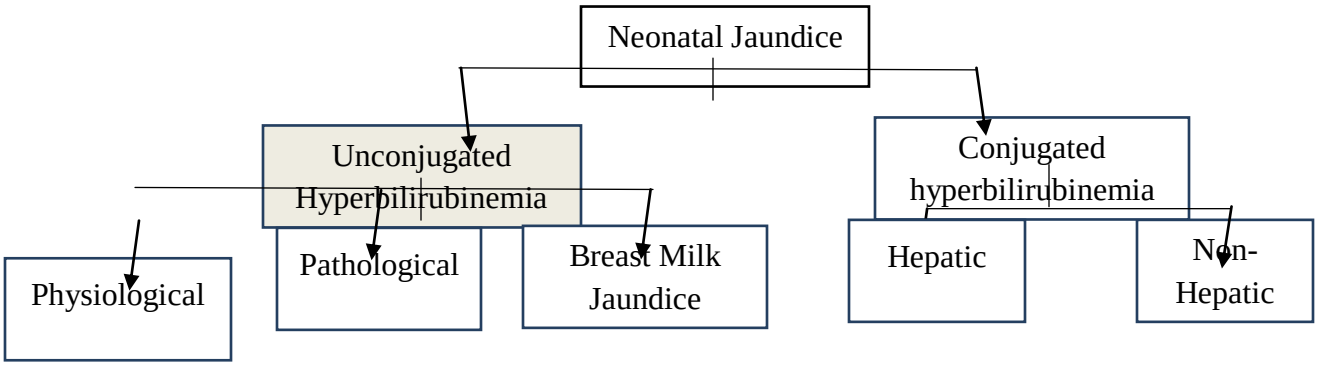
2. **Appearing between 24 and 72 hours of life**

- Physiological
- Sepsis
- Polycythaemia
- Cephalohematoma

3. **After 72 hours of age**

- Sepsis
- Neonatal Hepatitis
- Extra- hepatic biliary atresia
- Breast milk jaundice
- Metabolic disorder

Classification of neonatal jaundice



Hyperbilirubinemia can be further classified as unconjugated (indirect) or conjugated (direct).

Unconjugated hyperbilirubinemia

Unconjugated hyperbilirubinemia (albumin-bound)/ usually results from increased production, impaired hepatic uptake, and decreased conjugation of bilirubin. In neonates, jaundice typically occurs due to unconjugated hyperbilirubinemia, which is characterized by the increased levels of indirect or unconjugated bilirubin (UCB) in the serum. In new-borns, the increased concentration of UCB can cross the blood-brain barrier, and deposit in the basal ganglia or cerebellum causing a bilirubin-induced encephalopathy or kernicterus.

Conjugated hyperbilirubinemia

Conjugated or direct hyperbilirubinemia occurs when the liver is able to conjugate bilirubin, but the excretion is impaired. When conjugated bilirubin is > 2.0 mg/dl resulting from failure to excrete conjugated bilirubin from hepatocyte to duodenum. It is caused by liver injury due to hepatitis, toxic substances, metabolic problems, severe haemolytic disease, biliary atresia and total parenteral nutrition.

Physiological Jaundice
Most neonates develop visible jaundice due to elevation of unconjugated bilirubin concentration during 24-72 hours after birth. It is caused by increased bilirubin load on liver cells, defective hepatic uptake of bilirubin from plasma, defective bilirubin conjugation and inappropriate bilirubin excretion.

Pathological Jaundice
Appearance of jaundice within 24 hours, peak bilirubin levels above the expected normal range, presence of clinical jaundice beyond 3 weeks and conjugated bilirubin would be categorized under pathological jaundice. It is caused by overproduction of bilirubin, increased hemolysis, decreased excretion of bilirubin and certain drugs.

Breastfeeding Jaundice
Breastfeeding jaundice also referred as "starvation jaundice" or "lack of breast feeding jaundice" is caused by inadequate breast milk intake, resulting in adequate quantities of bowel movements to remove bilirubin from the body. This can usually be frequent breastfeeding sessions.

Hemolytic disease of newborn
It is an iso-immunity hemolysis associated with ABO Rh incompatibility. It results from transplacental transfer of maternal antibody active against RBC antigen of the infant, leading to an increased rate of RBC destruction.

Clinical assessment of jaundice
Dermal staining in newborn progress in a cephalocaudal direction. Assess skin color of skin with the help of modified Kramer's assessment scale.

Management of jaundice
1. Anti D gamma globulin to Rh negative mother of a Rh-positive fetus
2. Early feeds, adequate hydration
3. Phototherapy, exchange blood transfusion

Nursing Intervention
1. Assess the neonate for progression of jaundice
2. Check vital sign
3. Ensure warmth
4. Provide phototherapy as prescribed.
5. Cover infant's eye and genitals.
6. Examine eyes for irritation from eye patches.
7. Continue breastfeeding at frequent intervals
8. Administer extra fluid if required to prevent dehydration
9. Watch side effects of phototherapy and exchange transfusion
10. Maintain asepsis
11. Watch for bleeding from umbilical cord
12. Involve family in care of neonate.
13. Allow mother to cuddle the baby while feeding in between phototherapy
14. Monitor serum bilirubin at regular intervals

Conclusion:-

Neonatal jaundice describes a condition in which an infant's skin appears yellow within the first few days of life. The yellowish appearance is a sign of an increased blood pigment called **Bilirubin** which then settles in the skin. In many cases this is a normal process and occurs in about 2/3 of all healthy new-borns. However, it may at times be a sign of a problem with the baby's feeding, level of hydration or red blood cells lifespan. Other rare causes such as metabolism disorders, gland malfunction or liver disease can also present with jaundice. Only the health care provider can determine if the infant's jaundice is normal and may order a blood test to help with diagnosis. In some cases, a specialist in liver disease or blood disorders may be called in to help take care of the new-born. Treatment can be very simple from increasing the baby's water intake and modifying the feeding to very complex treatment. The choice of treatment is made according to the severity of the jaundice, the cause for the increase of bilirubin or the type of bilirubin.

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