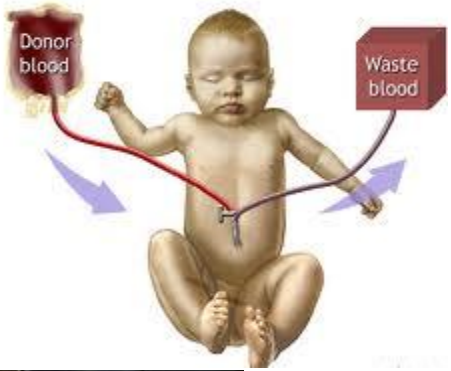
Jaundice



Presented by :

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Jaundice

- Description
- Etiology
- Pathophysiology
- Clinical Manifestations
- Diagnostic Tests and Laboratory Findings
- Complications
- Medical Management
- Nursing management

Description

Hyperbilirubinemia is jaundice caused by the retention of unconjugated (indirect) or conjugated (direct) bilirubin.

Conti…Description

OR

High levels of bilirubin in blood

Conti…Description

Bilirubin is a substance produced by the breakdown of red blood cells and hemoglobin

Causes of hyperbilirubinemia

Unconjugated Hyperbilirubinemia

Increased production of bilirubin more than the capacity of the liver to deal with (overload)

Conjugated hyperbiliruhinemia

Defective uptake of conjugation of normally produced bilirubin

Causes of hyperbilirubinemia

Unconjugated Hyperbilirubinemia

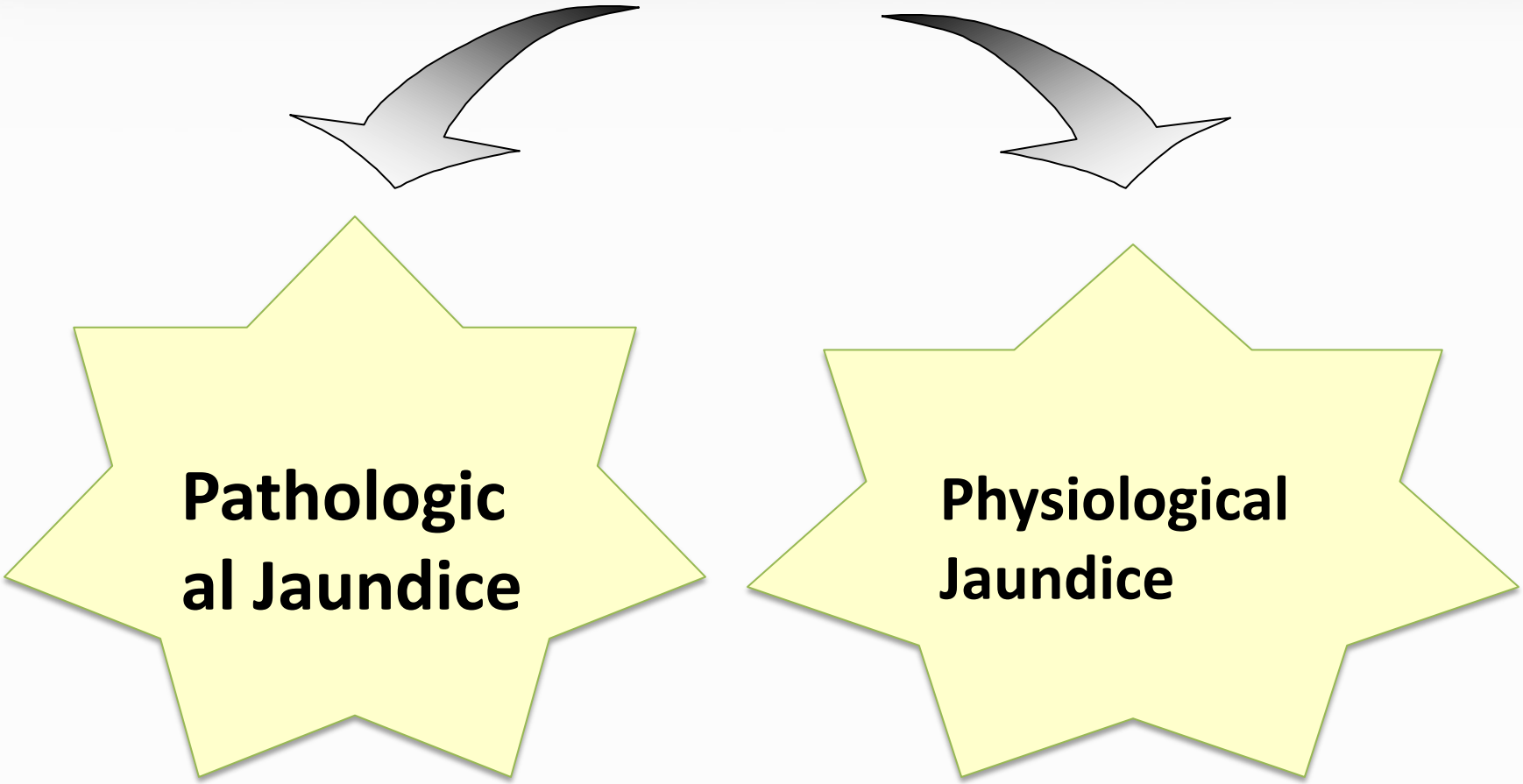
1. Hemolytic disorders i.e. RH or ABO incompatibility
2. Extra vascular blood i.e. Hematoma
3. Polycythemia(increase blood volume,hemotecrite >55%)
4. Physiological jaundice.
5. Jaundice of prematurity.
6. Hypoglycemia
7. Breast milk jaundice

Causes of hyperbilirubinemia

Conjugated hyperbiliruhinemia

1. Impaired transport of conjugated biliruhin out of liver cells as in "Dubin-Johnson's" syndrome.
2. Hepatitis.

Types Of Jaundices



Types Of Jaundices

Pathological Jaundice

- Not appear before the 2or 3 day term baby. in premature baby, it appears after 3or 4 day.
- In term newborn, it disappears by the end of 7days while in premature lasts for 9to 10 days

Physiological Jaundice

- Appears within the 1day (24hours after birth)
- Need longer time.

Conti..Types Of Jaundices

Pathological Jaundice

- The level of total serum bilirubin never exceeds 12mg/dl in full term newborn and 15 mg/dl in preterm newborn and direct bilirubin does not exceed 1mg/dl of the total bilirubin.
- Daily raise of S.bilirubin never exceed 5mg/dl.

Physiological Jaundice

- Serum bilirubin exceeds that level
- Serum bilirubin exceeds the daily raise of physiological jaundice.

Conti..Types Of Jaundices

Pathological Jaundice

- No kerincterus
- Requires no treatment
- The newborn is good sucker, no anemia, not sick, normal stool, and urine color.

Physiological Jaundice

- Causes kernicterus in indirect hyperbilirubinemia
- Treatment is important as soon as possible
- The newborn looks sick, poor sucking, pale, abnormal stool, and urine color.

Pathophysiology

1. Physiologic jaundice in a full-term baby is characterized by an increasing indirect bilirubin level of up to 12 mg/dl by 72 hours of age.
It gradually reduces to the normal level of 1 mg/dl by 10 to 30 days of age.

2. The peak bilirubin level from physiologic causes in a premature infant appears at about the fifth day of life. It ranges between the 10 and 12 mg/dl.

Conti…Pathophysiology

3

The newborn's liver is confronted with an increased amount of bilirubin because the newborn has a higher number of red cells than does an adult, and the life of these red cells is shorter.

4

The liver may not be able to excrete the excessive bilirubin optimally because of diminished uptake and conjugation of bilirubin.

Conti…Pathophysiology

5

The gut assists in liver function by producing beta-glucuronidase, which helps to make the bilirubin fat-soluble.Delay in feeding a baby decreases the excretion of this enzyme, by slowing the absorption of the bilirubin across the intestinal wall into the portal circulation for excretion and removal from the blood.

Clinical Manifestations

1. Yellow color of mucous membranes in the eyes , mouth and skin.
2. Primarily hypotonia
3. Later s seizures

Conti…Clinical Manifestations

4. High-pitched cry
5. Stools can be pale in colour and urine dark in colour.
6. May feel like flu, and may also result in fever, chills, stomach pain, itching

Diagnostic Tests

History &

Physical examination

Determination of blood type of mother and of cord blood (baby)

Serum bilirubin levels; direct and indirect

Direct Coombs test on infant

Conti…Diagnostic Tests

liver biopsy

Ultrasound, X-ray with contrast, MRI or CT scans.

Complications of Jaundice

Infant with sever jaundice is at risk for Kernicterus also called the Bilirubin encephalopathy .A severe brain damage resulting from the deposition of unconjugated bilirubin in brain cells.

Conti…Complications of Jaundice

This deposition can occur because of unconjugated bilirubin is highly lipid soluble making it capable of crossing the blood-brain barrier if not albumin. It results in the yellowish staining of the brain tissue and the necrosis of neurons and occurs if the concentration of the unconjugated biliruhin reaches toxic level.

Stages of kernicterus:

Stage1: Poor feeding, vomiting, high-pitched cry, decreased tone and lethargy.

Stage2: Seizures, fever and paralysis of upward gaze. Many newborn die in this phase.

Conti..Stages of kernicterus

Stage3: Convulsion is decreased at about one week of age. (A symptomatic)

Stage4: progressive convoulsion, deafness and mental retardation.

Management of Jaundice

1. Observe all neonates carefully for signs of jaundice - on darker-skinned infants, observe sclerae
2. Early feedings promote enteric function and clearance of bilirubin in meconium
3. Phototherapy
4. Exchange transfusion

Conti…Management of Jaundice

5 Breast feeding is sometimes implicated as the cause. If the bilirubin drops after 48 hours of formula feeding, breast feeding may be restarted because no link to kernicterus has been observed (in the full-term neonate).

6 Reassure parents.

Phototherapy

- It consists of the application of fluorescent light (blue or white) to the newborns naked skin. Light causes break down of Bilirubin by the process of photo oxidation. It alters the structure of Bilirubin to a soluble form for easier excretion.

Side effects of phototherapy

1- Dehydration due to increased insensible water loss.

2- Water diarrhea.

3- Hypocalcaemia.

4- Retinal damage.

5- Erythema and skin rash.

6- Bronze baby syndrome.

9- Dark yellow urine.

Nurse's responsibility in phototherapy

1. The lamp should be 5-8 cm over, the incubator.
2. Continue the feeding.
3. Keep newborn naked except for the diaper area and change position frequently.
4. Cleanse skin frequently to prevent irritation.
5. Maintain adequate fluid intake to prevent dehydration and calculate intake and output.
6. Check newborn's body temperature every four hours.
7. Weight newborn daily.
8. Observe skin, mucous membranes, and stool
9. Bilirubin levels should be followed for at least 24 hours after discontinuing phototherapy

Exchange Transfusion

Exchange transfusion involves <u>removing newborn's RBCs and replacing</u> them with normal fresh donor cells

Conti..Exchange Transfusion

A catheter is introduced into the umbilical vein after cutting the cord. Through a special valve, the umbilical catheter is connected with the donor blood. Exchange is carried out over 45-60 min period by alternating aspiration of 20 ml of newborn's blood and infusions of 2 ml of the donor blood.

Complications of Exchange Transfusion

1- Embolism, thrombosis & infection

2- Arrhythmias, heart failure, arrest

3- Electrolyte disturbances.

4- Thromobocytopenia.

5- Infections.

6- Hypo and hyperthermia.

Nursing responsibilities in Exchange Transfusion

1-Keep the newborn; NPO for 2-4 hours before exchange to prevent aspiration.

2- Check donor blood carts compatibility.

3- Keep resuscitation equipment at beside: oxygen, ambo bag, endotracheal tubes, and a laryngoscope.

4- Assist physician with exchange transfusion procedure.

5- Maintain body temperature to avoid hypothermia and cold stress.

6- Monitor vital signs and observe for rash.

7- After transfusion, continue to monitor vital sings and check umbilical cord for bleeding or sings of infection .


Thank you!