Estimation of Bilirubin direct and indirect

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Lab -7- Metabolic Disorders

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Bilirubin: as a yellow compound result from normal catabolic pathway of heme after destruction of aged red blood cells.

Bilirubin is excreted in bile and urine, and elevated levels may indicate certain diseases. It is responsible for the yellow color of bruises and the yellow discoloration in jaundice.

stercobilin, cause the brown color of faeces, urobilin, is the main component of the yellow color in urine.

Types of bilirubin:

1- Direct bilirubin: is conjugated (water soluble bilirubin) in aqueous solution it reacts rapidly with reagent (direct reacting).

Reference range : 0.0-0.2 mg/dl

2- Indirect bilirubin: is unconjugated (water insoluble bilirubin) because its less soluble in it reacts more slowly with reagent.

Reference range : 0.2-0.8 mg/dl

3- Total bilirubin: D and ID

Reference range : 0.2-1.0 mg/dl

TABLE 5–16 • Causes of Elevations in Indirect and Direct Bilirubin Levels

Increased Indirect (Unconjugated) Bilirubin	Increased Direct (Conjugated) Bilirubin
Hemolysis: hemoglobinopathies, spherocytosis, G-6-PD deficiency, autoimmunity, transfusion reaction	Intrahepatic disruption: viral hepatitis, alcoholic hepatitis, chlorpromazine, cirrhosis Bile duct disease: biliary cirrhosis, cholangitis (idiopathic, infectious), biliary atresiaa
Red blood cell degradation: hemorrhage into soft tissues or body cavities, inefficient erythropoiesis, pernicious anemia	Extrahepatic bile duct obstruction: gallstones; carcinoma of gallbladder, bile ducts, or head of pancreas; bile duct stricture from inflammation or surgical misadventure
Defective hepatocellular uptake or conjugation: viral hepatitis, hereditary enzyme deficiencies (Gilbert, Crigler-Najjar syndromes), hepatic immaturity in newborns	

Jaundice, also known as icterus, is a yellowish or greenish pigmentation of the skin and whites of the eyes due to high bilirubin levels. It is commonly associated with itchiness. The feces may be pale and the urine dark.

Symptomes:

1.The main sign of jaundice is a yellowish discoloration of the white area of the eye and the skin.

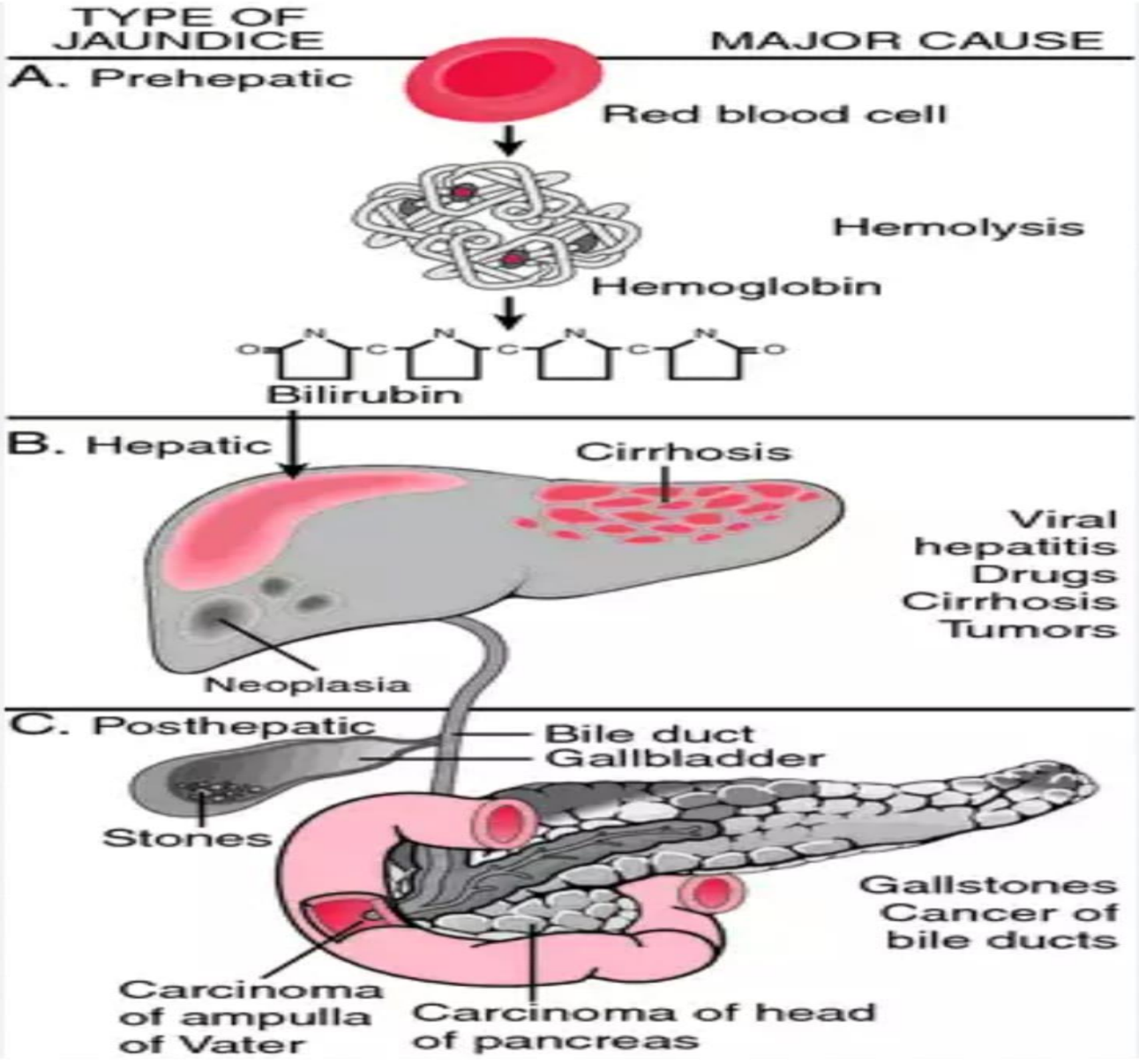
2. Urine is dark color.

3. The presence of scleral icterus indicates a serum bilirubin of at least 3 mg /dL.

4. The conjunctiva of the eye are one of the first tissues to change yellowing color in jaundice.

5. The color of the skin and whites of the eyes will vary depending on levels of bilirubin.

Types and causes of jaundice



Neonatal jaundice is usually harmless: this condition is often seen in infants around the second day after birth, lasting until day 8 in normal births, or to around day 14 in premature births.

hemolytic disorders include:

1.hereditary spherocytosis, glucose-6-phosphate dehydrogenase deficiency, pyruvate kinase deficiency.

2. ABO/Rh blood type autoantibodies.

3. infantile pyknocytosis.

Treatment:

1. A Bili light used for early treatment, which often consists of exposing the baby to extensive phototherapy.
2. Sunbathing is effective treatment.
3. The advantage of ultra-violet-B, promotes Vitamin D production.
4. Bilirubin count is lowered through bowel movements and urination.
5. So frequent and effective feedings are especially important.


Before phototherapy
After phototherapy

Thank you for listening