

Urobilinogen

Urobilinogen is a colourless product of bilirubin reduction. It is formed in the intestines by bacterial action. Some urobilinogen is reabsorbed, taken up by the hepatocytes into the circulation and excreted by the kidney. This constitutes the normal "intrahepatic urobilinogen cycle".

Increased amounts of bilirubin are formed in haemolysis which generates increased urobilinogen in the gut. In liver disease (such as hepatitis) the intrahepatic urobilinogen cycle is inhibited also increasing urobilinogen levels. Urobilinogen is converted to the yellow pigmented urobilin apparent in urine.

The urobilinogen remaining in the intestine (stercobilinogen) is oxidized to brown stercobilin which gives the feces their characteristic color.

In biliary obstruction, below normal amounts of conjugated bilirubin reach the intestine for conversion to urobilinogen. With limited urobilinogen available for reabsorption and excretion, the amount of urobilin found in the urine is low. High amounts of the soluble conjugated bilirubin enter the circulation where they are excreted via the kidneys. These mechanisms are responsible for the dark urine and pale stools observed in biliary obstruction.

Abnormal values

Absence of urine urobilinogen may result from complete obstructive jaundice or treatment with broad-spectrum antibiotics, which destroy the intestinal bacterial flora. (Failure of bilirubin production or obstruction of bilirubin passage.)

Low urine urobilinogen levels may result from congenital enzymatic jaundice (hyperbilirubinemia syndromes) or from treatment with drugs that acidify urine, such as ammonium chloride or ascorbic acid.

Elevated levels may indicate hemolytic jaundice, overburdening of the liver, excessive RBC breakdown, increased urobilinogen production, re-absorption - a large hematoma, restricted liver function, hepatic infection, poisoning or liver cirrhosis.