



A Study on Abnormal Constituents of Urine in Jaundice Condition

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Abstract

Aim: To study on abnormal constituents of urine in Jaundice condition.

Objective: Many substances such as glucose, proteins, amino acids, etc are present in trace amounts in normal urine, presence of these substances is suggestive of underlying pathological condition, and other diseases like jaundice, diabetes.

Materials and Methods: To identify urinary Bile salts by hays or sulphur test and Bile pigments by Fouchets Test.

Results: Bile salts and Bile pigments are elevated in jaundice condition.

Keywords: abnormal constituents, Bile salts, Bile pigments, Jaundice.

Introduction

Urine is the excretory waste products formed by the kidney. It reflect the overall metabolic and kidney functions of the body. Its analysis therefore is important in evaluating kidney functions as well as in the diagnosis of many other diseases^[1]. Urine of normal health individual has definite physical properties and chemical composition. However in many diseases the properties of urine and its composition changes. Several new metabolic indicating the presence of specific disease may also appear in urine. such metabolites which do not appear normally in urine are called abnormal

constituents^[2-5]. Urine is the important excretory fluid from the body. Some of the disease are associated with an excretion of abnormal constituents in urine. the identification of great diagnostic importance. Normally, urine contains water and wastes, such as urea, uric acid, creatinine, and some ions.

Urine analysis: A complete analysis of urine includes the Bacteriological analysis, Microscopic analysis, Biochemical analysis^[6].

Bacteriological analysis: it is done by microbiologist to identify the infecting organism by culture studies.

Microscopic Analysis: it is done to detect the presence of pus cells. RBCs casts etc. which may be pathological many a time^[7].

Biological Analysis

A] Routine qualitative examination: for detecting the pathological variations in physical properties and presence of abnormal constituents.

B] Quantitative estimation of many biochemical constituents like proteins, creatinine, calcium, etc [7-10].

Material and Methods

In jaundice condition mainly bile salts and bile pigments are elevated. Present study was done in the department of biochemistry, fathima institute of medical sciences, kadapa, A.P. India. who are suffering from jaundice and admitted in General medicine department.

How the Test Is Performed

During urine collection you start to urinate, allow a small amount to fall into the toilet bowl to clear the urethra of contaminants. Then, put a clean container under your urine stream and catch 1 to 2 ounces of urine. Remove the container from the urine stream. Cap and mark the container and give it to the health care provider or assistant. For infants, thoroughly wash the area around the urethra. Open a urine collection bag (a plastic bag with an adhesive paper on one end), and place it on the infant. For boys, the entire penis can be placed in the bag and the adhesive attached to the skin. For girls, the bag is placed over the labia.

How to Prepare for the Test

You may have to eat a special diet, and you should stop taking any drugs that may affect the test. If the collection is being taken from an infant, you may need extra collection bags.

How the Test Will Feel

The test involves only normal urination, and there is no discomfort.

Test for Bile salts

Urine test

- Collect a urine sample in a clean container.
- Follow the manufacturer's directions on the bottle of test strips or tablets.

Avoid getting toilet paper, pubic hair, stool, menstrual blood, or other foreign matter in the urine sample.

Test for Bile salts

Experiment	Observation	Inference
Sulphur test: Two test tubes are taken.in one test tube ¾ of full of urine is taken, in other ¾ of full of urine is taken. sulphur particles are sprinkled upon the top layer of both the test tubes.	Sulphur particles sinks down in test tube containing urine.	It indicates the presence of bile salts. bile salts will reduce the surface tension.
Peter Koffes test: 3cc of urine is taken than few crystals of cane sugar is added and mix it well. 2cc of conc.sulphuric acid is run down along the sides of the test tube.	A purple colour ring is seen.	It conforms the presence of bile salts.

Test of Bile Pigments

Experiment	Observation	Inference
Fouchets test: 2CC or 3CC of urine is taken and acidified with 1 or 2 drops of acetic acid and equal volume of 10% BaCl ₂ is added. to this saturated ammonium sulphate is added drop by drop until maximum precipitate is formed. Mix it well and keep it for 5 minutes in a test tube. it is filtered. the precipitate is dried between folds of filter paper and it is kept on the table, to it 1 or 2 drops of fouchets reagent is added.	Green, Blue are Brown colour is formed	It indicates the presence of bile pigments. Barium sulphate which is present as white precipitate on filter paper and adsorbs the white pigments which react with fouchets reagent to give colour with bile pigments.

Results

Positive sulphur tests shows presence of bile salts in the urine and Peter and Koffes test conform the bile salts. Positive fouchets test shows that the presence of bile pigments. Hays sulphur test is done to detect the presence of bile salts. urobilinogen and bilirubin are detected by Ehrlichs test and Fouchets test respectively. Rosenbatchs test is another test for bilirubin.

Discursion

Presence of Bile salts and bile pigments in urine occurs in hepatocellular jaundice due to intrahepatic biliary obstruction caused by inflammation oedema and also in obstructive jaundice. Only about 1% of total bile salts synthesized are excreted daily in faeces. Rest 99% is reabsorbed from intestine and return to liver by enterohepatic circulation. Bile salts are normally not excreted in urine. However in Obstructive Jaundice they appear in urine. Hays sulphur test is done to detect the presence of bile salts. They lower the surface tension and so when sulphur is sprinkled on urine, it sinks down. A control of water should be used.

In humans bilirubin is the main bile pigment resulting from the the catabolism of heme. it is conjugated with glucuronic acid and is excreted as bilirubin diglucronide in bile. in bile intestine it is converted into urobilinogen, majority of which is reabsorbed and recirculated. only traces of urobilinogen are excreted in urine. Urobilinogen is red coloured but oxidised from called urobilin is colourless. Some part is excreted in faeces also. This part is responsible for normal colour of faeces and is called stercobilin. Normally bilirubin is not excreted in urine. But both urobilinogen and bilirubin are detected by Ehrlichs test and Fouchets test respectively. Rosenbatchs test is another test for bilirubin.

Conclusion

Urine is the excretory waste product formed by the kidney, it reflects the overall metabolic and kidney functions of the body. Its analysis, therefore, is important in evaluating kidney functions as well as in the diagnosis of many other diseases. Positive sulphur tests shows presence of bile salts in the urine and Peter and Koffes test conform the bile salts. Positive fouchets test shows that the presence of bile pigments.

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