Subject Code : P8FS2

CORE COURSE-11 : BIOCHEMICAL CHANGES IN DISEASES
(Hours of Instruction per week 6: Theory 6)

OBJECTIVES:

To enable students

1. Understand the Biochemical and physiological impairments in diseases:
2. Develop skills to analyze selected constituents in blood and urine during diseases:

TOPIC	PRACTICAL
UNIT I	
Basis for biochemical estimation _basic principles - general lab information - units of measure. Uses of biochemical data in Clinical medicine. Acquisition and interpretation of biochemical data.	
UNIT II	
Disorders of carbohydrate metabolism Maintenance of. Normoglycaemia - Normal Glucose metabolism - glucose transporters - Glucose transporter proteins - insulin - Biosynthesis, secretion, kinetics, action Abnormalities of insulin synthesis and Secretion. Diabet has mellitus - definition , classification of diabetes - in detail. Long term diabetic complications, management of diabetes mellitus.	Screening of diabetes: 1. measurement of blood glucose random, fasting, 2. measurement of urinary glucose content 3. Oral glucose tolerance test
b. Fat metabolism - lipids - types. Lipoprotein - types, metabolism - exogenous pathway, endogenous pathway. Lipoprotein disorders - primary dyslipoproteinaemics, acquired Hyperlipididaemia, acquired hypolipidaemia	Investigations of lipid disorders –appearance of the sample Total cholesterol - estimation Triglycerides HDL & HDL
UNIT III	
a. Clinical biochemistry of nutrition, nutritional requirements - carbohydrate, protein fat, vitamins, minerals	Xylose absorption test Lactose to tolerance test facal fat excretion
b. Malabsorption carbohydrate absorption	SEPT, SGPT, AP

protein absorption fat absorption, diarrhea, its course.

AP, Bilirubin

c. Anatomy of liver Hepatic regeneration physiological function, liver function test and its uses.

d. Poisoning - actiology of poisoning, Diagnosis and management of poisoning Specific poisons.

Lab assessment of specific poisons like salicylate, Dogoxin, metals, alcohols etc.

UNIT IV

a. Anatomy of kidney - gross anatomy and microstructure renal function. Renal diseases and its presentation. Assessment of renal function. Renal Failure - acute and chronic, metabolic Consequences and management of renal Failure.

Biochemical test of renal Function.
– appearance, colour, smell
specific gravity and osmolality
-urine glucose
-urine PH

b. Mechanism of protein conservation by the kidney - urine protein content in health - proteinuria in renal disease -proteinuria in non renal disease.

-protein
-urinary sediment
serum creatinine
Plasma urea conc.

c. Renal tubular disorders, renal calculi

Plasma urea concentration
Plasma B2 micro globulin
Observation of dialysis

UNIT V

a. Blood - components, function, RBC - structure, function and metabolism, Hemolysis - definition and classification And consequences

Blood count
total - WBC Count
total - RBC count
differential count

b. Biosynthesis of haem porphyries and its genetics, classification

ESR

c. Hemoglobinopathies, structure and function of hemoglobin , control of hemoglobin synthesis. Thalasaemias - α and β. Structural Hemoglobin variants SCA

Blood grouping &
Rh factor
Separation of
serum and plasma