PHARMACOLEARN

It’s Important to Know!

BP204T — Pathophysiology

B.Pharm Semester 2 · Unit 3 — Haematological, Endocrine, Nervous and Gastrointestinal Diseases

Unit III: Haematological, Endocrine, Nervous and Gastrointestinal Diseases

Anaemias

Anaemia is reduced oxygen-carrying capacity of blood, commonly because haemoglobin concentration or red-cell mass is reduced. Iron deficiency commonly produces microcytic, hypochromic cells. Vitamin B12 or folate deficiency can produce megaloblastic change. The cause must be established rather than inferred from one laboratory value.

Sickle cell disease results from an inherited haemoglobin abnormality that can promote red-cell deformation and vessel obstruction under low-oxygen conditions. Thalassaemias result from reduced synthesis of globin chains. Hereditary and acquired haemolytic anaemias involve increased red-cell destruction.

Haemophilia

Haemophilia is a bleeding disorder caused by deficiency or dysfunction of a clotting factor. The intrinsic pathway is affected in classic factor VIII or IX deficiency.

Diabetes and thyroid disease

Diabetes mellitus is chronic hyperglycaemia caused by inadequate insulin secretion, impaired insulin action or both. It changes carbohydrate, lipid and protein metabolism and can damage vessels, nerves, kidneys and eyes.

Thyroid disorders can result from excess or deficiency of thyroid hormone, autoimmune mechanisms, inflammation or structural disease. Thyroid hormones influence metabolic rate, growth and development.

Nervous system diseases

Epilepsy is a disorder of recurrent unprovoked seizures caused by abnormal, excessive or synchronous neuronal activity. Parkinson disease involves motor features associated with dysfunction of dopaminergic pathways. Stroke is neurological dysfunction caused by interrupted blood flow or bleeding in the brain. Depression, schizophrenia and Alzheimer disease involve

different combinations of mood, cognition, perception, behaviour and progressive neuronal dysfunction.

Gastrointestinal disease

Peptic ulcer disease involves mucosal damage in an acid-peptic environment when protective mechanisms are insufficient. Factors can include infection, medicines, smoking and other stresses.

Unit III: Frequently asked questions

Q: What is anaemia?

A: Anaemia is reduced blood oxygen-carrying capacity, usually due to reduced haemoglobin or red-cell mass.

Q: What is diabetes mellitus?

A: It is a disorder of chronic hyperglycaemia caused by inadequate insulin secretion, impaired insulin action or both.

Q: What is a stroke?

A: A stroke is neurological dysfunction caused by interrupted blood flow or bleeding in the brain.

Q: What is peptic ulcer disease?

A: It is a defect in gastrointestinal mucosa produced when damaging acid-peptic forces exceed protective mechanisms.

Unit III: Key takeaways

- Anaemia is a functional oxygen-carrying problem with many possible causes.
- Iron, vitamin B12 and folate deficiencies produce different patterns.
- Haemoglobin disorders can alter red-cell shape, quantity or survival.
- Diabetes changes metabolism and can cause long-term organ damage.
- Nervous system disease can affect movement, cognition, mood or consciousness.
- Gastrointestinal disease can damage mucosa and impair digestion or absorption.

Unit III: Clinical correlation

Clinical correlation: diabetes. Persistent hyperglycaemia can produce vascular, neural, renal and ocular complications.