

Hematology

Curriculum

Introduction - **Must know**

- Cell line of hematopoiesis
- Stimulating factors
- Physiology and Anatomy of RBCs

Anemias

- Introduction
- Classification
- Symptoms & signs in general
- Basic investigations & its interpretation

Microcytic Hypochromic Anaemias

- Iron Kinetics
- Clinical Features,
- Investigations of Iron deficiency
- Treatment of Iron deficiency.
- D/D
 - Sideroblastic anaemia
 - thalassemia

Macrocytic Anaemias

- Kinetics of B-12 and Folic Acid
- Clinical Features
- Investigations and management of B-12 / FA deficiency

Hemolytic Anaemias

Hemoglobinopathies

Hypoplastic / Aplastic anemia

- Definition
- Classification
- Diagnosis and management

Introduction to WBCs

- Agranulocytosis - Aetiology & its significance - **Desirable to know**
- Leukemias (AML, ALL, CML, CLL) - **Desirable to know**

Management of leukemia

Lymphomas

- Hodgkin's disease
- NHL (Non-Hodgkin's lymphoma)

Approach to a patient with bleeding disorders

- Recognition
- Investigations
- Physiology of Platelets
- Therapy

- Blood groups
- Blood Transfusion
- Component Therapy - **Must know**

Hemolytic Anaemias

- Causes
- Investigations
- Extravascular hemolysis
- Intravascular hemolysis

Causes

- Inherited
- Acquired

Inherited

- Red Cell Membrane Abnormality
 - Hereditary spherocytosis
 - Hereditary elliptocytosis
- Red Cell Enzyme Deficiency
- Hemoglobin

Acquired

- Immune
- Nonimmune

Immune Hemolytic Anaemias (IHA)

- Autoantibody
 - Warm antibodies
 - Cold antibodies
- Alloantibody

Non immune

- Mechanical
- Infection
- Chemical/physical
- Acquired abnormal membrane

Investigations

- Hallmarks of hemolysis
 - Decreased hemoglobin
 - Increased Indirect bilirubin
 - Increased LDH
 - Increased reticulocytes
 - Increase urinary urobilinogen

- Additional features
 - Decreased haptoglobin
 - Increased methemalbumin
 - Positive urinary hemosiderin
 - Hemoglobinuria

Hereditary spherocytosis

Hereditary elliptocytosis

Hemoglobinopathies

- Mutation genes encoding globin chains
- 2 Alpha, 2 non alpha
- Alpha throughout life
- Non alpha changes with age

Hemoglobinopathies

- Qualitative
 - Abnormal HB
 - Several hundred variations
 - S,C,D,E,...
- Quantitative
 - Reduced rate of production of one chain
 - Thalassemias

Sickle Cell Anaemia

- Glutamic Acid (King)

Replaced by

- Valine (Villain)

At position 6 of beta chain

Sickle Cell Anaemia

- Homozygotes
 - HbS + HbS
 - SS
- Heterozygotes
 - HbA + HbS
 - AS

Sickle Cell Anaemia

- Epidemiology
- Pathogenesis
- Clinical features
- Management
- Prognosis

Clinical features of sickle cell anaemia

- Precipitating factors of sickling:
 - Hypoxia
 - Acidosis
 - Dehydration
 - Infection

Clinical features of sickle cell anaemia

- Painful vaso-occlusive crisis
- Stroke
- Sickle Chest Syndrome
- Sequestration crisis
- Aplastic crisis
- Pregnancy and SCD

Thalassaemias

- Impaired HB production
- Partial/complete
- Alpha/beta

Beta thalassemia

- Diagnostic features
- Management
- Prevention

Hypoplastic / Aplastic anemia

- Definition
- Classification
- Diagnosis and management