

# Dow University of Health Sciences



## HEMATOLOGY MODULE

4 weeks

Third Year MBBS

## 5 YEAR CURRICULAR ORGANIZATION

Spiral	year	Modules				
First Spiral	I	<b>FND1- Foundation</b> Cell, Genetics & Cell Death (Basics of Anatomy, Physiology, Biochemistry, Gen. Pathology, Gen. Pharmacology, Community Medicine & Behavioral Sciences, Genetics, Microbiology, Bioethics) <b>9 Weeks</b>		<b>HEM1- Blood Module</b> Immunity, Inflammation, Tissue repair, Antimicrobials & Neoplasia 9 Week		
		<b>LCM1- Locomotion</b> Bones, Joints, Nerves & Muscles, <b>9 weeks</b>		<b>RSP1- Respiratory System</b> 6 weeks	<b>CVS1- Cardiovascular System</b> 4 weeks	
	II	<b>NEU1- Nervous System</b> 8 weeks		<b>HNN1- Head &amp; Neck &amp; Special</b> 6 weeks	<b>END1- Endocrinology</b> 5 weeks	
		<b>GIL 1-GIT and Liver</b> 8 weeks		<b>EXC1- Renal and Excretory System</b> 5 weeks	<b>REP1- Reproductive System</b> 5 weeks	
Second Spiral	III	<b>IDD 1- Infectious diseases</b> 5 weeks	<b>HEM2- Hematology</b> 5 weeks	<b>RSP2- Respiratory System</b> 5 weeks	<b>CVS2- Cardiovascular System</b> 5 weeks	
		<b>GIL 2-GIT and Liver (including Nutritional Disorders)</b> 8weeks		<b>EXC2- Renal &amp; Excretory System</b> 5 weeks	<b>END2- Endocrinology</b> 5 weeks	
	IV	<b>ORT2 Orthopedics, Rheumatology, Trauma,</b> 7 weeks		<b>REP2- Reproductive System</b> 8 Weeks	<b>Physical Medicine &amp; Rehabilitation</b> 3 weeks	
		<b>DPS-Dermatology Plastic Surgery / Burns</b> 2 weeks	<b>GEN- Genetics</b> 1 week	<b>NEU2- Neurosciences and Psychiatry</b> 8 weeks	<b>ENT*</b> 4 week	<b>OPH-EYE</b> 4 week
Third Spiral	V	<b>Half of the class will cover Medicine &amp; Allied and the other half will cover Surgery &amp; Allied modules in first half of teaching session. The two halves will exchange in latter half of year.</b>				
		Clinical Rotation 8:30 to 1:00 (with Ambulatory, Emergency, Intensive care) In Medicine, Pediatrics, Cardiology and Neurology units <ul style="list-style-type: none"> <li>▪ Lecture on problem based approach, twice a week</li> <li>▪ Ward tutorial twice a week</li> <li>▪ Student research presentation once a week</li> </ul>		Clinical Rotation 8:30 to 1:00 (Inpatient, Ambulatory, Emergency, Intensive care and Operation Theatres) In Surgery, Gynae & Obstetrics, Orthopedics and Neurosurgery. <ul style="list-style-type: none"> <li>▪ Lecture on problem based approach, twice a week</li> <li>▪ Ward tutorial twice a week</li> <li>▪ Student research presentation once a week</li> </ul>		
		<b>PARALLEL THEMES:</b> The following themes are not part of any individual module but shall run concurrently: <b>Communication Skills, Clinical Skills, Writing and Presentation Skills, Article Writing, Ethics</b>				

## **RATIONALE:**

Knowledge of blood, immunity and inflammation is essential, as blood is responsible for the supply of micronutrients, O<sub>2</sub> delivery to the tissues, maintenance of homeostasis, body responses and defense mechanisms against injurious agents. The module is designed to provide basic knowledge of hematological diseases to the students in order to deal with various Hematological, Immunological and Immuno- Hematological disorders of adults and children. In this regard students will learn to take history, examine patients and to know about sampling techniques, relevant Laboratory tests, their interpretations, differential diagnosis, treatment regimens and prognostic values of various disorders.

## **TERMINAL OBJECTIVE:**

Medical graduate after completion of 5 years training program should be able to:

- Describe pathogenesis of common hematological disorders
- Recognize the clinical presentations of common hematological, immunological and inflammatory disorders
- Describe pathogenesis & clinical presentations of common coagulation & platelet disorders
- Take history & formulate appropriate plan of investigations for attaining differential diagnosis
- Analyze findings of history, examinations & investigations for diagnosis.
- Practice basic principles of management of hematological, immunological & inflammatory disorders.
- Recognize preventive measures & prognosis for counseling the patients.

## **MODULE OBJECTIVES:**

- Classify the Anemia and its effects on the body (presentation) in adult and children.
- Interpret the importance of inherent hematological and immunological disorders (Hemoglobinopathies, membrane defects in RBCs, Enzyme defects).
- Recognize the cause of hemostatic abnormalities: platelets and coagulation disorders in adults and children.
- Take history, examination; interpret basic lab data to diagnose hemolytic disease of new born (RH, ABO, Minor group incompatibility).
- Take history, examination of patients presents with fever , lymphadenopathy and hepato splenomegaly
- Interpret basic lab data to diagnose Leukemia and lymphomas.
- Recognize and correlate history and examination with the non-neoplastic disorders of WBCs especially with reference to infections, inflammations, allergic, metabolic disorders and congenital anomalies.
- Recognize the clinical manifestations and correlate with the history and lab data of Myeloproliferative disorders e.g. CML, Polycythemia.

- Recognize the common causes of anemia prevalent in our community.
- Recognize the establishment of individuality of person on the basis of Age, Sex, Stature, Features, Hair Scars, Tattoos, External Peculiarities Race, Religion & Nationality, Dental patterns, fingerprints, footprints or handprints.
- Describe early and late changes of death, Somatic and clinical death, suspended animation, Comment on estimation of time since death.

### **MODULE CONTENTS:**

#### **PHARMACOLOGY**

- **Hem 2 Pha 1** Iron ,B12 Treatment (Hematinic, Erthropoeitin, Colony Stimulating Factors).
- **Hem 2 Pha 2** Coagulants, Anticoagulants, Thrombolytics.
- **Hem 2 Pha 3** Immunosuppressants, immunomodulators related to transplantation

#### **PATHOLOGY**

- **Hem 2 Pth 1** Hemolytic Anemia (HS, G6PD, SCD).
- **Hem 2 Pth 2** DIC, Thrombotic Thrombo- Cytopenic Purpura, Hemolytic Uremic Syndrome.
- **Hem 2 Pth 3** Thalassemia Syndromes.
- **Hem 2 Pth 4** Coagulation Disorders (Hemophilia, VWD).
- **Hem 2 Pth 5** Anemia Of Diminished Erythropoeisis (Iron Def Anemia, Megaloblastic, Aplastic Anemia).
- **Hem 2 Pth 6** Disorders(Infections, Inflammation).
- **Hem 2 Pth 7** Bleeding Diatheses Platelet Disorders.
- **Hem 2 Pth 8** Blood Transfusion, Indications Reactions Rh Incompatibility.
- **Hem 2 Pth 9** Overview And Classification Of Neoplastic Proliferation Of White Blood Cells
- **Hem 2 Pth 10** Hodgkins lymphoma
- **Hem 2 Pth 11** Non Hodgkin Lymphoma (NHL)
- **Hem 2 Pth 12** Myeloproliferative Disorders
- **Hem 2 Pth 13** Myelodysplastic Syndrome
- **Hem 2 Pth 14** Bone Marrow Transplantation
- **Hem 2 Pth 15** Transplantation rejection
- **Hem 2 Pth 16** Interpret Of CP Report: Normal, Microcytic, Macrocytic
- **Hem 2 Pth 17** Histological Difference B/W Normal White Cell, Leukemoid Reaction & Malignant Cell
- **Hem 2 Pth 18** Screening Tests For Bleeding And Coagulation Disorders Interpretation
- **Hem 2 Pth 19** Bone marrow Examinations (normal and Abnormal)

#### **FORENSIC MEDICINE**

- **Hem 2 For 1** Personal Identity I: Parameters Of Personal Identity, Race Determination, Sex Determination And Intersex States.
- **Hem 2 For 2** Personal Identity II: Age Determination In Medico Legal Cases
- **Hem 2 For 3** Personal Identity III: Objective Method Of Identification, Osteometric Indices, Dactylography, Superimposition Photography

- **Hem 2 For 4** Personal Identity IV: Identification In Living, Dead, Decomposed, Mutilated And Burnt Bodies, Skeletal And Fragmentary Remains, Hair, Scar
- **Hem 2 For 5** Age Determination By Teeth
- **Hem 2 For 6** Age Estimation By Radiology
- **Hem 2 For 7** Death I
- **Hem 2 For 8** Death II
- **Hem 2 For 9** Death III

#### COMMUNITY MEDICINE

- **Hem 2 Com 1** Vaccination

#### MEDICINE

- **Hem 2 Med 1** Approach To A Patient With Anemia
- **Hem 2 Med 2** Approach To A Patient With Thrombotic Disorders
- **Hem 2 Med 3** Approach to a patient with bleeding disorders
- **Hem 2 Med 4** Approach to patient with lymphadenopathy with or without splenomegaly

#### PAEDIATRICS

- **Hem 2 Ped 1** Acquired Hemolytic Anemia, Autoimmune Hemolytic Anemia, Cong Hemolytic Anemia (+ Sickle Cell Anemia) & IMNCI (Assess, Classify And Manage Child With Anemia) Hereditary Spherocytosis, G6pd Deficiency, Pyruvate Kinase Deficiency,
- **Hem 2 Ped 2** Coagulation Disorder: Hemophilia A, B, C, Von-Willbrand Disease, Itp, Platelets Function Defect
- **Hem 2 Ped 3** Diagnosis Of Hemolytic Disease Of Newborn-Rh Incompatibility
- **Hem 2 Ped 4** Lymphoma and leukemia in children

#### PHYSIOLOGY

- **Hem 2 Phy 1** Physiological Review Of Anaemia (Nutritonal)/Importance Of Red Cell Indices And Its Correlation
- **Hem 2 Ped 2** Revisit of Leucopoiesis
- **Hem 2 Ped 3** Polycythemia

#### BEHAVIORAL SCIENCES

- **Hem 2 Beh 1** Psychosocial Aspect for Health and Disease

## CASE BASED LEARNING

### Hem 2 Cbl 1 Hemolytic Anemia

- Define hemolytic anemia.
- Discuss the risk factors.
- Enumerate the examination finding.
- Discuss differentials diagnosis on the basis of history and examination.
- Enlist investigation.

### Hem 2 Cbl 2 Neonatal jaundice ----Rh incompatibility

- Describe the pathophysiology of RH incompatibility
- Discuss the clinical presentation and complications
- Discuss the investigations and management

## TEACHING STRATIGIES

### LARGE CLASS FORMATS

- Lectures

### SMALL GROUP DISCUSSION

- Demonstrations
- Tutorial
- Practical
- Skill labs
- Case based learning sessions

**ASSESSMENT PLAN**

**HEMATOLOGY MODULE**

	WEIGHTAGE
ANNUAL EXAM	80%
MODULE EXAM INTERNAL EVALUATION	
THEORY	10%
PRACTICAL	10%

<b>CONTACT HOURS (DISCIPLINE WISE)</b>	
<b>Discipline</b>	<b>Contact Hours</b>
<b>Pathology</b>	<b>20.5</b>
<b>Physiology</b>	<b>3.5</b>
<b>Pharmacology</b>	<b>3</b>
<b>Forensic Medicine</b>	<b>10</b>
<b>Community Medicine</b>	<b>1</b>
<b>Paediatrics</b>	<b>5</b>
<b>Medicine</b>	<b>5</b>
<b>Behavioural science</b>	<b>1</b>

<b>CREDIT HOURS</b>	
<b>Hematology II</b>	<b>4.5</b>



## **BOOKS**

### **PATHOLOGY**

- Robbins Basic Pathology Kumar & Abbas 9th Edition
- Robbins & Cotran Pathologic Basis Of Disease Kumar & Abbas & Aster 9th Edition

### **COMMUNITY MEDICINE**

- Public Health And Community Medicine Shah, Ilyas, Ansari 7th Edition

### **PHARMACOLOGY**

- Lippincott's Illustrated Review Pharmacology Karen Whalen 6th Or Latest Edition
- Basic And Clinical Pharmacology Bertram G. Katzung 11th Edition

### **FORENSIC MEDICINE**

- Principles And Practice Of Forensic Medicine Nasib R.Awan 1 St Edition

### **MEDICINE**

- Principles & Practice Of Medicine Davidson's 22nd Or Latest Edition
- Essentials Of Kumar And Clark's Clinical Medicine Kumar & Clark 9th Or Latest Edition
- Macleod's Clinical Examination Douglas & Nicol & Robertson 13th Or Latest Edition
- Hutchison's Clinical Methods William M Drake & Michael Glynn 23rd Or Latest Edition

### **PAEDIATRICS**

Nelsons's Essentials Of Pediatrics Marcdante & Kliegman 7th Or Latest Edition

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