Course Specifications

General Information

Course name	Hematology(2)
Course number	AMSL4326
Faculty	
Department	
Course type	Major Needs
Course level	4
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

1 - Distinguish the events that occur in primary hemostasis from those that occur in secondary hemostasis.

2 - Describe the normal morphology and number of platelets on a peripheral blood smear and state the normal concentration in the blood.

3 - Identify and define the steps in the normal sequence of events of platelet activation following injury to the endothelium.

4 - List the coagulation factors using Roman numerals and common names and determine how each is evaluated in lab testing. List the source of each coagulation factor. Predict results of coagulation tests in a given disease.

5 - Classify the coagulation factors into groups and discuss their characteristics.

6 - Describe the mechanism of action of the coagulation proteins.

7 - Explain the sequence of reactions in the coagulation cascade according to the historic concepts of intrinsic, extrinsic, and common pathways.

8 - Define fibrinolysis. List the fragments resulting from fibrinolytic degradation; compare and contrast the fragments resulting from the degradation of fibrinogen and fibrin.

9 - Describe the significance and clinical implications of circulating fibrin degradation products.

10 - Define factor inhibitors and list characteristics of antithrombin and factor VIII inhibitor.

11 - Describe the procedure for determining the bleeding time (BT), prothrombin time (PT), activated partial thromboplastin time (APTT), thrombin time (TT), Russell Viper Venom, fibrinogen assay, fibrin degradation products (FDP), fibrin split products (FSP) and D-dimer assay.

12 - Interpret the results of routine coagulation testing (i.e., prothrombin time (PT), activated partial thromboplastin time (APTT), fibrinogen assay, thrombin time (TT), fibrinogen degradation products (FDP) and, D-dimer assay).

13 - Recognize hematologic disorders that are characterized by the presence of thrombocytopenia or thrombocytosis such as Fanconi anemia, Wiskott - Aldrich syndrome, Bernard -Soulier Syndrome, May-Hegglin anomaly.

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15 - Describe the hereditary and acquired qualitative platelet defects such at von Willebrand Disease, Bernard-Soulier syndrome, Glanzmann’s thrombasthenia by etiology and pathophysiology, and predict the clinical and laboratory features.

16 - Identify hemostatic proteins that are deficient in hemophilias A and B.

17 - Describe the role of heparin in the neutralization of activated coagulation factors by antithrombin.

18 - Discuss how oral anticoagulants such as Coumadin decrease a person’s risk for thrombosis and describe the best way to monitor oral anticoagulation.

19 - Define and list the causes of leukemoid reaction.

20 - Describe the following WBC morphology and inclusions and relate them to disease states: hypersegmented neutrophil, toxic granulation, Dohlë bodies, vacuoles, atypical lymphocytosis, Auer rods, smudge cells, ReedSternberg cell, Faggot cell.

21 - Compare and contrast the peripheral blood picture and lab findings of the following WBC disorders or abnormal WBC: Pelger-Huët anomaly, May-Hegglin anomaly, Chediak-Higashi anomaly, Alder- Reilly anomaly

22 - The Leukemias including Hairy Cell Leukemia, Burkitt Lymphoma, Hodgkin’s and Non-Hodgkin’s Lymphoma, Myelofibrosis, polycythemia, Infectious Mononucleosis, Multiple Myeloma, Sezary syndrome, Gaucher disease, Niemann-Pick disease, Myelodysplastic disease

23 - Differentiate the subgroups of myeloproliferative disorders (MPD)

24 - Compare and contrast the various presentations of AML.

25 - Compare and contrast the FAB and the WHO systems of classification.

Course Contents

1 - Hemostasis overview
2 - Primary Hemostasis
3 - Secondary Hemostasis
4 - Fibrinolysis
5 - Natural Inhibitors
6 - Approaching Bleeding Disorders
7 - Vascular Disorders
8 - Quantitative and qualitative Platelet Disorders
9 - Platelet Function tests
10 - Hemophilias
11 - (von Wellibrand Disease (vWD)
12 - Fibrin Production Disorders
13 - Coagulation Mixing studies and Factor Specific Assay
14 - Thrombosis and Thrombophilia
15 - Hemostasis Modifier Drugs and monitoring
16 - WBC benign disorders
17 - WBC malignant disorders overview
18 - Acute and chronic leukemias
19 - Weapons used to diagnose leukemias

Teaching and Learning Methods

1 - Lectures
2 - Discussions
3 - Case Studies

Students Assessment

Assessment Method	TIME	MARKS
Two Midterm Exams	One hour each	Each 25 mark
Final Exam	Two hours	Fifty marks

Books and References

Course note	Powerpoint Lecture Notes
Essential books	Clinical Laboratory Hematology, McKenzie, First Edition, Prentice Hall, 2004
Recommended books	Postgraduate Haematology, Hoffbrand, 5th edition, 2005, Blackwell Publishing