Foundation Module (Foundation for Clinical Practice and Foundation module -3)

Year 3 Semester 1 Credits - 8

Foundation for Clinical Practice (FCP) – End of Year 2 Semester 2

Duration: 4 Weeks (20 days)

Topic & Concepts	Objectives	Time	Department	T/L activity
	At the end of the module, the student should be able,			
2006-3/SBM-1/01				
Introduction to Pathology	to understand the purpose of the module and the basis for the design of the module	1h	Pathology	Introductory session
2006-3/SBM-1/02				
Introduction to Pharmacology				
a. What is a drug?	1. define the following terms Drug, Pharmacology, Therapeutics, Clinical Pharmacology, Pharmacokinetics, Pharmacodynamics, "Medicines". 2. compare and contrast 'drug' vs 'poison'	1h	Pharmacology	Lecture
b. The need for the use of drugs in health care	1. identify the broad principles of use of drugs in the management of common illness			
2006-3/SBM-1/03				
Acute inflammation and suppuration	1. to define the process of acute inflammation. 2.to describe in detail* the various steps, controlling factors, sequale, complications and clinicopathological effects of acute inflammation. (includes suppuration)	9h	Pathology	Lectures (6h) + Museum Class (3h)
2006-3/SBM-1/04				

Chronic inflammation	1.to define the process of chronic inflammation 2. to describe in detail* the non-specific and specific types of chronic inflammation, its sequele and complications			
2006-3/SBM-1/05				
Wound healing	1. to describe the process of healing in injured tissue and its complications 2. to describe in detail* the process of healing in different types of tissue and surgical wounds. 3. to describe in detail* the formation of the organ of repair-namely granulation tissue.	5h	Pathology	Lectures (4h) + Museum Class (1h)
2006-3/SBM-1/06				
Necrosis and apoptosis	1. to describe in detail* the morphological changes that occur in irreversibly injured cells and the clinico-pathological effects of such necrosis 2. to outline the non reversible types of cell injury. 3. to describe in detail* the pathogenesis and pathology of different types of necrosis 4. to outline the clinicopathological effects and recognition of necrosis 5. to define the term reperfusion injury and describe the process 6. to define the term apoptosis and discuss the clinicopathological significance 7. to name the steps in apoptosis and the controling factors 8. to differentiate apoptosis from necrosis	4h	Pathology	Lectures (3h) + Museum class - (1h)
2006-3/SBM-1/07				
Tuberculosis	1. to describe the pathogenesis of tuberculosis 2. to understand the concepts of primary and postprimary tuberculosis 3. to describe the complications of the tuberculosis 4. to explain pathological basis of the clinical effects	2h	Pathology	Lectures (2h)
2006-3/SBM-1/08				

Disorders of Growth and differentiation	1. to outline the ways in which different cell types react to increased work demand and chronic irritation. 2. to describe in detail* the process of hypertrophy, hyperplasia, atrophy and metaplasia, and the pathology of these processes. 3. to give examples and also to state the clinico pathological effects of the processes mentioned above.	5h	Pathology	Lectures (3h) + Museum Class - (2h)
2006-3/SBM-1/09				
Thrombosis	1. to list the main factors which predispose to thrombosis. 2. to describe in detail* the pathogenesis and sequelae of thrombosis in different types of blood vessels and the heart, and the fate of thrombi 3. to mention the clinicopathological features of thrombosis in the different types of blood vessels.	3h	Pathology	Lectures (2h) + Museum class (1h)
2006-3/SBM-1/10				
Embolism	1. to define the process of embolism. 2. to describe in detail* formation of different types of emboli and describe the outcome of the different types of embolism including the clinicopathological effects.	6h	Pathology	Lectures (2h) + Practical (4h)
2006-3/SBM-1/11				
Congestion, oedema and infarction	1. to describe the effects in tissue, when the vascular blood supply alters, and the venous return is hampered. 2. to define the processes hyperaemia(active and passive), oedema and infarction 3. to describe in detail* the pathogenesis of these processes. 4. to list the processes that injure lymphatics and the clinicopathological outcome due to injured lymphatics.	7h	Pathology	Lectures (4h) + Museum class (3h)
2006-3/SBM-1/12				
Amyloidosis	1. to define the process of amyloidosis. 2. to describe in detail* the pathogenesis, types and clinical effects and methods of diagnosis of of amyloidosis.	2h	Pathology	Lectures & Case discussions (2h)

2006-3/SBM-1/13				
Other accumulations	1. to describe the process of pathological calcification and to state clinical examples. 2. to enumerate the types of abnormal pigments in the living persons and their pathogenesis and clinical importance.	2h	Pathology	Lectures (2h)
2006-3/CLM-1/01				
Abnormal constituents in urine	to perform inward tests for urinary protein, sugar, bile and ketone bodies	4h	Biochemistry	Practical (4h)
2006-3/SBM-1/14				
Atherosclerosis	1. to describe the risk factors of atherosclerosis 2 to describe the pathogenesis and pathological processes involved in atherosclerosis 3. to describe the complications and clinicopathological effects of atherosclerosis.	2h	Pathology	Lectures (2h)
2006-3/SBM-1/15				
Neoplasia and Carcinogenesis				
a. Introduction to neoplasia and oncogenesis	1. to describe the fact that DNA alteration in a cell can lead to tumours and dysplasia. 2. to describe in detail* the process of carcinogenesis and concepts of dysplastic and premalignant lesions. 3. to describe in detail* the different types of tumours and their pathogenesis and morphology and differences in behaviour.	4h	Pathology	Lectures (3h) + Museum class (1h)
b. Spread of tumours	4. to describe in detail* the modes of spread of malignant tumours and the clinicopathological effects.	3h	Pathology	Lectures (2h) + Museum class (1h)

2006-3/SBM-1/16				
Antineoplastic Drugs	1. state how neoplastic cells/tissues differ from normal cells/tissues with respect to potential targets for drug therapy in neoplastic disease 2. explain the basis of a. combination chemotherapy b. resistance to chemotherapy c. adverse effects of chemotherapy 3. classify antineoplasitc drugs 4. describe the mechanism of action, pharmacokinetics, clinical uses, adverse effects of commonly used antineoplastic drugs	2h	Pharmacology	Lecture
2006-3/SBM-1/17				
Applied general pathology	1. to define and explain the pathogenesis of erosions, ulcers, strictures and stenosis, blisters and bullae, fistula, sinus, polyps, adhesions, scars, fungating mass, organomegally, macule, papule, purpura, ecchymosis, naevi & warts and papillomata & application of these in systems	10h	Pathology	Lecture demonstration
2006-3/SBM-1/18				
Drug action - Pharmacodynamics	1. list the mechanisms by which drugs exert chemical influences at cellular level to produce a pharmacological response 2. define and give examples of (I). receptor (ii). drug binding sites (iii). ligand (iv). agonist (v). antagonist (vi). partial agonist (vii). inverse agonist (viii). receptor affinity (ix). receptor occupancy (x). spare receptors (xi). efficacy (xii). potency	4h	Pharmacology/ Biochemistry	Lectures

b. Receptor as target for drug action	1. classify receptors based on their structure function 2. briefly explain the signalling mechanisms by which receptor activation is coupled to cellular effector systems.			
c. Targets for drug action	(I). reversible/irreversible antagonism (ii). competitive/non competitive antagonist (iii). physiological antagonisms (iv). tolerance, tachyphylaxis (v). placebo and placebo effect	2h	Pharmacology	Lectures
2006-3/SBM-1/19				
Dose-response relationship:				
a. Drug dose-response relationship-variations between individuals	1. draw the concentration-effect curves for the relationship of the effect against (I). (full) agonist concentration (ii). logarithm of agonist concentration (iii). log-partial agonist concentration (iv). log full agonist concentration in the presence of a fixed dose+ increasing doses of competitive reversible antagonist (v). log full agonist concentration in the presence of a competitive irreversible antagonist 2. log full agonist concentration in the presence of a partial agonist	3h	Pharmacology	Lectures
b. Basis of adverse and toxic effects	1. define' adverse effects' of drugs 2. describe the mechanisms of adverse effects of drugs 3. explain how these reactions could be minimised/prevented	2h	Pharmacology	Lecture

	4. define therapeutic index 5. describe the different mechanisms by which drugs may cause cell damage, cell death, mutagenesis, carcinogenicity and teratogenicity 6. list drugs that are potentially (I). hepatotoxic (ii). nephrotoxic (iii). carcinogenic (iv). Teratogenic	1h	Pharmacology	Lecture
c. Assessment & monitoring of drug effects	1. list the methods by which the effects of drug therapy could be measured 2. describe how the measurement of plasma drug concentrations helps in monitoring drug therapy	2h	Pharmacology	Tutorials/ Lectures
2006-3/SBM-1/20				
Pharmacokinetics				
How does the body handle drugs?		**6h+SGLA-CAL**		
a. Transport across cell membrane:	1. describe the mechanisms of transport of drug molecules across the cell membrane and the factors that influence such mechanisms.		Pharmacology + Biochemistry	Lectures/Tutorials
b. Absorption: routes of administration	1. list different routes of administration of drugs 2. list the different types of dosage forms/special drug delivery systems (eg. Metered Dose, Inhalar, Enteric coated formulation, spansules)		Pharmacology/ Biochemistry	
c. Distribution in tissues, body compartments and	1. describe the advantages and disadvantages of the routes mentioned in b.1 and drug dosage forms mentioned in b.2			

across barriers	2. list the different compartments of the body into which drugs are distributed 3. describe the factors which influence the distribution of drugs into different compartments. 4. explain the concept of redistribution of drugs 5. explain the concept of barriers across tissues for transport of drugs			
d. Biotransformation	1. explain the basic mechanisms by which drugs undergo biotransformation in the body 2. list the common drugs which induce/inhibit the cytochrome P 450 enzyme system			
e. Elimination	1. define the terms "elimination" and "excretion" (I). state the physiological processes of different organ-systems that are involved in drug elimination (ii). explain the basic mechanisms by which drugs are excreted via kidneys.		Pharmacology/ Phisiology	
f. Analytical pharmacokinetic parameters	1. define the following (I). bioavailability dosage regimen (ii). bioequivalence (iii). first pass effect (iv). Area Under the Concentrate-time curve (AUC) (v). (apparent) volume of distribution (vi). clearance (vii). half life (viii). steady state concentration (ix). loading dose (x). maintenance dose (xi). dosage regimen 2. explain the principles of calculating the bioavailability, volume of distribution, clearance, loading dose & maintenance dose.			
g. First-order & Zero-order kinetics	1. explain first order kinetics and zero order kinetics	1h	Pharmacology	Lecture

h. Drug concentration vs time curve in different dosing regimes	1. draw the concentration-time curves for (I). single IV bolus injection (ii). intermittent IV bolus injection (iii). continuous IV infusion (iv). single-dose oral administration (v). intermittent oral administration (vi). modified-release formulations	2h	Pharmacology	Tutorials
I. Clinical application of pharmacokinetic parameters	1. explain the clinical significance of pharmacokinetic principles			
2006-3/SBM-1/21				
Autonomic Nervous system				
	1. recall the anatomical and functional organisation of autonomic nervous system 2. recall the anatomy and the physiology of the cholinergic and the noradrenergic 'junctions.	3h	Pharmacology	Lecture/ Tutorial
	3. recall the types of autonomic receptors with examples typical sites. 4. describe the mechanism of action, pharmacokinetics clinical effects of : (I). cholinoceptor agonists (ii). acetylcholinesterase inhibitors (iii). acetylcholinesterase re-activators (iv). muscarinic receptor antagonists (v). ganglion-blocking nicotinic antagonists (vi). adrenoceptor activators (vii). adrenoceptor antagonists 5. describe the important clinical uses, adverse effects, toxic effects, contra-indications with regard to the drugs acting on the autonomic nervous system.			

2006-3/SBM-1/22				
Pain Control				
a. Physiology of pain	1. recall the definition of pain and briefly explain theories of pain 2. classify pain 3. recall physiology of pain perception (Stimuli, receptors, pathways and central connection) 4. list methods of pain relief 5. classify pharmacological agents used in pain relief (with main indications) 6. explain the basis of neuropathic pain.	2h	Pharmacology	Lecture
b. Opioid Analgesics	1. classify the agents acting on opioid receptors 2. describe the mechanism of action of opioid analgesics. 3. describe the pharmacokinetics of the drugs acting on opioid receptors 4. describe the adverse effects of opioid analgesics.			
c. Non-steroidal anti-inflammatory drugs (NSAIDs)	5. list the clinical uses of opioid receptor antagonists			
	1. describe the physiological/pathological roles of Cyclo-oxygenase-1 (COX - 1) and COX - 2 enzymes. 2. describe the pharmacokinetics, clinical uses, important adverse effects and drug interactions of NSAIDs (including COX - 2 inhibitors). 3. list the commonly used NSAIDs.			
2006-3/SBM-1/23		6h	Pathology	Lectures (6h)
Introduction to Haematology	1. recall the cellular components in blood and haemopoiesis 2. outline the common types of non malignant and malignant diseases of blood			
2006-3/SBM-1/24				
Introduction to Clinical Pathology	1. outline the applications of serological and haematological investigations in patient management	1h	Pathology	Lecture (1h)

Foundation for Clinical Practice - (Year 2 Semester 2)
Module Summary

Department	Lectures (hrs)	SGD (hrs)	Museum Class (hrs)	Practical Demonstration (hrs)	Total (hrs)
Pathology	55		13	4	72
Pharmacology	31	6			37
Biochemistry				4	4
Total	**86**	**6**	**13**	**8**	**113**

Names and departments of the teachers involved in the teaching programme:

Dept. of Pathology
Prof. N.V.I. Ratnatunga
Dr. Dhammika Manike Dissanayake
Dr. Rukmani Gunawardena
Dr. Roshitha Waduge
Dr. Sulochana Wijetunga
Dr. Eranga Siriweera

Dept. of Pharmacology
Dr. U. Dangahadeniya

Dept. of Biochemistry
Prof. R. Sivakanesan