Foundation for Clinical Practice (FCP)

Duration : 4 Weeks

25th June 2009

Topic & Concepts	Objectives	Time	Dept.	T/L activity	Comments
	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".	1h	Pharmacology	Lecture	Introduction to clinical pharmacology assignment
	2. compare and contrast 'drug' vs 'poison'				
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					**A list of pre requiste knowledge for the FCP will be provided to the students.**
Acute inflammation and suppuration	1. to define the process of acute inflammation.	9h	Pathology	Lectures (6h) + Museum Class (3h)	This will be supplemented by clinical lecture demonstration and will be done by the clinicians. * detailed objectives are given separately to the students Application of wound healing in clinical practice by a surgeon (1h) ** Pathology slide class - Review of Microscopic slides of general pathological processes
	2.to describe in detail* the various steps, controlling factors, sequale, complications and clinicopathological effects of acute inflammation. (includes suppuration)				
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	5h	Pathology	Lectures (4h) + Museum Class (1h)	
	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.				
2006-3/SBM-1/06					This will be supplemented by clinical demonstrations in the wards during the introductory clinical appointments, and will be done by the clinicians. The clinicians will be informed of the topics during each week. * detailed objectives are given separately to the students
Necrosis and apoptosis		4h	Pathology	Lectures (3h) + Museum class - (1h)	
	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				

2006-3/SBM-1/07					
Tuberculosis	1. to describe the pathogenesis of tuberculosis	2h	Pathology	Lectures (2h)	
	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				
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.	5h	Pathology	Lectures (3h) + Museum Class - (2h)	
	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.				
2006-3/SBM-1/09					
Thrombosis	1. to list the main factors which predispose to thrombosis.	3h	Pathology	Lectures (2h) + Museum class (1h)	
	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.				
2006-3/SBM-1/10					
Embolism	1. to define the process of embolism.	6h	Pathology	Lectures (2h) + Practical (4h)	Clinical lecture demonstration by a surgeon (1h)
	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.				
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.	7h	Pathology	Lectures (4h) + Museum class (3h)	including lymphoedema
	2. to define the processes hyperaemia(active and passive), oedema and infarction				This will be supplemented by clinical demonstrations in the wards during the introductory clinical appointments, and will be done by the clinicians. The clinicians will be informed of the topics during each week. * detailed objectives are given separately to the students
	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.				
2006-3/SBM-1/12					
Amyloidosis	1. to define the process of amyloidosis.	2h	Pathology	Lectures & Case discussions (2h)	
	2. to describe in detail* the pathogenesis, types and clinical effects and methods of diagnosis of of amyloidosis.				
2006-3/SBM-1/13					
Other accumulations	1. to describe the process of pathological calcification and to state clinical examples.	2h	Pathology	Lectures (2h)	
	2. to enumerate the types of abnormal pigments in the living persons and their pathogenesis and clinical importance.				
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	2h	Pathology	Lectures (2h)	
	2 to describe the pathogenesis and pathological processes involved in atherosclerosis				
	3. to describe the complications and clinicopathological effects of atherosclerosis.				

2006-3/SBM-1/15					
Neoplasia and **a. Introduction to neoplasia and oncogenesis**					
	1. to describe the fact that DNA alteration in a cell can lead to tumours and dysplasia.	4h	Patholo gy	Lectures (3h) + Museum class (1h)	This will be supplemented by clinical demonstrations and will be done by the clinicians (1h)
	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.				
b. Spread of tumours	4. to describe in detail* the modes of spread of malignant tumours and the clinicopathological effects.	3h	Patholo gy	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	2h	Pharma cology	Lecture	
	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				
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	Patholo gy	Lecture demonstration	clinical applications with clinicians
2006-3/SBM-1/18					
Drug action - Pharmacodynamics					Students are expected to work on computer assisted leaning package before and after a lecture
a. Modes of action of drugs at different levels :molecular, cellular, tissue/organ & overall individuals	1. list the mechanisms by which drugs exert chemical influences at cellular level to produce a pharmacological response	4h	Pharma cology/ Bioche mistry	Lectures	
	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				

b. Receptor as target for drug action	1. classify receptors based on their structure function	2h	Pharma cology	Lectures	
	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				
2006-3/SBM-1/19					
Dose-response relationship:		3h	Pharma cology	Lectures	
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				
b. Basis of adverse and toxic effects		2h	Pharma cology	Lecture	During hospital based assignment the studnts are expected to observe and record drug 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				
	4. define therapeutic index	1h	Pharma cology	Lecture	
	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				
c. Assessment & monitoring of drug effects	1. list the methods by which the effects of drug therapy could be measured	2h	Pharma cology	Tutorials/ Lectures	During hospital based assignemtn the studnts are expected to observe and record drug effects
	2. describe how the measurement of plasma drug concentrations helps in monitoring drug therapy				
2006-3/SBM-1/20					
Pharmacokinetics					
How does the body handle drugs?					
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.		Pharma cology + Bioche		lipid/water solubility, diffusion, facilitated diffusion, active transport, efflux transporters such as ATP-binding cassette (ABC) proteins, pinocytosis

b. Absorption: routes of administration	1. list different routes of administration of drugs	**6h+SGLA-CAL**	Pharmacology/ Biochemistry	Lectures/Tutorials	
	2. list the different types of dosage forms/special drug delivery systems (eg. Metered Dose, Inhalar, Enteric coated formulation, spansules)				Assignment/skills lab activity
c. Distribution in tissues, body compartments and across barriers	1. describe the advantages and disadvantages of the routes mentioned in b.1 and drug dosage forms mentioned in b.2				
	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				Changes in different categories of population (elderly,pediatric and organ faliure)
	2. list the common drugs which induce/inhibit the cytochrome P 450 enzyme system				
e. Elimination	1. define the terms "elimination" and "excretion"		Pharmacology/ Phisiology		
	(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.				
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	2h	Pharmacology	Tutorials	
	(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				
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	3h	Pharmacology	Lecture/ Tutorial	
	2. recall the anatomy and the physiology of the cholinergic and the noradrenergic 'junctions.				
	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		2h	Pharmacology	Lecture	
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.				
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.				
	5. list the clinical uses of opioid receptor antagonists				
c. Non-steroidal anti-inflammatory drugs (NSAIDs)					
	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)	