

University: Kafrelsheikh

Faculty: Medicine

Department: Clinical Pharmacology

Course specification

1. Course data :		
Course Code : KFS-PHARM500	Course Name : Basic Pharmacology	Academic year: third year Medical students
Specialization :	Number of studying units : theoretical 120 hrs Practical 60 hrs	

2. Course Objective :	<p><i>By the end of the course the students are expected</i></p> <p>1-To have knowledge and understanding of pharmacological basis of therapy including pharmacokinetics, mechanism, effects, side effects, interactions and use of drugs in treatment of common and life threatening illness as well as in prevention of diseases.</p> <p>2-To develop skills of choosing proper drugs for different types of diseases based on evidence according to the patient's weight, age and health conditions.</p> <p>3-To develop attitude of judicious use of drugs for patient's benefit and to avoid harmful effects of drugs by recognizing side effects of drugs as well as drug interactions.</p>
3. Overall Course Aims :	
Intended learning outcomes of the course (ILOs)	
a. knowledge and understanding:	<p><i>At the end of this course, students will be able to:-</i></p> <p>A1- Define the pharmacokinetic, pharmacodynamic and pharmacotherapeutic properties of different groups of drugs affecting body systems.</p> <p>A2- Record the adverse effects of commonly used drug groups, and their management.</p>

	<p>A3- Describe drug interactions and contraindications of drugs in order to avoid harm to the patients.</p> <p>A4- List clinically relevant age, sex and genetic related variations that affect response to drugs.</p> <p>A5- Describe the mechanisms of action of drugs with regard pathophysiology of common diseases and recognize the rational for proper choice of drugs in treating them.</p> <p>A6- Discuss the principles, indications, the relative advantages (benefits) disadvantages (risks) of various pharmacotherapy modalities.</p> <p>A7- Recall the rational and general guidelines of the use of drugs in the proper dose in special population such as pediatrics, geriatrics, pregnancy and lactation and in cases of liver and/or kidney impairment.</p> <p>A8- List drugs used in managing patients in life threatening situations.</p> <p>A9- List drugs used in pre- and post-operative care in general & special situations.</p>
<p>b. Intellectual skills:</p>	<p><i>At the end of this course, students will be able to:-</i></p> <p>B1- Design rational therapeutic strategies for both acute and chronic conditions that take into account the various variables that influence these strategies.</p> <p>B2- Choose the proper drug/s for the proper clinical situation in proper dosage.</p> <p>B3- Monitor the effectiveness and side effects of therapy.</p> <p>B4- Match proper drugs for selected important diseases based on patient's age, weight and health condition.</p> <p>B5- Explain the importance of taking a comprehensive drug history of the patient.</p>

<p>c. professional & practical skills:</p>	<p><i>At the end of this course, students will be able to:-</i></p> <p>C1- Calculate accurately drug's dosage, bioavailability, plasma half -life and volume of distribution in different patient populations.</p> <p>C2- Distinguish different routes of administrations of drugs (intramuscular, intravenous, intradermal, subcutaneous and others).</p> <p>C3- Observe, record and analyze the effect of drugs on biological tissues.</p> <p>C4- Report adverse drug effects and decrease drug-drug interactions.</p>
<p>d. General transferable skills:</p>	<p><i>At the end of this course, students will be able to:-</i></p> <p>D1- Employ information technology effectively in the field of clinical pharmacology and search the internet for newly discovered drugs.</p> <p>D2- Recognize the importance of life-long self-learning and give a strong commitment to it.</p> <p>D3- Demonstrate respect to all patients irrespective to their socioeconomic levels, culture or religious beliefs and use language appropriate to the patient's culture.</p> <p>D4- Provide appropriate basic drug education to the patient and his family.</p> <p>D5- Communicate effectively with other health care professionals to maximize patient benefits and minimize the risk of errors.</p> <p>D6- Predict the possibility that clinical events are drug related.</p> <p>D7- Recognize and effectively deal with unethical behavior of other members of healthcare team.</p>
<p>4. Topics (Contents of the course):</p>	

Topic	No. of hours	Lecture	Tutorial/practical
<p>General pharmacology</p> <p><i>-Pharmacodynamics</i></p> <p>Receptors, efficacy, potency, agonists and antagonists</p> <p><i>- Pharmacokinetics</i></p> <p>Absorption, distribution, metabolism & elimination of drugs</p> <p>- Sources and nature of drugs</p> <p>- Dosage forms and routes of drug administration.</p> <p>- Basis and ethics of prescription writing.</p> <p>-Chelators and heavy metals.</p>	25	15	10
		7	
		8	2(practical)
			4(practical&skill)
			2(practical)
			2(practical)
<p>Autonomic pharmacology</p> <p>- Introduction</p> <p>- Acetylcholine receptors agonists and antagonists</p> <p>- Adrenoceptors activating drugs</p> <p>- Adrenoceptors blocking drugs</p> <p>- Neuromuscular blockers</p> <p>- Effect of stimulatory drugs on isolated heart.</p> <p>- Effect of inhibitory drugs on isolated heart.</p> <p>- Effect of stimulatory drugs on isolated intestine.</p>	31	15	16
		1	
		5	
		4	
		3	
		2	2(practical)
			2(practical)

- Effect of inhibitory drugs on isolated intestine.			2(practical)
- Applied skeletal muscle pharmacology.			2(practical)
- Applied ocular pharmacology.			1(practical)
- Reversal of adrenaline action on blood pressure.			2(practical)
- Reversal of acetylcholine action on blood pressure.			2(practical)
-Effect of cholinesterase enzyme on A.ch.			2(practical)
			1(practical)
Autacoids & anti-inflammatory	12	8	4
- Histamine, serotonin and antagonists		3	
		1	
- Prostaglandins and other eicosanoids		1	
		3	
- Polypeptides			2(tutorial)
- NSAIDs			2(tutorial)
- Rheumatic fever			
- Arthritis			
Renal pharmacology	6	6	-
-Diuretics: loop, thiazides, k sparing and other diuretics		6	-
Cardiovascular pharmacology	18	12	6
- Antihypertensive drugs		3	2(tutorial)
		3	2(tutorial)
- Drug therapy of acute coronary		3	2(tutorial)

syndrome - Drug therapy of heart failure - Antiarrhythmic drugs		3	
Blood pharmacology - Agents used in treatment of anaemias - Drugs used in clotting disorders: anticoagulants, antiplatelets & fibrinolytics - Drugs used in hyperlipidemia	10	8 2 4 2	2 2(tutorial)
Respiratory pharmacology - Bronchodilators and other agents used in B.A. - Cough medications: antitussives, mucolytics & expectorants - Pharmacology of gases	6	4 2 1 1	2 2(tutorial)
Gastrointestinal pharmacology - Drugs used in peptic ulcer - Prokinetic drugs - Laxatives & antidiarrheal drugs - Antispasmodics & spasmolytics - Drugs of hepatic related disorders	10	6 1 1 2 1 1	4 2(tutorial) 2(tutorial)
Endocrine pharmacology - Hypothalamic & pituitary hormones - Thyroid & antithyroid drugs - Corticosteroids and their	19	15 2 2 3	4 2(tutorial)

antagonists		3	
- Gonadal hormones and their antagonists		3	
- Pancreatic hormones & antidiabetic agents		2	2(tutorial)
- Drugs affecting bone & Ca homeostasis			
CNS pharmacology	21	15	6
- Sedatives-hypnotic drugs		2	
- Antiepileptic drugs		1.5	2(tutorial)
- Antiparkinsonian drugs		1.5	2(tutorial)
- Antipsychotic drugs & Lithium		2	
- Antidepressants		2	
- Narcotic analgesics & antagonists		2	
- Non narcotic analgesics: NSAIDs, paracetamol and others		1	
- General & local anesthetics		2	
- Drugs stimulating CNS		1	
- Treatment of pain			2(tutorial)
Chemotherapy	22	16	6
<u><i>A) General</i></u>		8	
<u><i>Chemotherapy</i></u>			
- Principles of antimicrobial drug action		1	2(tutorial)
- Penicillin and cephalosporins		2	
- Chloramphenicol and tetracyclines		1	
- Aminoglycosides and polymyxins		1	

- Sulphonamides and Quinolones		2	
-Urinary tract infection		1	2(tutorial)
-Treatment of some selected infections			
<u>B) Special Chemotherapy</u>		8	
- Antifungal agents		1	
- Antiviral chemotherapy		2	
- Antimycobacterial drugs		1	2(tutorial)
- Antiprotozoal drugs		1	
- Antihelminthic drugs		1	
- Cancer chemotherapy		1	
- Drugs and immune system		1	
Total	180	120	60
5. Teaching and learning methods :	<p>1-Lectures: to provide knowledge of course contents and intellectual skills using overhead projectors, PowerPoint presentations & video simulations. Students are divided into 2 groups and each lecture is repeated</p> <p>2-Practical demonstration: to show major drug actions in experimental animals using computer programs, electronic Board and different forms of drugs also provided. Students are divided into 12 groups; each group has 2 hours practical session per week.</p> <p>3-Tutorials: to discuss clinical problems using clinical case scenarios and discuss facts and concepts in therapy (PBL) using video simulation and electronic board. Students are divided into 12 groups; each group has 2 hours practical session per week.</p> <p>4- Discussion sessions during office hours.</p> <p>5- Virtual Lab: educate the students some experiments</p>		
6. Teaching and learning methods for students with limited abilities :	Additional tutorials will be done for students with limited abilities to enhance their ability and catch up with other students.		

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7- Student Assessment :

a. Methods used :

Method	Timing	Grades (300)	Weight%
Assignments, quizzes		15	5%
Midyear	15 th week	45	15%
Practical exam	32nd week	50	16.6%
Final written exam	33rd week	150	50%
Final oral exam	34th week	40	13.4%

b. Assessment schedule:

c. Weighing of assessments

8. List of textbooks and references :

a. Course notes:	Staff Members of Clinical Pharmacology Department.
b. Text book:	Basic and clinical pharmacology "last Edition, edited by Katzung, lang Medical Books. Clinical Pharmacology " Laurence: D.R. last edition, Edited by Bennet, P.N. and MI Brown"Churchill Livingstone

	Edinburgh London and New York" Latest
c. Recommended books	Goodman, Louis D., and Gilman, Alfred, eds 2015. "The pharmacological basis of therapeutics New York: Macmillan Publishing Company "Pharmacotherapy" A Pathophysiological Approach fourth
d. Periodicals and web sitesetc.	Medline web site -Journal of Exp. Pharmacology and Therapeutics -Journal of pharmacological Review -British Journal of pharmacology. -European Journal of pharmacology

Chairman of the Scientific Department:

Prof. Dr. Somaia Abdulatef Mokbel