

LJ UNIVERSITY

LJ INSTITUTE OF PHARMACY

SEMESTER: IV

Subject Name: PHARMACOLOGY II

Subject Code: BP404TP

Scope: This subject is intended to impart the fundamental knowledge on various aspects of pathophysiology (Definition of disease, epidemiology, pathophysiology, diagnosis, treatment, management) and pharmacology (classification, mechanism of action, therapeutic effects, clinical uses, side effects and contraindications) of drugs acting on different systems of body

Objectives: Upon completion of the course the student shall be able to

1. Understand the pharmacological actions of different categories of drugs
2. Explain the mechanism of drug action at organ system/sub cellular/ macromolecular levels
3. Apply the basic pharmacological knowledge in the prevention and treatment of various diseases.
4. Observe the effect of drugs on animals by simulated experiments
5. Appreciate correlation of pharmacology with other bio medical sciences

Teaching scheme and examination scheme:

Teaching Scheme				Evaluation Scheme			
Theory	Tutorial	Practical	Total	Theory		Practical	
				External	Internal	External	Internal
3	1	4	8	75	25	35	15

Module	Course Contents	Hours
1	1.1 General Pharmacology of drugs acting on central nervous system: Neurohumoral transmission in the C.N.S.special emphasis on importance of various neurotransmitters like with GABA, Glutamate, Glycine, serotonin, dopamine.	05
2	2.1. Pathophysiology & Pharmacology of drugs acting on Central Nervous System: General anesthetics and pre-anesthetics, Sedatives, hypnotics and centrally acting muscle relaxants, , Alcohols and disulfiram, 2.2. Pathophysiology & Pharmacology of drugs acting on Central Nervous System: Psychopharmacological agents: Depression and antidepressants, Psychosis and Antipsychotics, Mania and Anti-manic Drugs, Anxiety and anti-anxiety agents, hallucinogens, Epilepsy & Anti-epileptics, Parkinsons disease and Drugs used in Parkinsons disease, Alzheimer's disease and drugs used in Alzheimer drugs. 2.3. Pharmacology of drugs acting on Central Nervous System: CNS stimulants and nootropics, Opioid analgesics and antagonists, Drug addiction, drug abuse, tolerance and dependence. 2.4 Pathophysiology & Pharmacology of Drugs acting on Special Senses: Glaucoma	20
1	1.2 Pathophysiology & Pharmacology of Hematological System: Drug used in the therapy of shock, Anemia & Hematinic, Coagulation disorders, coagulants and anticoagulants, Fibrinolytic and anti-platelet drugs, Plasma volume expanders	05
4	4.1 Pathophysiology of Digestive diseases: Peptic Ulcer, Hepatitis, Inflammatory Bowel Disease, Jaundice, Alcoholic Liver Disease 4.2 Pharmacology of drugs acting on the Gastrointestinal Tract: Antiulcer agents, Drugs for constipation and diarrhea, Appetite stimulants and suppressants, Digestants and carminatives, Emetics and anti-emetics.	10
4	Immunopharmacology: Immunostimulants, Immunosuppressant, Protein drugs, monoclonal antibodies, target drugs to antigen, biosimilars	05
Total Hours		45

Practical

1. Introduction to experimental pharmacology and explain commonly used instruments in experimental pharmacology.
2. Study of common laboratory animals, different routes of drugs administration in mice/rat and dose calculation in pharmacological experiments.
3. Maintenance of laboratory animals as per CPCSEA guidelines.
4. Common laboratory techniques. Blood withdrawal, serum and plasma separation, anesthetics and euthanasia used for animal studies.
5. Study of effect of hepatic microsomal enzyme inducers on the phenobarbitone sleeping time in mice.
6. Effects of skeletal muscle relaxants using rota-rod apparatus.
7. Effect of drugs on locomotor activity using actophotometer.
8. Anticonvulsant effect of drugs by MES and PTZ method.
9. Study of stereotype and anti-catatonic activity of drugs on rats/mice.
10. Study of anxiolytic activity of drugs using rats/mice.
11. Study of local anesthetics by different methods
12. Effect of drugs on rabbit eye.
13. Case Study related to CNS (Minimum 3).
14. Case Study related to Digestive system (Minimum 2).
15. Case Study of hematological system (Minimum 2).
16. Case Study of Cardiovascular System (Minimum 2).

Note: All laboratory techniques and animal experiments are demonstrated by simulated experiments by software and videos

Recommended Books (Latest Editions)

1. Rang H. P., Dale M. M., Ritter J. M., Flower R. J., Rang and Dale's Pharmacology, Churchill Livingstone Elsevier
2. Katzung B. G., Masters S. B., Trevor A. J., Basic and clinical pharmacology, Tata Mc Graw-Hill
3. Goodman and Gilman's, The Pharmacological Basis of Therapeutics
4. Marry Anne K. K., Lloyd Yee Y., Brian K. A., Robbin L.C., Joseph G. B., Wayne A. K., Bradley R.W., Applied Therapeutics, The Clinical use of Drugs. The Point Lippincott Williams & Wilkins
5. Mycek M.J, Gelnet S.B and Perper M.M. Lippincott's Illustrated Reviews- Pharmacology
6. K.D.Tripathi. Essentials of Medical Pharmacology, , JAYPEE Brothers Medical Publishers (P) Ltd, New Delhi.
7. Sharma H. L., Sharma K. K., Principles of Pharmacology, Paras medical publisher
8. Modern Pharmacology with clinical Applications, by Charles R.Craig & Robert, Ghosh MN. Fundamentals of Experimental Pharmacology. Hilton & Company, Kolkata,
9. Kulkarni SK. Handbook of experimental pharmacology. VallabhPrakashan,
10. N.Udupa and P.D. Gupta, Concepts in Chronopharmacology