Department of Pharmacology PG Curriculum

Programme Objectives :-

The purpose of this programme is to standardize Pharmacology teaching at Post Graduate level

Candidate should be able to:

1. Teach Pharmacology and Therapeutics to students of medical and allied disciplines.
2. Independently plan and undertake research related to drugs (basic as well as Clinical Pharmacology) and communicate the findings in conferences / journals.
3. Set up therapeutic drug monitoring, ADR monitoring, therapeutic audit and drug information services.
4. Plan and conduct toxicity studies and clinical trials.
5. Educate the public about use and misuse of drugs.
6. Supervise breeding and upkeep of small laboratory animals.
7. Act as medical advisor in a pharmaceutical house.

Specific Learning Objectives :-

1. Demonstrate sound knowledge of general pharmacological principles, systemic pharamacology and rational use of drugs.
2. Plan and conduct lecture, demonstration, practical and tutorial classes for students of medical and allied disciplines.
3. Understand the principles of essential drug concept and rational use of drugs including rational pharmacotherapy.
4. Carry out screening of drugs for pharmacological and toxicological profile.
5. Carry out drug related literature search, formulate a research project and undertake he same. Apply appropriate statistical methods for summarizing and analyzing data.
6. Present research findings in conferences (oral / poster sessions), Communicate research / educational papers in peer reviewed journals, Critioally review and comment on research papers.
7. Measure drug levels in blood and other biological fluids using suitable chemical assay method and interpret the same in therapeutic / toxicological context.
8. Monitor adverse drug reactions. Carry out therapeutic audit and provide drug information service to doctors / public.
9. Use computer and IT tools for teaching, research and presentation / publication of data.
10. Demonstrate knowledge of National Health Policy, essential drug concept / lists and supervise drug management in a hospital.
11. Demonstrate knowledge of drug rules and regulations

1st Year Programme

Theory – Topics
Pharmacology of drugs acting on automatic, peripheral and central nervous systems; cardiovascular, endocrine, respiratory, renal,

2nd Year Programme Gasterointestinal and haemopoietic systems and treatment of diseases affecting these systems; Pharmacology of anti-microbial and anti-parasitic drugs and treatment of infec tive diseases;
3rd Year Programme cancer chemotherapy, immuno- pharmacology and ocular Pharmacology. Derm atological pharmacology vitamins, Heavy metals and antagonists, Miscellaneous.

Practical Training:-

Experimental Method Discussion:

A. Screening and Evaluation of Drug Activities including Animal Models for Study of following Actions:

1st Year

1) Analgesic.
2) Antiinflammatory.
3) Antipyretic; pyrogen testing.
4) Anticonvulsant.
5) Antianxiety.
6) Antipyschotic.
7) Antidepressant.
8) Antiparkinsonian.
9) Sedative, hyponotics.
10) Acetylcholine.
11) Adrenaline / noradrenaline.

2nd Year

1) Actihypertensive.
2) Antianginal.
3) Antiarrhythmic.
4) Skeletal muscle relaxant.
5) Local anaesthetic.
6) Antihistaminics, Antiallergic.
7) Antisecretory & drugs for peptic ulcer.
8) Antiemetic.
9) Hypoglycaemic.
10) Histamine.
11) Hydroxytryptamine.
12) Insulin.

3rd Year

1) Antifertility.
2) Anticancer.
3) Diuretic.
4) Animalarial.
5) Antitubercular.
6) Antidiabetic.
7) Antiatherosclerotic.
8) Bronchodilator & anti- asthmatic drugs.
9) Antibiotics.
10) Digoxin.
11) Glucocorticoids

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C. Quantitative study of agonists and antagonists on isolated tissues.
D. Measurement of blood pressure in conscious and anaestherized animals.

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EXPERIMENTAL PHARMACOLOGY EXERCISES:-

1) Frog's rectus abdominis muscle : dose response curve (DRC) and cumulative DRC of acetylcholine; potentiation of ACh by physostigmine and antagonism by tubocurarine / pancuronium.
2) Study of drug action on perfused frog's heart.

3) Dose-response curve of histamine on isolated guineapig ileum, Cumulative dose response curve of histamine in isolated guinea pig tracheal chain.
4) Bioassay of histamine on guineapig ileum by matching method, 3 point method and 4 point (Latin square design) method.
5) Bioassay of ACh on frog's rectus abdominis muscle.
6) Determination of EC50 and pD2 values of histamine and ACh on guineapig ileum and frog rectus abdominis muscles.
7) Bio-assay on estrogen primed rat uterus.
8) Demonstration of muscarinic and nicotinic actions of ACh and carbachol on the B.P. and respiration.
9) Study of local anaethetics by rabbit comea guineapig intradermal wheal, frog lumbar plexus.
10) Study of analgesic activity of drugs using rat tail-hotwire method, hot plate method, acetic acid induced writhing.
11) Study of analgesic activity of drugs against carraginin induced rat paw oedema.
12) Antagonism of histamine aerosol induced bronchospasm by anti-histaminics.
13) Effect of psychopharmacological drugs on conditioned avoidance response (Cook's pole climbing).
14) Effect of psychopharmacological agents on foot shock induced aggression in rats.
15) Effect of psychopharmacological agents on elevated plus maze.
16) Effect of drugs on spontaneous motor activity of mice, photoactometer.
17) Study of anorectic activity of amphetamine in mice.
18) Potentiation of barbiturate sleeping time.
19) Study of miotics and mydriatics on rabbit's eye.

Minor Procedures:
(i) Rat tail vein injection.
(ii) Administration of drugs to rats by gastric cannulla.
(iii) Collection of blood from rat tail.
(iv) Collection of blood by Cardiac puncture in rat.
(v) Injection of drugs through marginal ear vein of rabbits.
(vi) Intraperitoneal and subcutaneous injection to rats and mice.

Chemical Pharmacology Exercises :
1) Identification of unknown compounds by using chemical tests.
2) Estimation of drug levels using colorimetry, spectrophotometry, fluorimetry, flame photometry, high performance liquid chromatography (HPLC), enzyme linked immunoassay.

Clinical Pharmacology Exercises:
1) Training at poison information center.
2) Molarity calculations and preparations of reagents.

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SCHEME OF TRAINING :-

I Year:

Duration Department Department
(Forenoon: 10-1 p.m.) (Afternoon: 2-4.30 p.m.)
Pharmacology. Pharmacology.

a) Getting acquainted with the Department.

b) Attending all the classes. Introduction to Dissertation including statistical classes. Visits to Pharmaceutical Industries and Toxicology centres. 12th month Selection & Planning of Dissertation. Submitting the topic to the University. II & III yr. will be spent by the student in the Department of Pharmacology wherein:

a) The Practical Training as specified by the M.C.I. will be given, depending upon the availability of animals & other facilities.

b) The student will acquire skills-

i) To conduct practical classes for the U.Gs.
ii) To take lectures for the U.Gs.
iii) To plan an undergraduate teaching programme & to set questions including MCQs.

c) The student will participate & contribute to other academic activities of the Department like Journal clubs, Seminars and CME programmes. Students will be, in addition, encouraged to attend conferences, workshops and present papers in scientific sessions.

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PATTERN OF EXAMINATION: *

FOUR PAPERS – 100 Marks each 3 Hours duration each

Theory Title Duration Marks

Paper -I General Pharmacology 3 hrs. 100
Experimental Pharmacology
Bioassay.
Paper - II Systematic Pharmacology 3 hrs. 100
Including Recent Advances.
Paper - III Clinical Pharmacology and 3 hrs. 100
Pharmacotherapeutics
Including Recent Advances.
Paper -IV Applied Pharmacology, 3 hrs. 100
Forensic Pharmacology
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Total 400

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Distribution of Marks: **

2 Essays 2 x 20 = 40 Marks
10 Short Notes 10 x 6 = 60 Marks
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Total 100 Marks
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OFFICE OF THE PROFESSOR AND HEAD DEPARTMENT OF PHARMACOLOGY

SMS MEDICAL COLLEGE, JAIPUR

No. _____/MC/Pharma/2018 Date:

Dr_____ has performed outstanding in MD Examination held in Department of _____ in year_____ and is recommended of Gold Medal.

1. _____ 1._____

2. _____ 2._____

(Name of the Internal Examiner with signature) (Name of the External Examiner with signature)