

Veterinary Pharmacology & Toxicology

Overview & Syllabus

(Lecture-2 : Dated 30.09.2020)



Dr. Nirbhay Kumar

Asstt. Professor & Head



Deptt. of Veterinary Pharmacology & Toxicology

Bihar Veterinary College, Bihar Animal Sciences University, Patna

Course: Vety. Pharmacology & Toxicology
Credit Hours: 4+1=5

Course Instructors:

Dr. Nirbhay Kumar

Dr. Archana

Dr. Kumari Anjana

Dr. Rashmi Rekha Kumari

Dr. Ramesh Kumar Nirala

Syllabus

(As per VCI MSVE 2016)

Theory

Unit 1 (General Pharmacology)

Unit 2 (ANS Pharmacology)

Unit 3 (CNS Pharmacology)

Unit 4 (Systemic Pharmacology)

Unit 5 (Chemotherapy)

Unit 6 (Toxicology)

Practical

Unit 1 (General Pharmacology)

Unit 2 (ANS Pharmacology)

Unit 3 (CNS Pharmacology)

Unit 4 (Chemotherapy)

Unit 5 (Toxicology)

Unit 1
GENERAL PHARMACOLOGY
(Approx. 20 Lectures)

Instructor
Dr. Nirbhay Kumar
Asstt. Professor & Head

- ✓ Introduction, historical development, branches and scope of Pharmacology. Sources and nature of drugs. Pharmacological terms and definitions, nomenclature of drugs.
- ✓ Principles of drug activity: **Pharmacokinetics** - Routes of drug administration, absorption, distribution, biotransformation and excretion of drugs.
- ✓ **Pharmacodynamics** - Concept of drug and receptor, dose-response relationship, terms related to drug activity and factors modifying the drug effect and dosage. Adverse drug reactions, drug interactions.

Unit 2
PHARMACOLOGY OF A.N.S.
(Approx. 20 Lectures)

Instructor
Dr. Rashmi Rekha Kumari
Asstt. Professor

- ✓ **Autonomic Nervous System:** Neurohumoral transmission, Pharmacology of neurotransmitters. Adrenoceptors agonists and antagonists, adrenergic neuron blockers, cholinceptor agonists and antagonists.
- ✓ **Autacoids:** Histamine, histamine analogues and antihistaminic agents, 5-Hydroxytryptamine and its agonists and antagonists, eicosanoids, platelet activating factors, angiotensin, bradykinin and kallidin.

Unit 3
PHARMACOLOGY OF C.N.S.
(Approx. 20 Lectures)

Instructor
Dr. Ramesh Kumar Nirala
Asstt. Professor

- ✓ Classification of drugs acting on CNS.
- ✓ History, mechanism and stages of general **anaesthesia**. Inhalant, intravenous and dissociative anaesthetics.
- ✓ **Hypnotics and sedatives**; psychotropic drugs, anticonvulsants, opioid **analgesics**, non-steroidal anti-inflammatory drugs, analeptics and other CNS stimulants.
- ✓ Drugs acting on somatic nervous system: **Local anaesthetics**, muscle relaxants. Euthanizing agents.

Unit 4
SYSTEMIC PHARMACOLOGY
(Approx. 20 Lectures)

Instructor
Dr. Archana
Asstt. Professor

- ✓ **Drugs acting on digestive system:** Stomachics, antacids and antiulcers, prokinetics, carminatives, antizymotics, emetics, antiemetics, purgatives, antidiarrhoeals, cholaretics and cholagogues. Rumen pharmacology.
- ✓ **Drugs acting on cardiovascular system:** Cardiotonics and cardiac stimulants, antiarrhythmic drugs, vasodilators and antihypertensive agents, haematopoietic drugs, coagulants and anticoagulants.
- ✓ **Drugs acting on respiratory system:** Expectorants and antitussives, respiratory stimulants, bronchodilators and mucolytics.
- ✓ **Drugs acting on urogenital system:** Diuretics, drugs affecting urinary pH and tubular transport of drugs, ecbolics and tocolytics. Pharmacological basis of fluid therapy.
- ✓ **Pharmacotherapeutics of hormones.**
- ✓ **Drugs acting on skin and mucous membranes:** Emollients, demulcents and counter irritants.

Unit 5
VETERINARY CHEMOTHERAPY
(Approx. 40 Lectures)

Instructor(s)

1. Dr. Nirbhay Kumar, Asstt. Professor & Head
2. Dr. Kumari Anjana, Asstt. Professor

- ✓ Introduction and historical developments of chemotherapy. **Antimicrobial agents:** Classification, general principles in antimicrobial chemotherapy, **antimicrobial resistance**, combined antimicrobial therapy.
- ✓ **Sulphonamides** and their combination with diaminopyrimidines. **Penicillins**, **cephalosporins**, cephamycins and other beta lactams, beta lactamase inhibitors. **Aminoglycosides** and aminocyclitols, **tetracyclines**, amphenicols (chloramphenicol, thiamphenicol, florfenicol), macrolides, quinolones and **fluoroquinolones**, polypeptides (polymixins, bacitracin) and glycopeptide antibiotics, Miscellaneous agents: Lincosamides, novobiocin, virginiamycin, tiamulin, nitrofurans and methenamine.

- ✓ **Antitubercular** drugs.
- ✓ **Antifungal agents**: Topical and systemic agents including anti-fungal antibiotics. Antiviral and anticancer agents.
- ✓ **Anthelmintics**: Drugs used against nematodes, cestodes, trematodes.
- ✓ **Antiprotozoal agents**: Drugs used in trypanosomosis, theileriosis, babesiosis, coccidiosis, amoebiasis, giardiasis and trichomoniasis. Ectoparasiticides.
- ✓ **Antiseptics and disinfectants**. Pharmacology of drugs of abuse in animals.
- ✓ **Pharmacology of indigenous medicinal plants**

Unit 6
VETERINARY TOXICOLOGY
(Approx. 40 Lectures)

Instructor(s)

1. Dr. Archana, Asstt. Professor
2. Dr. Ramesh Kr. Nirala, Asstt. Professor

- ✓ **General Toxicology:** Definitions, history of toxicology, fundamentals and scope of toxicology. Sources and classification of toxicants, factors modifying toxicity, general approaches to diagnosis and treatment of poisoning.
- ✓ **Toxicity caused by metals and non-metals:** Arsenic, lead, mercury, copper, molybdenum, selenium, phosphorus, fluoride, nitrates or nitrites, chlorate, common salt and urea.
- ✓ **Poisonous plants:** Cyanogenetic plants, abrus, ipomoea, datura, nux vomica, castor, oxalate producing plants, plants causing thiamine deficiency, plants causing photosensitization and lathyrism, oleander, and cotton.

- ✓ **Toxicity caused by Agrochemicals:** Insecticides - Chlorinated hydrocarbons, organophosphates, carbamates, pyrethroids, newer insecticides. Herbicides, fungicides and rodenticides.
- ✓ **Fungal and bacterial toxins:** Aflatoxins, rubratoxin, ochratoxin, sporidesmin, citrinin, F-2 toxin, trichothecenes, ergot, fescue, botulinum toxin and tetanus toxin.
- ✓ **Venomous bites and stings:** Snake, scorpion, spider, bees and wasp, toad and fishes (puffer fish, shellfish).
- ✓ **Toxicity caused by food additives and preservatives.**
- ✓ **Drug and pesticide residue toxicology.**
- ✓ **Environmental pollutants:** Air and water pollutants. Concept of radiation hazards.



Thank You