**College of Pharmacy, University of Sargodha** 

**LECTURES DISTRIBUTION**

**Semester:** 3rd

**Course Title:** PHARMACOLOGY & THERAPEUTICS-IA [T]

**Teacher Name:** Dr. Taseer Ahmad

**Course Code: PHARM-211**

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| **Lecture No.** | **Topic** |
|  | **Introduction to Pharmacology and Course outline** |
|  | **GENERAL PHARMACOLOGY**  (Pharmacology: Definition, History, and its various branches  Drug: Definition and its various sources |
|  | Routes of drug administration its advantages and disadvantages |
|  | **Pharmacokinetics:**  **Absorption** of drug: Mechanisms of absorption, Factors influencing absorption, |
|  | Bioavailability  Bioequivalence  Therapeutic equivalence |
|  | **Drug distribution**:  Blood flow  Capillary permeability  Lipophilicity |
|  | Volume of distribution, Drug clearance through **metabolism:** Kinetics of metabolism, Reactions of drug metabolism |
|  | **Clearance: Drug clearance** by the kidney and other routes  **Half-life:** Clinical situations resulting in changes in drug half-life |
|  | **Design and optimization**  **of dosage regimen:** Optimization of dose:  Maintenance dose, Loading dose |
|  | Tutorial |
|  | **Pharmacodynamics:**  Drug–Receptor Interactions and  Pharmacodynamics: theories of drug action. Signal transduction: The drug–receptor complex, Receptor states,  Theories of drug action. |
|  | **Major receptor families:**  Transmembrane ligand-gated ion channels  Transmembrane G protein–coupled receptors: |
|  | Enzyme-linked receptors  Intracellular receptors |
|  | Desensitization and down-regulation of receptors (Tolerance)  Dose–response relationships: Efficacy and potency of drugs.  Hypersensitivity and Idiosyncratic reactions |
|  | **Intrinsic activity**  Full agonist, Partial agonists, Inverse agonists |
|  | Antagonists: Competitive antagonists, Irreversible antagonists, Allosteric antagonists, Functional antagonism |
| **Lecture No.** | **Topic** |
|  | Quantal dose–response relationships:  Therapeutic index, Therapeutic window  Median lethal dose (LD:50), Median effective dose (ED:50 |
|  | Tutorial |
|  | **INTRODUCTION TO DRUGS ACTING ON AUTONOMIC NERVOUS SYSTEM (ANS)**  Organization of ANS its subdivisions and innervations.  Neurotransmitters in ANS, their synthesis, release and fate. |
|  | Tutorial |
|  | **Parasympathetic (Cholinergic) agonists:**  Direct Acting |
|  | Parasympathetic (Cholinergic) agonists:  Indirect Acting (reversible) |
|  | Parasympathetic (Cholinergic) agonists:  Indirect Acting (Irreversible) |
|  | Cholinesterase enzyme inhibitors (anticholinesterases)  Reactivation of acetylcholinesterase |
|  | **Parasympathetic (Cholinergic) antagonists:**  Antimuscarinic agent |
|  | Ganglion stimulants and Ganglion blockers |
|  | Neuromuscular Blockers |
|  | Tutorial |
|  | **Sympathetic (Adrenergic) agonists:**  Catecholamines and Noncatecholamines  Direct acting agents |
|  | Direct acting agents (Continue….) |
|  | Sympathetic (Adrenergic) agonists:  Indirect acting Agents |
|  | Direct & Indirect acting Agents (mixed) Agents |
|  | **Sympathetic antagonists:**  Adrenergic receptor Blockers (Alpha) |
|  | Adrenergic receptor Blockers (Beta) |
|  | Drug affecting neurotransmitter uptake or release |
|  | Tutorial |
|  | **INTRODUCTION TO DRUGS ACTING ON GASTROINTESTINAL TRACT:**  H2-Receptor Blockers |
|  | Proton pump Inhibitors |
|  | Prostaglandins, Antimuscarinic agents, Antacids, |
|  | Mucosal Protective agents |
|  | Drug treatment of chronic inflammatory bowel diseases.  Drugs affecting bile flow and Cholelithiasis. |
|  | Anti-diarrheal agents |
|  | Laxatives |
|  | Emetic and anti-emetics |
|  | Tutorial |