**Pharmacology**

**Lecture 3 (Metabolism)**

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| Drug | Function |
| Allopurinol | Inhibitor of xanthineoxidase and used to treat **gout**. |
| Levodopa | Dopamine precursor (it get converted to **dopamine**). |
| Lindocaine | Hydrolyzed by amidase and it’s used as local anesthetic. |
| 1. Phenytoin2. Oral contraceptive | It’s an enzyme inducer and it’s used as **antiepileptic**. |
| Rifampicin | It’s an enzyme inducer and it’s used as anti TB. |
| 1. Erythromycin2. Warfarin | It’s an enzyme inhibitor and it’s used as antibiotic. |
| Ketoconazole | It’s an enzyme inhibitor and it’s used as antifungal. |
| Chloramphenicol | Causes Gray baby syndrome when there’s deficiency of Glucouronyl transferase.  |

**Lecture 4 (Execration)**

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| Drug | Function |
| Amphetamine | Basic drug. We use acidification of urine by NH4Cl to increase execration of it. |
| Aspirin | Acidic drug. We use Alkalization of urine by NaHCO3 to increase its execration. |
| Aminoglycosidic antibiotics (gentamycin), Penicillin, Lithium | Drugs execrated mainly by kidney. |
| Penicillin, Tubocurarine | Drugs of short plasma half-life. |
| Digoxin, Thyroxin | Drugs of long plasma half-life. |
| Penicillin | Activly excecreted drug. |
| Salicylates, Sulphoamides, Penicillin | Acidic drugs. |
| Morphine, Atropine, Quinine, Neostigmine | Basic drugs (-ine). |
| Morphine | Reachs steady state concentration after 3-5 half-lives. |
| Digoxin, Morphine, Thyroxin. | Goes through **Enterohepatic Circulation.** |
| Amoxycillin | Patient needs to take (500mg) / 8 hours to **maintain therapeutic level.** |

-Lecture 5-

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| Drug | Function |
| Vincristine | Target Tubulin and it’s an anti cancer drug. |
| Colchicine | Target Tubulin and used to treat gout. |
| Neostigmine | The drug competes reversibly with the natural substrate (ACH) for the enzyme (cholinesterase at MEP). |
| Organophosphates | The drug competes irreversibly with the natural substrate (ACH) for the enzyme (cholinesterase). |
| Local Anesthetics | *Block Na influx through* Na channel in nerve fibers. |
| Sulfonylurea drugs | Block K+ out-flux via the K channels in pancreatic cells (K Channel Modulator). |
| Pindolol: Propranolol\* | Partial Agonist, produces less decrease in heart rate than pure antagonists |
| Tubocurarine | Antagonist |
| Digitalis | Blocks efflux of Na by Na pump |
| Cocaine | Blocks transport of catecholamines at synaptic cleft in CNS.. |

**Lecture -6-**

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| Drug | Function |
| Dimercaprol | Chemical antagonism (reduce heavy metal toxicity). |
| Omeprozole & Hestamine | Physiological antagonism. |
| Phenobarbitone & Warfarin. | Pharmacokinatic antagonism (**Phenobarbitone accelerates hepatic metabolism of warfarin).** |
| Atropine Vs. ACH | Reversible competitive antagonism. |
| Phenoxybenzamine Vs. Noradrenalin | Irreversible competitive antagonism. |
| Verapamil Vs. Noradrenaline | Non-competitive antagonism. |

-Lecture 8-

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| Drug | Function |
| Statins | Express eNOS , CVS Cytoprotection. (it increases the enzymes that synthesis NO). |
| Estrogen | Express eNOS , CVS Cytoprotection. (it increases the enzymes that synthesis NO). |
| Nitrates | Act as NO donners, Venulodilators in angina. |
| Na Nitroprusside | Act as NO donners, Arteriolar dilator in hypertension. |
| Sildenafil –Viagra- | Inhibit Selective PDE5 , Erectile dysfunction. |
| Propranolol\* | Inhibit activation of renin |
| Aliskiren | Inhibit renin directly |
| lisinopril | ACE inhibitor |
| omapatrilate | Vasopeptidase |
| candisartan | ARBs |
| spirinolactone | ADOSTERONE Antagonists |
| Eplerenone | ADOSTERONE Antagonists |
| Anthypertensive drugs | ACE Inhibitors ,VASOPEPTIDASE |
| NSAIDS \*\* | 🠋 bradykinin mediated pain |

-Lecture 9-

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| Drug | Function |
| Morphine | Release histamine |
| Diphenhydramine | Has sedating effect, used in Allergicconditions, Insomnia and Motion sickness. |
| Loratadine | Used in Allergic conditions. |
| Cimetidine | Treatment for peptic ulcers because it is an Inhibitor of gastric acid (HCl) secretion. |
| Betahistine | Treatment for vertigo in middle ear. |
| Corticosteroids | to inhibit the release of phospholipase A2 |
| NSAIDs \*\*ex. Aspirin | inhibit the release of Cyclooxygenase |
| Zafirlukast/zileuton | inhibit the release of Lipoxygenase |
| Carboprost | Induce abortion in first trimester (first 3 months) and **Treatment of postpartum hemorrhages**. |
| Latanoprost | Eye drops in treatment of open angel glaucoma |
| Misoprostol | Treatment of peptic ulcer. |

**Lecture -10-**

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| Drug | Function |
| Barbiturates & Contraceptive pills | Pre-Receptor Events (Drug-Drug interaction) – (Barbiturates increase metabolism of contraceptive pills) |
| NSAIDs | Post-Receptor Events (Drug-Body interaction) - Activation of renin angiotensin system to nullify antihepersensitive effects by ACH inhibitors. |
| Isoprenaline | Down regulation (decrease number of receptors) by activation of beta-receptors to increase receptors recycling by endocytosis. |
| Beta-Adrenoceptors | Binding Alteration (phosphorylation of receptors leads to decrease of activation of AC to related ionic channel). |
| Amphetamine | Exhaustion of mediators (depletion of mediator stores). |
| Warfarin | Leads to hemorrhage – Augmented (Type A) |
| Quinidine | 1. Bizarre (Type B) type II hypersensitivity (Cytotoxic) – Hemolytic anemia thrombocytopenia.
 |
| Corticosteroids | Chronic intake leads to osteoporosis – Continuous (Type C) |
| Retinoid | Produce side effect after long period of time – Delayed (Type D) |
| Morphine | Withdrawal syndrome – End-of-Use (Type E) |
| Penicillin | Type I hypersensitivity (Anaphylaxis) – Urticarial, rhinitis, bronchial asthma. |
| Sulphonamides | Type III hypersensitivity (Immune complex) – Urticarial, fever, arthritis, and enlarged lymph nodes.  |
| Local anesthetics creams | Type IV hypersensitivity (Cell Mediated) – Contact dermatitis.  |