Solution-Pharmacy

100 Terms and Definitions from Pharmacology

Terms	Definition of the term
Absorption	Absorption is a process of movement the drug from its site of administration into the systemic circulation for producing any of effect. This effect is called Pharmacodynamic effect and it may be either desirable or undesirable.
Action potential	In physiology, an action potential occurs when the membrane potential of a specific axon location rapidly rises and falls
Acute	Acute conditions are severe and sudden in onset. This could describe anything from a broken bone to an asthma attack
Additive effect	The effect of two drugs is in the same detection and simply adds u. **Effect of drug A+ B = Effect of drug A+ Effect of drug B**
Agonist	Agonist are the agent which activates the receptor to produce an effect similar to the of the physiological signal molecule.
Antagonist	Antagonists are agent which prevent the action of agonist on a receptor or the subsequent response, but does not have any effect of its own.
Apparent volume of distribution	Apparent volume of distribution is a ratio of dose administered through IV and Plasma concentration of the drug. It is defined as- The volume that would accommodate all drug in the body if concentration throughout was the same as in plasma.
Bioavailability	Bioavailability is the rate and extent of drug absorbed from its dosage form and that fraction which is available to give biological action. Drug having higher bioavailability will give higher effect.
Bioequivalence	Two preparation of a drug are considered bioequivalent when the rate and extent of bioavailability of the drug from them is not significantly different under suitable test condition.
Biological Barrier	Biological barriers are the control system of body that restrict the entry of drug to any specific compartment or are of body from either site of administration or from systemic circulation. **Example- BBB- Blood Brain Barrier, BPB- Blood Placental Barrier, BTB- Blood Testicular Barrier**.
Biological Membrane	Membrane means a barrier layer, and biological means in living organism, so biological membrane is a barrier layer in living organism which allows the passage of drug molecule or other molecule according to their polarity and molecular size. **This is a bilayer of about 100 A Thick.**

Biotransformation	Biotransformation or metabolism is a process of conversion of complex molecule into simplex molecule. Biotransformation means chemical alteration of the drug in the body. It is needed to render non polar **(Lipid Soluble)** compounds polar **(Lipid insoluble)** so that they do not reabsorbed in the renal tubules and are excreted.
Blood Brain Barrier	Blood Brain Barrier is highly selective barrier having very tight junction of specialized cell which regulate the entry of drug molecule. This only allows the highly lipid soluble molecule to prevent non lipid soluble drugs like- streptomycin, and Neostigmine. Important **Example- Dopamine does not cross Blood Brain Barrier but its precursor Levodopa can cross BBB**.
Blood Placental Barrier	Blood Placental Barrier is another specialized barrier whose function is to limit the entry of drug into the foetal circulation to prevent any of undesirable effect plasma membrane are lipoidal and allow free passage of lipid soluble drugs.
Chemotherapy	It is a treatment of systemic infection, malignancy with drug that have toxicity for the infection organism but no or minimal effect on host cell.
Chronic	A chronic condition, by contrast is a long-developing syndrome, such as osteoporosis or asthma
Clearance	The clearance of the drug is the process of theoretical volume of plasma from which the drug is completely removed in the unit time. It is calculated by- rate of elimination divided by plasma concentration.
Clinical trials	Clinical trials are performed after getting enough satisfactory result from preclinical trials. It is a prospective ethically designed investigation in human subject to objectively discover or examine or verify the result of two or more therapeutic measurement. Clinical trials may be conducted in healthy volunteers or patient volunteers.
Cohort studies	This is a type of observational studies in which no intervention for the sake of the study is done. **"Cohort"** is the group of individual having some common feature.
Contraindication	In pharmacology the term contraindication means a condition at which one drug is not allowed to take in the presence of other specific drug, because one drug may alter of change the effect of another and that changes may be toxic and fatal too. **Example- Rifampicin is contraindicated for the woman who is taking oral contraceptive pills.**
Cross Tolerance	Cross Tolerance is the development of tolerance to pharmacologically related drugs for example- alcohol are relatively tolerated to barbiturate and general anesthetics. Closer the two drugs are more compete is the cross tolerance between them.

Depolarization	The inward flow of sodium ions increases the concentration of positively charged cations in the cell and causes depolarization
Diffusion	This is a movement of solute molecule or drug from higher concentration to the lower concentration, for example- drugs moves from site of administration to the systemic circulation where concentration of drug is relatively low.
Distribution	Distribution is a process of making harmonization of concentration between all possible areas. Or in a simple way we can say that it is a process of movement of drug from one compartment to the other compartment for producing biological effects.
Downregulation	Upregulation is a process in which there is decrease in the number of receptor. An example of downregulation is the cellular decrease in the number of receptors to a molecule, **such as a hormone or neurotransmitter, which reduces the cell's sensitivity to the molecule**.
Drug	This is a chemical entity which is used for the prevention, diagnosis and treatment of any disease or disorder.
Drug abuse	Drug abuse is a somehow misuse of drug. In this case people use the drug not for the intended or prescribed purpose but for other narcotic purpose. There are several examples- **codeine was a good antitussive drug but few people used that for narcotic purpose.**
Drug Action	It is the initial combination of the drug with its receptor resulting in a conformational changes in the latter **(In case of agonist)** or prevention of conformational changes, through exclusion of the agonist **(in case of antagonist)**
Drug addiction	It is a pattern of compulsive drug use characterized by overwhelming involvement with the use of drug. Procuring the drug and using it takes precedence over other activities.
Drug allergy	It is an immunologically mediated reaction producing stereo type symptoms which are unrelated to the Pharmacodynamic profile of the drug, generally occur even with much smaller dose and have different time course of onset and duration. This is also called drug **hypersensitivity.**
Drug dependence	Drug capable of altering mood and feeling are liable to repetitive use to derive euphoria, withdrawal from reality, social adjustment etc. drug dependence is a state in which use of drug for personal satisfaction is accorded a high priority than other basic needs. It is of several types- physiological dependence, physical dependence.
Drug dose	Dose is appropriate amount of the drug needs to produce a certain degree of response in a patient. The dose of the drug is governed by its inheriting potency.

Drug effect	It is the ultimate changes in biological function brought about as a consequence of drug action, through series of intermediate steps.
Drug habituations	It denotes less intensive involvement with the drug, so that its withdrawal produces only mild discomfort. Example- **Consumption of tea, coffee, tobacco, social drinking** is regarded habituating physical dependency is absence.
Drug resistance	It refers to tolerance of microorganism to inhibitory action of antimicrobials. **Example- *staphylococci* to penicillin.**
Effectors	Small molecule t hat selectively binds to a protein and regulates its biological activity. In this manner, effectors molecules act as legends that can increase or decrease enzyme activity, gene expression, or cell signaling
Efficacy	In pharmacology, efficacy **(E_{max})** is the maximum response achievable from an applied or dosed agent, for instance, a small molecule drug
Endocytosis	It is a process of transport across the cell in particular form by formation of vesicles this is applicable to proteins and big molecules. If the molecule is in solid form it will called as Phagocytosis and if that is in liquid form that will simply known as Pinocytosis. **Pina= drinking (In Hindi)**
Enteral administration	Enteral administration means administration of any drug through the oral route.
Enzyme	Enzymes are the substance which may alter the rate of biological reaction without affecting the nature of reaction and affecting them self. Chemically all enzymes are protein.
Excretion	Once the drug gets absorbed-distributed-Metabolized it needs to get eliminated through various possible routes. Excretion refers to the passage of drug out of the systemically absorbed drug. Drugs and their metabolites are eliminated mainly by- **Renal, faeces, Exhaled air, Saliva and milk and somehow in sperm.**
First order Kinetics	The rate of elimination of drug is directly proportional to the drug concentration, clearance remain constant, or a constant fraction of drug is present in the body is eliminated in unit time.
First pass metabolism	First pass metabolism refers to metabolism of a drug during its passage from site of absorption into the systemic circulation. All orally administered drugs are exposed to drug metabolizing enzyme in the intestinal mucosa and liver**. (they reach first to portal vein)**
Holfman Elimination	Holfman Elimination refers to inactivation of the drug in the body fluids by spontaneous molecular rearrangement without the agency of any enzyme like- **Artacuranium.**

Hyper	The term hyper indicate a situation in which there is more and more amount or level of anything which is being added just after hyper word. Example- In hypertension, the term hyper means higher and tension means blood pressure so the **Hyper + Tension= increase in blood pressure**.
Hypo	The term hypo indicates a situation in which there is less amount or level of anything which is being added just after hypo word. Example- In hypotension, the term hypo means low and tension means blood pressure so the **Hypo + Tension= Decrease in blood pressure.**
Iatrogenic Disease	These are also called drug induced disease and physician induced disease too. These are functional disturbance caused by drugs which persist even after the offending drugs has withdrawn and largely eliminated. **Example- peptic ulcer by Salicylates and corticosteroids. Hepatitis by Isoniazide**.
Idiosyncrasy	It is genetically determined abnormal reactivity to a chemical. The drug interact with some unique feature of the individual, not found in majority of subjects, and produce the uncharacteristic
Intolerance	It is the appearance of characteristic toxic effects of a drug in an individual at a therapeutic dose. It is a converse of tolerance and indicates a low threshold of individual to the action of drug.
Inverse Agonist	Inverse Agonist is the agents which activates a receptor to produce an effect in the opposite direction to that of the agonist.
Ion Channels.	Ion channels are made of two common terms Ions- The charged elements (Na^+) and Channels means way or path to cross. So ion channels are those paths from which various ions move in an out. Drug may affect the ion channels either by opening or closing so that the status of ion channel may change accordingly.
Ligand	Any molecule which attaches selectively to participate receptors or site. The term only indicates the affinity or binding Without regards to functional changes, agonist and competitive agonist both are Ligand on the same receptors.
Loading dose	This is the single or few quickly repeated doses given in the beginning to attend target concentration rapidly. Loading dose is given at a time to boost the effect of drug so that it may initiate the response.
Maintenance dose	This is one that is to be repeated at specified intervals after the attainment of target concentration so to maintain the same by balancing elimination. In a simple way it is a dose required to maintain the concentration of drug throughout the specified time intervals by administrating drug accordingly.
Mechanism of action	The complete and step by steps of action followed by the drug by which it produce biological action. **Example- Diuretic- Increase urine formation by inhibiting reabsorption process**.

Meta analysis	This is an exercise in which data from several similarly conducted randomized controlled clinical trials, with the same drugs. Examinining the same clinical end point is pooled to bring out the overall balance of evidence by enlarging the number of test and control subject and increasing the significance and power of conclusions.
Metabolism	Metabolism or biotransformation is a process of conversion of complex molecule into simplex molecule and biotransformation is also conversion of one form to the other form like from active state to inactive state and inactive state to active or less active state.
Metabolites	Metabolites are the newly formed chemical structure of drug after the metabolism or biotransformation process; basically metabolite may be in active, inactive form depending upon the metabolism.
Microsomal Enzyme	Microsomal Enzyme is located in smooth endoplasmic reticulum, primarily in liver and kidney, intestinal mucosa and intestine. **They catalyze most of the oxidation, reduction, hydrolysis and Glucuronide conjugation.**
Mutagenisity	It refers to the capacity of drug to cause genetic defects and cancer respectively. Usually oxidation of the drug results in the production of reactive intermediate which affects gene and may cause structural changes, in the chromosome.
Neurotransmitter	Neurotransmitters are endogenous chemical which carry special functional signal and transmit it from one cell to another cell by passing the synaptic cells called pre junction and post junction.
Non Proprietary	It is the name accepted by competent body, authority, or in a simple way it is the name of active chemical entity without its brand name or manufacturer's name.
Orphan Drugs	These are the drugs or biological products for diagnosis treatment and prevention of rare disease or condition or a more common disease for which there is no reasonable exception that the cost of developing and marketing it will be recovered from the sales of the drug.
Osmosis	The process of movement of solute molecule from low concentration to the high concentration.
Parenteral	Parenteral administration means administration of the drug other than Enteral route, Enteral means oral so Parenteral means other than oral route, this include **IV, IM, SC, topical, rectal and vaginal etc.**
Partial agonist	An agent who activates receptors to produce a sub maximal effect but antagonize the effect of full agonist.

Pharamcogenomics	Pharamcogenomics is the use of genetic information to guide the choice of the drug and dose on an individual basis. It intended to identify individual who are either more likely or less likely to respond to a drug, as well as those who require altered dose of certain drugs. The main aim is to attain a specific dose for an individual person.
Pharmacodynamic	Pharmacodynamic is a study of drug's effect on our body. Means it is a study of- What does Drug do to the Body. This includes- Desired and Undesired effect from drug.
Pharmacogenetic	Pharmacogenetic is the branch of medical science which deals with the genetic influence on drug action as well as on drug handling by the body.
Pharmacokinetics	Pharmacokinetic is the study of body response for any particular drug which has taken for any reason. This include- **Absorption, Distribution, Metabolism and Excretion (ADME)**
Pharmacology	Pharmacology is complete study of Pharmacodynamic and Pharmacokinetic profile of drug, means its study of drugs effect on body and body response for the drug.
Pharmacotherapeutics	Pharmacotherapeutics is a combination of pharmacological information and therapeutic knowledge of disease.
Pharmacovigilance	Pharmacovigilance has been defined by the WHO as the science and activities related to the detection, assessment, understanding and prevention of adverse drug effect (ADR) or any other drug related problems.
Photosensitivity	It is a cutaniouse reaction resulting from drug induced sensitization of the skin to UV radiation. This may of two types- **phototoxic and photo allergic.**
Placebo	This is an inert substance which is given instead of medicine. It works by psychological rather than pharmacological. It produce believe that the medicine is working well and patient recover soon.
Plasma half life	The Plasma half life of a drug is a time taken for its plasma concentration to be reduced to half of its original concentration. In other simple word it's a time at which concentration of drug become half.
Plasma protein binding	It is a process of binding of free drug molecule with the plasma protein present in the blood. Most drugs possess the physiological affinity for plasma protein. Highly plasma protein binding are largely restricted to vascular compartment because protein bound drug behave as macromolecule and they are not able to cross the membrane.

Poisoning	Poisoning may result from large dose of drugs because it is the dose which differentiates a drug from poison. Poison is the substance endangers life by severalty affecting one or more vital function of body.
Polarization	The inward flow of chloride ions increases the concentration of negatively charged cations in the cell and causes polarization
Polypharmacy	Ingestion of more than one drug at a time
Potency	Potency is a measure of drug activity expressed in terms of the amount required to produce an effect of given intensity.
Preclinical trials	Preclinical trials involve the study of safety and efficacy of newly invented drugs on experimental animal as per their similarity with human. Preclinical trials provide the basic ground for the conduction of clinical trials on human.
Receptors	Receptors are the macromolecule or binding site located either on the surface of cell membrane or inside the cell that serve to recognize the signal molecule/drug and initiate the biological response for it, but they don't have their own specific functions.
Redistribution	Redistribution is a process of again distribution of drug from one distributed site to another less or not distributed site. Highly lipid soluble drugs get initially distributed to organ with high blood flow. **For example brain, heart, kidney, and then later to less vascular but more bulky tissue take up the drug.** Redistribution result in termination of drug action. Greater the lipid solubility of the drug greater the redistribution.
Regulated dose	The drug modifies a finely regulated body function which can be easily measured. The dose is accurately adjusted by repeated measurement of the affected physiological parameter. **Example- Antihypertensive medicine, Antihyperlipidemic drugs.**
Route of drug Administration	Every drug has be reached systemic circulation for giving action, so the way by which it reach in circulation is called route of drug administration. **Example- Oral, parental, topical etc.**
Secondary effects	These are the indirect consequence of a primary action of a drug for e**xample- suppression of bacterial flora** by tetracycline paves the way for super infection, corticosteroids weaken host defense mechanism so that latent tuberculosis get activated.
Side effect	Side effect as name indicates it is the side wise effect along with main effect of drug which was taken intentionally. Side effects are often associated with the therapeutic effect and it is well known in advance prior to drug administration.

Standard dose	That dose will be called Standard dose which is appropriate for most of the patients, individual variations are minor or the drug has wide safety margin so that large enough dose can be given to cover that.
Super additive	The effect of combination is greater than the individual effect of the components. **Effect of drug A+B > Effect of A + Effect of B**
Synergism	When the action of one drug is facilitated or increase by the other, they are said to be synergistic. In a synergistic pair both the drug can have action in same direction or given alone may be inactive but still enhance the action of the other when given together.
Tachyphylaxis	Tachyphylaxis is rapid development of tolerance when dose of drug repeated in quick succession result in marked reduction in response. This is usually seen with directly acting drugs such as- **epinephrine, tyramine, and nicotine.**
Teratogenicity	It refers to the capacity of drug to cause foetal abnormalities when administered to the pregnant woman. This may cause disturbance in the organogenesis.
Therapeutic index	The therapeutic index of a drug is a ratio of the dose that produces toxicity to the dose that produces a clinically desired effective response in a population of individuals. **Therapeutic dose = TD_{50}/ED_{50}**
Titrated dose	The dose needed to produce maximal therapeutic effect cannot be given because of intolerable adverse effects. Optimal dose is arrived at by titrating it with an acceptable level of adverse effects.
Tolerance	It refers to the requirement of higher dose of a drug to produce a given response. In other words tolerance means phenomenon in which drug does not produce the same effect as it was used to produce even it was taken at the first time, and now more dose is required to get the same response as earlier.
Toxic effect	Toxic effect is the result of excessive pharmacological action of drug due to over dosage or prolonged use. Over usage may be intentional or relative related with therapeutic dose. The effects are predictable and dose related.
Toxicology	Toxicology is the branch of science which involves the study of poisonous effects of drug and other chemical agent like- household, environmental and industrial pollutants. With emphasis of detection and treatment of that particular poisons.
Transporters	Transporters are agents which transport something from one place to another. Several substance are trans located across membrane by binding to specific transporters which either facilitate diffusion in the direction of the concentration gradient or pump the metabolite/ion against the concentration gradient with using metabolic energy .

Upregulation of receptor	Upregulation is a process in which there is increase in the number of receptor. An example of upregulation is the response of liver cells exposed to such xenobiotic molecules as dioxin. In this situation, the cells increase their production of cytochrome P450 enzymes.
Withdrawal symptoms	When the addictive substance is withdraw or removed from the addictive person suddenly, he or she showed some characteristic behavior that may be even dangerous for the life; all those symptoms are collectively called as withdrawal symptoms.
Zero order kinetics	The rate of elimination remains constant irrespective of drug concentration, clearance decrease with the increase in concentration, or a constant amount of drug eliminated in unit time. **Example- Ethanol.**