Name : Abdul Salam
ID no : 14863
Paper : General Pharmacology

Q no 1 :

Ans: Drug Receptor :

Receptor is a macromolecule in the membrane or inside the cell that specifically (chemically) bind a ligand (drug). The binding of a drug to receptor depends on types of chemical bounds that can be established between drug and receptor. The strength of this chemical bonds (covalent, ionic, hydrogen, hydrophobic) determind the degree of affinity of ligand to receptor. Ligands (drugs) that attracted the receptor may be classified as agonists or antagonists. agonist produce the biological responses as a results of receptor ligand interaction therefore agonists possess efficacy.

∴ Enumerate different receptors:

A cell within a multicellular organism may need to signal to other cell that are at various distance from the orginal cell. Not all cell are affected by the same signals. Different type of signaling are used for different purposes.

A receptor can protein molecule inside the target cell or on its surface that recives a chemical signal. Chemical signals are released by signaling cell in the form of small, usually volatile or soluble molecule called ligands. A ligand is a molecule that bind another specific molecule in some cases, delivering a signal in the process.

∴ Receptor show effect through Secound Messenger System:

Secound messenger are intracellular signaling molecule released by the cell in response to exposure to extracellular signaling molecule. The first messengers (intracellular signal) a non-local form of cell signaling encompassing both first messenger are classified as juxtacrine, paracrine and endocrine depending on the range of the signal). Secound messenger trigger physiological changes at cellular level such as proliferation

differentiation, migration survival apoptosis and depolarization. They are one of the trigger of intracellular signal transduction cascades.

Secondary messengers systems can be synthesized and activated by enzymes. for examples the cyclases that synthesize cyclic nucleotide; or by opening of ion channels to allow influx of metal ions, for example Ca^{2+} signaling. These small molecule bind and activate phosphorylation kinases, ion channels, and other proteins, thereby continuing the signaling cascade.

Q NO: 2

Ans: Drug Interaction:-

A drug interaction is a change in the action or side effects of a drug caused by concomitant administration with a food beverage supplement, or another drug. There are many causes of drug interaction for example, one drug may alter the pharmacokinetic of another. Alternatively drug interaction may result from competition for a single receptor or signaling pathways.

The risk of a drug-drug interaction increase with the number of drug used. over a third (36%) of the elderly in the U.S regularly use five or more medication or supplements and 15% are at risk of a significant drug-drug interaction.

Enumerate various Types:-

There are several different types of drug interaction to be aware of.

(:) Drug-drug:-

A drug-drug reaction in when there is an interaction between two or more prescription drug

(:) Drug Food:-

This happens when food or beverage intake alters a drug's effects.

For example: Some statins (used to trea high cholesterol) can interact with grapefruit juice. if a person who take one of these statins drinks a l of grapefruit juice, too much drug may stay in their body, increase their risk for live damage or kidney failure.

(:) Drug Alcohol:-

Certain medication shouldnot taken with alcohol often, combining these drugs with alcohol can cause tiredness and delayed reaction.

it can also increase your risk for negative side effects

∴ Drug - disease: This interaction is when the use of a drug alters or worsens a condition or disease additionally. Some medical condition can increase the risk of side effects from specific drugs.

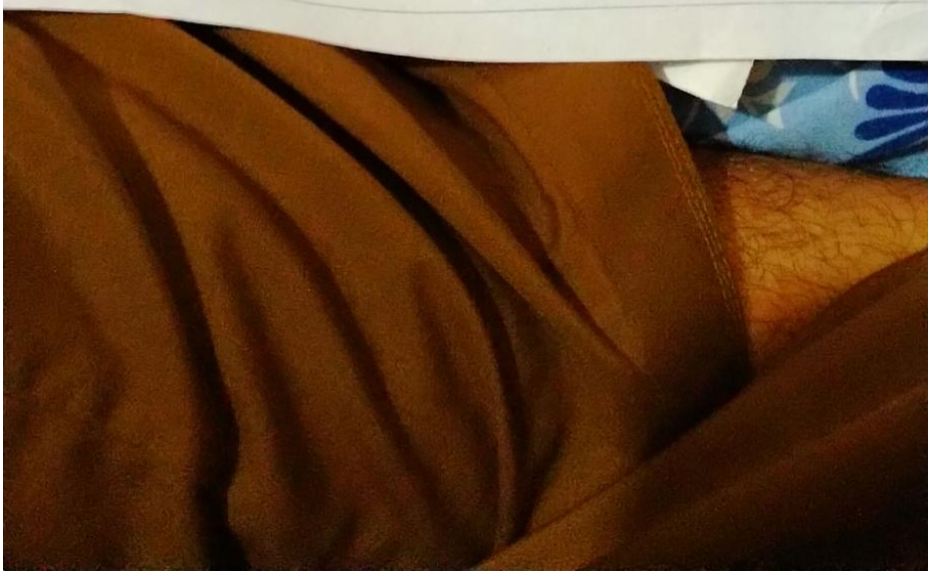
∴ Drug - laboratory: Some medication can interfere with specific laboratory tests. this can result in inaccurate test result.

∴ Pharmacokinetic Drug interaction: pharmacokinetic is what the body does to the drug. these interaction occur when one drug alters the concentration of another drug (the object) with clinical consequence.
pharmacokinetic interaction occur when the absorption, distribution, metabolism or elimination process of the object drug is altered by the precipitant drug and hence such interaction are also called as ADME interaction. The resultant effect is altered plasma concentration of the object drug.

Factors::

There are four factors that will influence the pharmacokinetic drug test. water. solubility, fat soluble, dissociation degree and molecule and molecules weight pharmacokinetic is a quantitative study of drugs in the body absorption distribution metabolism and excretion of the law. the use of mathematical principles and methods to explain the plasma concentration with time changes in a discipline.

water is the carrier of drug transport and the body of the medium. Drugs in the absorption site must have a certain degree of water solubility in a dissolved state. So that can be absorbed therefore the drug is required to have a certain water solubility. polarity(the introduction of polar groups can increase water solubility) crystal form(the impact of drug bioavailability is more and more attention. The melting point of the solubility thus affecting the absorption of drug, affecting bioavailability.



Q NO 3:

∴ Local Anasthesia:

Ans:- ~~Local Anasthesia~~ :- is where a small area of the body is numbed and you remain fully conscious - often used during minor procedures.

∴ general Anasthesia:- is where totally unconscious and unaware of the procedure. often used for more serious operation.

∴ Stages of Anasthesia :-

(i) Stage of Analgesia :-

- starts from beginning of anesthetic inhalation and last upto the loss of consciousness.
- pain is progressively abolished.
- patient remain conscious can hear and see, and feels a dream like state.
- Reflexes and respiration remain normal.

(ii) Stage of Excitement :-

- stage starts from loss of Consciousness upto gain of rhythmical respiration
- Respiration - irregular and large in volume
- Heart rate and BP raises
- pupils - large and divergent
- patient may shout or struggle.

- muscle tone increased - jaw may be tight
- involuntary micturation, or dejection

(ii) Stage (III) Surgical Anesthesia:
- Extends from onset of regular respiration to cessation of spontaneous breathing.
- It is has been divided into 4 planes
  - plane 1: Roving eyeballs. Fixed. This plane ends when eye become
  - plane 2: loss of corneal and laryngeal reflexes.
  - plane 3: pupil start dilating and light reflex is lost.
  - plane 4: intercostal paralysis
    Shallow abdominal respiration
    Dilated pupil.

(iii) Stage (IV) Stage of Medullary paralysis:
- There is cessation of breathing leading to failure of circulation and death.
- pupil is widely dilated
- muscles are totally flabby
- pulse is thready or imperceptable.
- BP is very low.

Q NO 4 :

(a)

Ans :- Heart failure means :-

Heart failure means that the heartc is unable to pump blood around the body properly. it usually occurs because the heart has become too weak or stiff. it sometime called congestive heart failure, although this name is not widely used nowady.

Heart failure dose not mean your heart has stopped working it just needs some support to help it work better.

it can occure at any age, but is most common in older people.

:- pathophysiology Heart failure :-

pathophysiology Heart failure bring together leading basic scientists and clinicians presenting new approaches to this complex problem involving cardiomyopathic processes and ischemia perfusion injury. the result is a synthesis of

(10)

state of the art information on molecular biology - cellular physiology and structure and function relationship in the cardiovascular system. The role which excess intracellular calcium plays in the genesis of cardiac dysfunction is described as a fundamental mechanism underlying heart failure one which may lead to improved prevention and treatment. Clinical and experiment cardiologists will find ~~the~~ ~~book~~.

(11)

Q NO: 4 (b)

Ans:- Drug used for treatment of heart failure:-

Heart failure patient may need multiple medication. Each one treats a different symptom or contributing factor and comes with its own instruction and rules.

you and your caregivers should work with your healthcare team to understand the medication and when, how often and in what dosage to take them.

its important to discuss all of the drugs you take with your doctor (or other healthcare providers) and understand their desired effects and possible side effects. your doctor and your pharmacist are your best source of information. Do not hesitate to ask them questions about your medicines.

its critical that people with heart failure take their medication exactly as directly as directed by healthcare provider to optimize the benefits.

Q No 5 (a)

Ans:

- Broad Spectrum antibiotic :- acts against multiple strains and forms of different bacteria which share common structure and metabolic function that can be attacked and affected to kill them.
- Narrow Spectrum antibiotic :- are more specific in their course and act against only certain bacteria as a more targeted approach.

- Antibiotic Drugs:-
  Antibiotic chemical substance produced by a living organism, generally a microorganism, that is detrimental to other microorganism. Antibiotic commonly are produced by soil microorganism and probably represent a means by which organism in a complex environment, such as soil control the growth of competing microorganism. microorganism that produced antibiotic helpful in preventing or treating disease include the bacteria and the fungi.

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pathogeneses

(17)

Antibiotic came into worldwide prominence with the introduction of penicillin in 1941. Since then they have revolutionized the treatment of bacterial injection in humans and other animals. They are however ineffective against viruses.

Q No 5 (b)

Ans: Antivirals are a class of medication that are used to treat viral injection resolve spontaneously in immunocompetent individual. The aim of antiviral therapy is to minimize symptoms and infectivity as well as to shorten the duration of illness. These drug act by arresting the viral application cycle at various stages. currently antiviral therapy is available only for a limited number of injection. most of the antiviral drugs currently available are used to treat injection caused by HIV, herpes viruses hepatitis B and C viruses, and influenza A and B viruses. Because viruses obligate intracellular parasites, it is difficult to find drug target that interfere with viral replication without also harming the host cells. unlike other antimicrobials antiviral drug do not deactivate or destroy the microbe (in the case, the virus) but act inhibiting replication. in this way they prevent the viral load from increasing to a point where it could cause pathogenesis.