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Q No 1:

Route of drug Administration

Ans. The route of administration that is chosen may have a profound effect upon the speed and efficiency with which the drug acts.

The possible routes of drug entry into the body may be divided into two classes.

Enteral, Parenteral.

Route of administration and dosage form are aspects of drug delivery.

Classification:

Topical: Drugs are applied topically to the skin or mucous membranes mainly from local action.

oral: used for system (non local) effect substance is given via the digestive tract.

Parenteral: A drug administered Parenterally is one injected via a hollow needle into the body at various sites and to varying depth.

Rectal: Drug given through the rectum by suppositories or enema.

Inhalation: The lungs provide an excellent surface for absorption when the drug is delivered in gaseous aerosol or ultrafine solid particle form.

Q No 2:

Intracellular Compartment:

once a drug enters the body from whatever route of administration it has the potential to distribute into any one of three functionally distinct compartments of body water or to become sequestered in a cellular site.

The human body and even its individual body fluids may be conceptually divided into various fluid compartments, which although not literally anatomic compartments do represent a real division in terms of how portions of the body water, solution and suspended elements are segregated. The two main fluid compartments are the intracellular and extracellular compartments. The intracellular compartment is the space within the organism cell it is separated from the extracellular compartment by cell membrane.

About two thirds of the total body water of human is held in the cells mostly in the cytosol and the remainder is found in the extracellular compartment.

Types:

Intracellular Compartment:

The intracellular fluid also known as cytosol is all fluid contained inside the cell. It is the matrix in which cellular organelles together compose the cytoplasm. The cell membrane are the outer barrier. In humans the intracellular compartment contains on average about 28 litres of fluid and under ordinary circumstances remains in osmotic equilibrium. It contains moderate quantities of magnesium and sulphate ions.

Extracellular Compartment:

The interstitial, intravascular and transcellular compartments comprise the extracellular compartment. Its extracellular fluid contains about one third of total body water.

Intravascular Compartment:

The main intravascular fluid in mammals is blood a complex mixture with elements of a suspension (blood cells) colloid (globulins) and solutes (glucose and ions)

Interstitial Compartment:

The interstitial compartment also called tissue space surround tissue cells. It is filled with interstitial fluid including lymph.

Transcellular Compartment;

The third extracellular compartment, the transcellular compartment, consists of those spaces in the body where fluid does not normally collect in larger amounts or where any significant fluid collection is physiologically nonfunctional.

Q No 3 :-

Ans Drug Elimination :-

Drug elimination is the removal of an administered drug from the body. It is accomplished in two ways either by excretion of an unmetabolized drug in its intact form or by metabolic biotransformation followed by excretion. While excretion is primarily carried out by the kidneys, other organ systems are involved as well. Similarly, the liver is the primary site of biotransformation. Yet extrahepatic metabolism takes place in a variety of organ systems affecting multiple drugs.

Phase I,

Involves oxidation, reduction and hydrolysis of the exogenous molecule. These reactions are accomplished by hepatic microsomal enzymes, which reside in the smooth endoplasmic reticulum of the hepatocytes.

Phase II,

Consists of covalent bonding of polar group to nonpolar molecules to render them water soluble and allow renal or biliary excretion.

Q3 B:

Total body clearance:

The total body clearance or total plasma (blood) clearance (CL) is commonly defined as the volume of plasma (blood) completely cleared of drug per unit time (1.2)

Some time body liver also contributes to drug loss through metabolism and or excretion into the bile.