Introduction to Biopharmaceutics

Biopharmaceutics examines the interrelationship of the physical/ chemical properties of the drug, the dosage form (drug product) in which the drug is given, the route of administration on the in vivo performance of drug product.

Physicochemical properties : ex ka , Crystalinity and polymorphism . log p

Dosage form effect : Tab .. cap … solution , emulsion , suspension

Route of administration .. oral , IV , SC , Sublingual , IM , Buccal , intranasal .

Studies in biopharmaceutics use both *in vitro* and *in vivo* methods.

In vitro methods are procedures employing test apparatus and equipment without

involving laboratory animals or humans. *In vivo* methods are more complex studies involving human subjects or laboratory animals.

Ex.Vivo ??

PHARMACOKINETIC*S* *Pharmacokinetics* is the science of the kinetics of drug absorption, distribution, and elimination (ie, metabolism and excretion).

The study of pharmacokinetics involves both experimental and theoretical approaches.

The experimental aspect of pharmacokinetics involves the development of biologic sampling techniques, analytical methods for the measurement of drugs and metabolites, and procedures that facilitate data collection and manipulation.

The theoretical aspect of pharmacokinetics involves the development of pharmacokinetic models that predict drug disposition after drug administration.

PHARMACODYNAMICS

Pharmacodynamics is the study of the biochemical and physiological effects of drugs on the body; this includes the mechanisms of drug action and the relationship between drug concentration and effect.

A typical example of pharmacodynamics is how a drug interacts quantitatively with a drug receptor to produce a response (effect). Receptors are the molecules that interact with specific drugs to produce a pharmacological effect in the body.

H.W.

1-BCS with drug example on each class

2-Suggest a proper solution for the following

. a- Drug with high dissolution ,high permeability but with short half-life and intended for chronic use.

. b- Drug with low dissolution, high permeability, one method for enhancement dissolution rate.

. c- Drug with high dissolution, low permeability, one method for enhancement permeability.

3- Suggest the best route of administrating a drug

a. extensive first pass effect
b. intendent for use in the emergency.