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A BRIEF NOTE ON BIOPHARMACEUTICS AND PHARMACOKINETICS

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DESCRIPTION

Drugs are substances proposed to use in the diagnosis, cure, mitigation, treatment, or prevention of disease. Drugs are classified in a variety of dosage forms or drug products such as solids (capsules, tablets), semisolids (ointments, creams), liquids, suspensions, emulsions, etc, for universal or local therapeutic activity. Drug products can be considered to be drug delivery systems which release and supply drug to the site of action such that they produce the wanted therapeutic effect and are also designed particularly to meet the patient's needs including palatability, safety and convenience.

Biopharmaceutics inspects the interrelationship of the physical and chemical properties of the drug, the dosage form (drug product) in which the drug is given, and the way of administration on the rate and extent of systemic drug absorption. The significance of the drug substance and the drug preparation on absorption, and *in vivo* distribution of the drug to the site of action, is described as an order of events that precede elicitation of a drug's therapeutic outcome.

Firstly, the drug in its dosage form is taken by the patient either by an oral, subcutaneous, intravenous, transdermal, etc, route of administration. Next, the drug is released from the dosage form in a expectable and characterizable manner. Then, some portion of the drug is absorbed from the site of administration into either the nearby tissue, into the body (as with oral dosage forms), or both.

Finally, the drug reaches the spot of action. A pharmacologic response results when the drug absorption at the site of action reaches or exceeds the Minimum Effective Concentration (MEC). The suggested dosing regimen, including starting dose, maintenance dose, dosage form, and dosing interval, is determined in clinical trials to provide the drug concentrations that are medicinally effective in most patients. This sequence of events is deeply affected in fact, sometimes scored by the design of the dosage form and the physicochemical properties of the drug.

After a drug is released from its dosage form, the drug is absorbed into the surrounding tissue, the body, or both. The distribution through and removal of the drug in the body varies for all patient but can be characterized using mathematical models and statistics. Pharmacokinetics is the science of the kinetics of drug absorption, delivery, and elimination (ie, metabolism and excretion). The description of drug delivery and elimination is often called drug disposition. Characterization of drug disposition is an important precondition for determination or modification of dosing regimens for individuals and groups of patients.

CONCLUSION

The study of pharmacokinetics includes both experimental and theoretical methods. The experimental feature of pharmacokinetics involves the growth of biologic sampling techniques, analytical methods for the measurement of drugs and metabolites, and procedures that ease data collection and manipulation. The theoretical aspect of pharmacokinetics involves the progress of pharmacokinetic models that predict drug disposition after drug administration. The application of data is an integral part of pharmacokinetic studies. Statistical methods are used for pharmacokinetic parameter estimation and data clarification ultimately for the purpose of designing and predicting optimal dosing regimens for individuals or groups of patients. Statistical methods are applied to pharmacokinetic models to determine data fault and structural model deviations. Mathematics and computer techniques form the theoretical foundation of many pharmacokinetic methods. Traditional pharrmacokinetics is a study of theoretical models focusing mostly on model development and parameterization.