1. Drug Absorption: Relevant anatomy and Physiology of organs involved in drug absorptions; factors affecting drug absorption following oral, parenteral, topical, Buccal, rectal, vaginal, urethral and nasal administration of drugs; methods of studying drug absorption following different routes of administration of drug absorption.

2. Drug Distribution: Distribution in the blood, beyond the blood compartment, tissue localization; volumes of distribution.

3. Drug Biotransformation: Sites of drug biotransformation; kinetics of drug biotransformation; Phase-I and Phase-II biotransformation reactions; mechanisms of microsomal oxidation; mechanisms of glucuronide formation; factors affecting biotransformation; methods of studying biotransformation of drugs; usefulness of biotransformation study in drug design and dosage forms.


5. Bioavailability and Bioequivalence Testing


7. Clinical Applications of Pharmacokinetic Parameters: Blood level curves; continuous blood and tissue levels in therapy, dosage regimens —accumulation during repetitive dosing; adjustment of dosage regimen in renal failure; distribution dependent dosage adjustment; pharmacokinetic drug interactions.

8. Pharmacokinetic basis of controlled drug delivery

BOOKS RECOMMENDED:

1. Modern Pharmaceutics by Banker and Rhodes
2. Pharmacokinetics, Milo Gibladi and Donald Perrier
3. Text-Book of Rio-Pharmaceutics and Clinical Pharmacokinetics by Sarfaraz Niazi
4. Pharmacokinetics and Drug Metabolism by Testa — Jhenner
5. Fundamentals of Clinical Pharmacokinetics by J.C. Wagner