



Basic Pharmacokinetics
Title: Basic Pharmacokinetics.
Subject code: 411 PHT
Semester: Seventh Semester (Fourth year).
Duration: 2 + 1 Units (5 contact hours) per week.
Aims: To provide comprehensive knowledge of biopharmaceutics, pharmacokinetics, bioavailability and bioequivalence
Objectives: At the end of the course the student should understand biopharmaceutics, pharmacokinetics, bioavailability and bioequivalence.
Contents: Lectures: Introduction to Biopharmaceutics: Absorption of drugs from gastrointestinal tract, Drug Distribution, Drug Elimination Introduction to Pharmacokinetics: Mathematical model, Drug levels in blood, Pharmacokinetic model, Compartment models, Pharmacokinetic study. One compartment open model: Intravenous Injection (Bolus), Intravenous infusion. Multicompartment models: Two compartment open model, IV bolus, IV infusion and oral administration Multiple – Dosage Regimens: Repetitive Intravenous injections – One Compartment Open Model Repetitive Extravascular dosing – One Compartment Open model Multiple Dose Regimen – Two Compartment Open Model



Nonlinear Pharmacokinetics:

Introduction, Factors causing Non-linearity, Michaelis-menton method of estimating parameters.

Noncompartmental Pharmacokinetics:

Statistical Moment Theory, MRT for various compartment models, Physiological Pharmacokinetic model.

Bioavailability and Bioequivalence:

Introduction, Bioavailability study protocol, Methods of Assessment of Bioavailability.

Minimum course requirements: 30 (2 x 15) Unit lectures and 45 practical hours (3 x 15) per level.

Evaluation methods:

- Quizzes	10%
- Mid term examination	25%
- Practical examinations	25%
- Final examination (written)	40%

Text Books (latest edition):

- 1- Applied Biopharmaceutics & Pharmacokinetics, Shargel, the Middle East Observer, USA: Appleton and Lange.
- 2- Pharmacokinetics: Principles & Applications, Boroujerdi, the Middle East Observer.

Recommended books (latest edition):

- 1- Biopharmaceutics and Drug Interactions, D.E. Cadwallader, U.S.A., Rache.



- 2- Drug Interactions: A source Book of Adverse Interactions, their Mechanisms, Clinical Importance and Management, Ivan H. Stockley, London: Pharmaceutical Press.
- 3- Therapeutic Drug Monitoring, G.E. Schumacher, Appleton and Lange.
- 4- Basic Clinical Pharmacokinetics, Spokane, Applied Therapeutics, Inc.
- 5- Applied Pharmacokinetics: Principles of Therapeutics: Drug Monitoring, W.E.Evans, J.J. Schentag, W.J. Jusko, Spokane.
- 6- Basic Clinical Pharmacokinetics, Winter.
- 7- Pharmacokinetics and Metabolism in Drug Design, R. Manholder, Wiley & John Wiley.