Jaya College of Paramedical Sciences
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Vth PHARM D

CLINICAL PHARMACOKINETICS AND PHARMACOTHERAPEUTIC DRUG MONITORING (THEORY)

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CHAPTERWISE IMPORTANT QUESTIONS:

I. Introduction to Clinical pharmacokinetics**:**

A. BRIEF ANSWERS

1. Explain plasma concentration monitoring of drugs during clinical use.

B. *SHORT ANSWERS*

1.Pharmacogenetics and Pharmacokinetics.

2. Write brief note on personalized medicine or theraphy.

2. Pharmacokinetics and pharmacogenetics relation.

2. PK/PD correlation in drug therapy.

3. Application of clinical Pharmacokinetics.

4. Effect of food on drug disposition.

II. DESIGN OF DOSAGE REGIMENS:

A. BRIEF ANSWERS

1. Write down the dosing of drugs in the elderly and pediatrics and obese patients with examples.
2. Explain the drug dosing in elderly and pediatrics patient.
3. Explain the determination of dose and dosing interval.
4. The elimination half-life of an antibiotic is 3hrs with an apparent volume of distribution equivalent to 20% of body weight. The usual therapeutic range for this antibiotic is between 5 and 15μg/ml. Adverse toxicity for this drug is often observed at serum concentration greater than 20μg/ml. Calculate a dosage regimen (multiple IV doses) that will just maintain the serum drug concentration between 5 and 15μg/ml.

5. Determination of dose, dosing interval and route of administration.

B. *SHORT ANSWERS*

1. Drug regimen for Individual dosage
2. Write a note on dosing in Pediatric patient.
3. Write the factors to be considered when designing dosage regimen.
4. Write a note on dosing in obese patients.
5. Determination of dose and dosing intervals
6. Write about shifting of Intravenous dose to Oral dose
7. Write the factors to be considered when designing a dosage regimen.
8. Determination of rate of administration.
9. How will you calculate the drug dose for neonates, infants and children?
10. Explain the dosing with feedback.
11. Discuss the adaptive method for dosing.
12. Drug dosing in paediatrics.
13. Give dose adjustment based on the following:
    a) Elimination rate constant.
    b) Half life.

III. PHARMACOKINETICS OF DRUG INTERACTION:

A. BRIEF ANSWERS

1. Enumerate the pharmacokinetic drug interactions with examples.

B. *SHORT ANSWERS*

1 Write notes on Inhibition of Biliary Excretion

2 Pharmacokinetics drug interaction.

3 Inhibition and induction of drug metabolism with example

4 Explain Nonlinear mixed effect model.

5 Explain absorption based drug interactions with examples?

6 Pharmacokinetic drug interaction.

7 Brief about the Inhibition of biliary excretion.

8 Application of clinical pharmacokinetics.

9 How is dosing interval determined on the basis of therapeutic index of the drug?

IV. THERAPEUTIC DRUG MONITORING:

A. BRIEF ANSWERS

1. Explain Therapeutic drug monitoring. Write about indication and protocol for TDM. Add notes on TDM of drug used in cardiac and seizure disorders.
2. TDM of drugs related to cardiovascular, seizure, psychiatric and organ transplantations.
3. Explain in detail the drug dosage regimen for individual dosage.
4. What is therapeutic drug monitoring? Add note on therapeutic drug monitoring of Psychiatric Drugs and Immunosuppressants.
5. Therapeutic drug monitoring indications and protocol.

B. *SHORT ANSWERS*

1. Functions of therapeutic drug monitoring for Digoxin
2. Brief about therapeutic drug monitoring of two Cardio Vascular drugs.
3. Drug dosing in obese patients
4. TDM of seizure drugs.
5. Therapeutic drug monitoring and its indication
6. What is TDM and its protocol?
7. What is individualization of drug dosage regimen?
8. Brief about therapeutic drug monitoring of seizure drugs.

V. DOSAGE ADJUSTMENT IN RENAL AND HEPATIC DISEASE:

B. BRIEF ANSWERS

1 Write the general approach for dosage adjustment in Hepatic diseases.

2 Explain the effect of pharmacokinetics and dose adjustment in hepatic disease.

3 How will you determine the renal impairment in patients and discuss the extracorporeal removal of drugs?

4 Dose adjustment in renal disease.

5 Dosage adjustment for uremic patients.

6 a) Explain the dose adjustment in renal disease with respect to total body clearance and elimination rate constant?

b) Write a note on dosing of drugs in hepatic disease?

5. General approach for dose adjustment in renal disease.

6. Explain the various methods to calculate the creatinine clearance from serum creatinine concentration.

7. Dose adjustment for renal failure and uremic patients.

C. *SHORT ANSWERS*

1 Write notes on Inhibition of Biliary Excretion

2 Measurement of GFR and creatinine clearance.

3 Differentiate Hemodialysis and Hemoperfusion?

4 Write the note on extra corporeal removal of the drug.

5 Brief about extra corporeal removal of drugs.

6 Brief about the measurement of Glomerular Filtration Rate.

7 Dosing of drug in hepatic disease.

8 Effect of hepatic disease on pharmacokinetics.

9 How will you adjust the dose for uremic patients?

10 Extracorporeal removal of drugs

11 How will you determine renal dysfunction in patients?

12 Measurement of Glomerular filtration rate and creatinine clearance.

13 Dosage adjustment in Renal disease.

14 Enumerate the dose adjustment on drug clearance.

15 How will you determine renal dysfunction in patients?

16 Describe the measurement of creatinine clearance.

VI. POPULATION PHARMACOKINETICS:

A. BRIEF ANSWERS:

1. What is Population pharmacokinetics? Explain the Bayesian theory and add notes on adaptive method for drug dosing.

2. Pharmacokinetic changes and dose adjustment in Hepatic disease.

2. Enumerate the various methods of analyzing population pharmacokinetic data.

2. Discuss the adaptive methods with feedback in population pharmacokinetic.

2. Bayesian theory and its applications in population pharmacokinetics.

3. Bayes estimator and applications.

3. a) Explain dosing with feedback procedure in population pharmacokinetics?

b) Discuss in detail the methods adopted in the analysis of population pharmacokinetic data?

B SHORT ANSWERS

1. Pharmacogenetics and drug metabolism
2. Importance of Beysian theory.

2. Discuss about regional pharmacokinetics?

3. Bayesian theory of adaptive method
4. Discuss about regional pharmacokinetics?
5. Analysis of population pharmacokinetic data.
6. Brief about the dosage regimen based on population average.
7. Discuss the importance of Bayesian theory?

VII. PHARMACOGENETICS

A. BRIEF ANSWERS:

1. Explain the effect of genetic polymorphism in drug transport and drug target with example.

2. Explain the effect of Genetic Polymorphism in drug transport and drug target.

2. Explain the polymorphism in Cytochrome isoenzymes.

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3. Explain the Pharmacogenetic & Nongenetic influences on Variations in Drug Therapy.

4. Genetic polymorphism in cytochrome P450 ISO enzymes.

4. What is pharmacodynamic interaction? Explain the consequences of direct pharmacodynamic interaction with examples.

B SHORT ANSWERS

1. What is genetic polymorphism? Write notes on P-450 Isoenzymes.
2. Write a note on genetic polymorphism in drug metabolism?
3. CYP2C19.
4. Explain the adverse reactions attributed to genetic differences
5. P-Glycoprotein and Multidrug resistance.
6. Brief the Genetic polymorphism in Drug Transport with example.