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UNIVERSITY OF RUHUNA – FACULTY OF MEDICINE

ALLIED HEALTH SCIENCES DEGREE PROGRAMME

FOURTH BPHARM PART II EXAMINATION – JUNE 2017

PH 4212 CLINICAL PHARMACY (SEQ)

TIME: TWO HOURS

INSTRUCTIONS

- Answer **all** questions in the books given.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.

1. Answer **all** parts.

1.1. Define the term 'pharmacokinetics'. ***(10 marks)***

1.2. Differentiate 'absolute bioavailability' and 'relative bioavailability'. ***(10 marks)***

1.3. Giving example/s, briefly describe the effect of protein binding on bioavailability of a drug. ***(25 marks)***

1.4. Define the term volume of distribution (V_d). ***(10 marks)***

1.5. After single dose of IV bolus of 1.5 g of cefuroxime, the initial plasma concentration (C_{po}) was estimated as 30 mg/L.

1.5.1. Estimate the volume of distribution (V_d) of the drug. ***(10 marks)***

1.5.2. Calculate the IV dose required to achieve an initial plasma concentration of 17 mg/L. ***(05 marks)***

1.5.3. If the required steady state drug concentration (C_{ss}) is 67 mg/L, calculate the loading dose of the drug. ***(05 marks)***

1.6. Briefly discuss the factors effects on blood concentration-time profile. ***(25 marks)***

2. Answer **all** parts.

2.1. Differentiate pharmacokinetic and pharmacodynamic interactions with examples. ***(15 marks)***

2.2. Briefly discuss the risk factors for drug-drug interactions. ***(25 marks)***

2.3. Mr. WA is admitted to the hospital with a fungal infection and has been prescribed with ketoconazole. While taking the medication history, patient reveals that he takes antacids from pharmacy for his gastritis.

2.3.1. Explain the effect co-administrating ketoconazole with antacids for Mr. WA. ***(10 marks)***

2.3.2. What is your suggestion to overcome the effect mentioned in above 2.3.1? ***(05 marks)***

2.4. Briefly explain the "therapeutic window" of a drug using suitable plasma concentration-time graph. ***(20 marks)***

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2.5. Mr. SH is 66 years-old post-operative patient. He has developed pyelonephritis and is on gentamicin once daily.

Ideal body weight: 70 kg

Serum creatinine level: 130 micromol/L

2.5.1. What is the most appropriate starting dose of gentamycin? (***15 marks***)

Calculated creatinine clearance (mL/min)	**Initial dose (mg/kg)**
> 65	5 – 7
55 – 64	5 – 6
45 – 54	5
31 – 44	4
20 – 30	3
< 20	Consider using another antibiotic

2.5.2. If the concentration of gentamycin is 2 mg/L after 8 hours of dosing, recommend the dose of gentamycin for subsequent dosing, using the figure 01 given below. (***10 marks***)

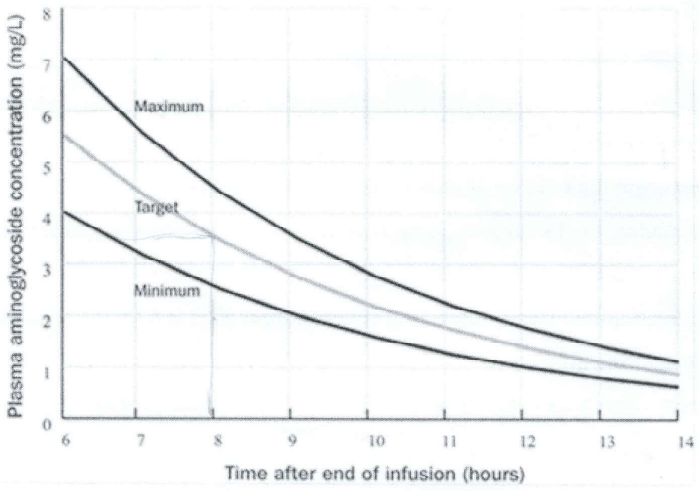

Figure 01: Gentamycin nomogram

3. Answer **all** parts.

3.1. Define enteral nutrition support. (***10 marks***)

3.2. Briefly describe the importance of adequate nutritional support to a patient. (***20 marks***)

3.3. Discuss the importance of dose adjustments in treating pediatric patient. (***20 marks***)

3.4. Calculate the dose for a child 4 years of age, 39 inches in height and weighing 32 lb, for a drug with an adult dose of 100 mg. (Please note: Nomogram is given) (***10 marks***)

3.5. 55 year-old male is receiving the following medications for the management of heart failure and osteoarthritis:

Perindopril 10 mg each morning
Frusemide 40 mg each morning
Carvedilol 12.5 mg bd
Digoxin 250 mcg daily
Spironolactone 12.5 mg each morning
Naproxen SR 750 mg daily

State the importance of laboratory tests listed below in regards to drug toxicity.

3.5.1. Serum sodium (***10 marks***)
3.5.2. Serum potassium (***10 marks***)
3.5.3. Hemoglobin (***10 marks***)
3.5.4. Urea and creatinine (***10 marks***)

4. Answer **all** parts.

4.1. Explain **five** reasons to justify why elderly patients are vulnerable to adverse drug reactions. (***50 marks***)

4.2. As a clinical pharmacist, state **six** methods to promote safe intravenous administration of medicines. (***30 marks***)

4.3. Assume that you are a pharmacist at a drug information center. A patient who came to visit the pharmacy enquires about the following information from you. Briefly explain your answer.

"Can BCG vaccine be administered to a patient who has recently received a course of chemotherapy?" (***20 marks***)

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