UNIVERSITY OF JAFFNA, SRI LANKA
BACHELOR OF PHARMACY
FOURTH YEAR FIRST SEMESTER EXAMINATION in BPharm Honours – 2023
CLINICAL PHARMACY – PHACP 4132 (Old Syllabus)

Date: 06.12.2024   Time: 02 hours

ANSWER ALL SIX QUESTIONS.

1.

     1.1   Define the following terms.

         1.1.1 Transitions of care   (10 Marks)

         1.1.2 Pharmaceutical care   (10 Marks)

     1.2   List five (05) competencies required for a clinical pharmacist.   (25 Marks)

     1.3   List five (05) patient groups that are at high risk of medication discrepancies.   (25 Marks)

     1.4   Briefly describe the steps followed in medication reconciliation process.   (30 Marks)

2.

     2.1.   Give three (03) applications of pharmacokinetic models.   (15 Marks)

     2.2.   A single intravenous dose of 6 mg/kg of Gentamicin was administered to a 40-year-old male patient with a body weight of 60 kg and the initial plasma concentration of Gentamicin was estimated as 24 mg/L.

         2.2.1. Calculate the volume of distribution of Gentamicin in this patient.   (10 Marks)

         2.2.2. Serum creatinine level in this patient is 120 mmol/L.

         Estimate the creatinine clearance (CrCL) in this patient.

$$\text{Creatinine clearance (mL/min)} = \frac{F \times (140 - \text{Age in Years}) \times \text{Weight (in kg)}}{\text{Plasma creatinine (mmol/L)}}$$

         where F= 1.04 in females and 1.23 in males).   (10 Marks)

         2.2.3. Calculate the elimination half-life for Gentamicin in this patient.

         (Assume that the elimination of Gentamicin follows first-order kinetics and Gentamicin clearance is approximately equal to CrCL).   (25 Marks)

     2.3   A 40-year-old patient (60 kg) was diagnosed with asthma and treated with oral Theophylline 500 mg, twice daily. Unfortunately, after two days of treatment, two doses of Theophylline were missed. The clinical team has decided to give the patient a loading dose of intravenous Aminophylline before restarting the maintenance therapy. The optimum Theophylline

concentration for the treatment of asthma is 15 mg/L. Steady state concentration has been already reached in this patient and the Theophylline level was reported as 4.16 mg/L.

Calculate the recommended loading dose of intravenous Aminophylline in this patient.

(Theophylline has an average volume of distribution of 0.48 L/kg based on population data). **(40 Marks)**

3. A 58-years-old man with a history of chronic obstructive pulmonary disease (COPD) for 10 years has been recently diagnosed with lung cancer. He was admitted to the hospital due to acute exacerbation of COPD. He has negative beliefs towards medications and often skips taking his routine medications for COPD. He also lacks the family support and hesitant to initiate his cancer chemotherapy. The clinical pharmacist looking after this patient was concerned about improving the medication adherence and initiating palliative care simultaneously with his treatment.

3.1	Identify the different forms of medication non-adherence observed in this patient.	**(15 Marks)**
3.2	Briefly describe the five dimensions of medication adherence.	**(30 Marks)**
3.3.	Briefly describe the strategies that can be used to improve medication adherence when discharging this patient.	**(30 Marks)**
3.4	List five (05) methods that can be used to detect medication non-adherence in this patient.	**(25 Marks)**

4.

4.1	4.1.1. Give five (05) sources of poisoning with an example for each.	**(20 Marks)**
	4.1.2. List the four (04) main steps involved in the management of poisoning.	**(20 Marks)**
4.2	List the classes of psychoactive substances with an example for each.	**(15 marks)**
4.3	Define the terms "Tolerance", "Dependence" and "Withdrawal", with regard to substance abuse.	**(15 Marks)**
4.4	Briefly describe the role of clinical pharmacist in the prevention and treatment of substance abuse.	**(30 Marks)**

5. Ms. KM is a 7-year-old girl who has been brought to the emergency department by her mother due to vomiting, abdominal pain and confusion. Her mother reports that Ms.TM has lost her weight and has been increasingly tired over the last few weeks.

Past Medical History:

- Flu and chest infection (a month ago)

Presenting complaints:

- Abdominal pain, Vomiting, Dehydration, Polydipsia, Polyuria, Rapid heavy breathing and fruity breath

Laboratory Findings:

- Heart rate – 180 beats/min
- Blood pressure – 100/60 mm Hg
- Random Blood Sugar – 22 mmol/L
- Serum Potassium levels – 5 mmol/L
- Urine analysis – Positive for ketone and glucose

5.1. What condition does Ms. KM's signs and symptoms suggest? (05 Marks)

5.2. List the four (04) main symptoms that are characteristic to the condition mentioned in 5.1. (20 Marks)

5.3. Briefly explain the mechanism involved in the development of the condition mentioned in 5.1 in this patient. (25 Marks)

5.4. Briefly describe the management of the condition mentioned in 5.1. (30 Marks)

5.5. List five (05) challenges in providing pharmaceutical care for paediatric patients. (20 Marks)

6. You are a clinical pharmacist being a part of the multidisciplinary team of a medical ward of the Teaching hospital, Jaffna.

A 65-years-old male patient with a history of atrial fibrillation and hypertension, has been admitted to the ward due to ischemic stroke. The team is considering the initiation of anticoagulation in this patient to prevent further thromboembolic events.

The physician of the team has requested you to provide evidence-based recommendations on whether dabigatran would be a better option for anticoagulation with a lower risk of bleeding compared to aspirin in this patient.

6.1. What is evidence-based medicine (EBM)? (10 Marks)

6.2 List the major components of EBM. (15 Marks)
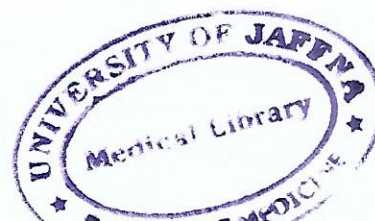
6.3. List the steps that you would follow in providing evidence-based recommendations to the physician. **(25 Marks)**

6.4. Identify the following components of the PICOS framework with regard to the physician's request.

    6.4.1 Population **(10 Marks)**

    6.4.2 Intervention **(05 Marks)**

    6.4.3 Comparator **(05 Marks)**

    6.4.4 Outcome **(10 Marks)**

    6.4.5 Setting **(05 Marks)**

6.5. List the types of drug information resources that you would use to formulate the evidence-based recommendations providing one (01) example for each. **(15 Marks)**