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UNIVERSITY OF JAFFNA, SRI LANKA
BACHELOR OF PHARMACY

FOURTH YEAR FIRST SEMESTER EXAMINATION in BPharm Honours - 2023
CLINICAL PHARMACY – PHACL 4134

Date: 06.12.2024

Time: 03 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. (15 Marks)
 - 1.3 List five (05) sources of information used for obtaining a medication history. (15 Marks)
 - 1.4 List five (05) patient groups that are at high risk of medication discrepancies. (20 Marks)
 - 1.5 Briefly describe the steps followed in medication reconciliation process. (30 Marks)

2.
 - 2.1 Define the following terms.
 - 2.1.1 Pharmacovigilance (10 Marks)
 - 2.1.2 Medication use evaluation (MUE) (10 Marks)
 - 2.2 List three (03) factors that need to be considered when performing causality assessment. (15 Marks)
 - 2.3 List four (04) strategies that can be used to improve the reporting of adverse drug reactions by pharmacists. (20 Marks)
 - 2.4 List four (04) indicators that suggest the need for an MUE. (20 Marks)
 - 2.5 Briefly explain prescribing cascade with a suitable example. (25 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 List the five (05) dimensions of medication adherence providing one (01) example for each. (20 Marks)
- 3.3. Briefly describe the strategies that can be used to improve medication adherence when discharging this patient. (30 Marks)
- 3.4 What is palliative care? (10 Marks)
- 3.5 Briefly describe the importance of providing palliative care to this patient. (25 Marks)

4. Mr. CD, a 14-years-old boy, has been admitted to the hospital with symptoms of muscle weakness, fatigue and an irregular heart rate. His body weight is 40 kg and he is 1.5 m tall.

Past Medical History:

- Chronic kidney disease – Stage II (6 months)

Presenting complaints:

- Fatigue or weakness
- Difficulty in breathing
- Palpitations or skipped heartbeats

Laboratory Findings:

- Serum creatinine: 90 $\mu\text{mol/L}$
- Serum potassium: 6.0 mmol/L (3.5 – 5.3 mmol/L)
- Serum phosphorus: 1.6 mmol/L (0.8 – 1.3 mmol/L)
- Serum calcium: 2.5 mmol/L (2.2 – 2.6 mmol/L)
- Haemoglobin: 10.2 g/dL (12.0 – 16.0 g/dL)

Routine medications

- Calcium carbonate 500 mg TDS with meals
- Alfacalcidol 0.25 μg daily

Information from medication history taken on admission

- He often misses his calcium carbonate tablets due to constipation
- He is not adhering well to dietary restrictions

- 4.1 Reconcile Mr. CD's routine medications and state the reason why each of his medication has been prescribed. (10 Marks)
- 4.2 Calculate the estimated glomerular filtration rate (in $\text{mL}/\text{min}/1.73 \text{ m}^2$) of Mr. CD using Cockcroft & Gault formula. (15 Marks)
- 4.3 What condition does Mr. CD's presenting symptoms and laboratory investigations suggest? (05 Marks)
- 4.4 The following treatment was initiated to Mr. CD on admission



- IV Calcium gluconate 10 mL of 10% solution over 5 minutes
- IV Insulin (regular) 10 units in 50 mL of 50% glucose over 15 minutes
- Salbutamol 10 mg via nebulization
- Sodium polystyrene sulfonate (Resonium®) 30 g orally

4.4.1 Review Mr. CD's current medication list and state the reason why each of this medication has been prescribed. (25 Marks)

4.4.2 Provide suggestions to resolve any drug related problem(s) identified in Mr. CD. (30 Marks)

4.5 List three (03) challenges in providing patient care to paediatric population. (15 Marks)

5. Mrs. DM is a 70-years-old woman presented to the emergency department after a fall at home. She reports severe pain in her left hip and is unable to bear her weight (height: 155 cm and weight: 65 kg). X-ray report confirms a left hip fracture.

She has a 10-year history of T2DM and her doctor has decided to add insulin to her treatment regime at the last clinic visit. Two months ago, she has been diagnosed with stable angina. Her daughter states that this is the second episode of fall within the last few weeks and Mrs. DM has complained of swelling in her ankles for the past three weeks.

Routine Medications

- Isophane insulin 10 IU daily at bed time
- Metformin 500 mg BD
- Gliclazide MR 30 mg daily
- Bisoprolol 5 mg daily
- Amlodipine 10 mg daily

Upon further questioning, Mrs. DM states that she adheres well to her therapy and she has not noticed any warning signs of hypoglycemia such as tremors or palpitations before the fall. She has been skipping her meals for the last three days because of loss of appetite due to allergic rhinitis. She has also used chlorphenamine for the last three days from a nearby pharmacy for the allergic rhinitis.

On examination:

- BP: 115/80 mmHg, HR: 60 bpm
- RBS 42 mg/dL
- Electrolytes and renal function: within normal limits
- HbA1c: 6.0%

Mrs. DM was treated with IV infusion of 20% glucose and ibuprofen oral tablets at the emergency department and referred to an orthopedic evaluation for surgical intervention of the hip fracture.

5.1 Give five (05) combined factors in Mrs. DM that would have contributed to the fall and hip fracture? **(30 Marks)**

5.2 Mention the reason for the administration of 20% glucose solution and ibuprofen oral tablets to Mrs. DM at the emergency department. **(10 Marks)**

5.3 Provide suggestions for the changes that need to be taken in the current treatment regimen of Mrs. DM. **(30 Marks)**

5.4 List five (05) counselling points that need to be provided to Mrs. DM at discharge. **(30 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)**