



Faculty of Medicine, University of Ruhuna

Third Examination for Medical Degrees (Part II) August/September 2022

Pharmacology Paper I

Wednesday 24<sup>th</sup> August 2022

Answer all 05 questions

Answer each question in a separate book (9.00 a.m. - 11.30 a.m.) 2 ½ hours

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1.

1.1.

1.1.1. Write **two (02)** compelling indications of beta-blockers in hypertension (10 marks)

1.1.2. Write **four (04)** other groups of antihypertensive drugs with an example to each group (20 marks)

1.2. A 68 year-old farmer with hypertension is diagnosed to have diabetes mellitus.

1.2.1. Write initial pharmacological management of hypertension in this patient (20 marks)

1.2.2. Justify the initial pharmacological management for this patient, stated in 1.2.1 (20 marks)

1.3. Three months later the patient was admitted to emergency treatment unit with shortness of breath. On examination he is afebrile, tachypnoeic and there is evidence of fluid retention.

1.3.1. What would be the probable diagnosis? (15 marks)

1.3.2. State a life-saving drug which is indicated in the acute condition of this patient (05 marks)

1.3.3. Justify administering of the drug you stated in 1.3.2 to this patient (10 marks)

**2.**

2.1.

- 2.1.1. Write **two (02)** examples for each of the following
  - 2.1.1.1. Classical antipsychotic **(10 marks)**
  - 2.1.1.2. Atypical antipsychotic **(10 marks)**
- 2.1.2. List **three (03)** extrapyramidal side effects of antipsychotic drugs **(15 marks)**
- 2.1.3. Write an antidepressant drug with the drug group, that is most suitable to prescribe in patients with suicidal thoughts **(10 marks)**
- 2.1.4. Explain briefly the reason for your answer in 2.1.3 **(20 marks)**
- 2.1.5. Write a life-threatening adverse effect specifically associated with the drug group that you mention in 2.1.3 **(05 marks)**

2.2.

- 2.2.1. Define the term therapeutic index **(10 marks)**
- 2.2.2. Write **two (02)** drugs which have narrow therapeutic index **(10 marks)**
- 2.2.3. List **two (02)** clinical importance of therapeutic index of a drug **(10 marks)**

**3.** A 58 year-old man is diagnosed to have chronic kidney disease (CKD). His blood pressure is 180/110 mmHg. Investigation findings are as follows; serum creatinine 460 micromol/L, eGFR (estimated Glomerular Filtration Rate) 15 mL/min/1.73m<sup>2</sup>, haemoglobin 8.4 g/dL, MCV 86 fL, serum calcium 7.8 mg/dL (8.6 -10.3 mg/dL), serum phosphate 5 mg/dL (3.4 - 4.5 mg/dL), serum potassium 6.4 mmol/L (3.5 - 5.0 mmol/L), serum HCO<sub>3</sub> 12 mmol/L (22 - 26 mmol/L)

- 3.1. State **one (01)** drug you would prescribe to treat each condition stated below with route of administration in this patient **(40 marks)**
  - 3.1.1. Normocytic normochromic anemia
  - 3.1.2. Metabolic acidosis
  - 3.1.3. Hypocalcemia
  - 3.1.4. Hyperphosphatemia
- 3.2. Mention **three (03)** medications which cannot be prescribed in this patient **(30 marks)**
- 3.3. Outline management of hyperkalemia in this patient **(30 marks)**

4. A 35 year-old man with mitral regurgitation presented with intermittent high grade fever for two weeks.

Two blood cultures revealed growth of *streptococcus viridans*.

2D echocardiogram showed oscillatory mass on the anterior mitral valve leaflet.

4.1. What is the diagnosis? **(10 marks)**

4.2. Write **two (02)** antibiotics you would prescribe for him with the route of administration and duration of antibiotic therapy **(20 marks)**

4.3. Write pharmacodynamics of **one (01)** antibiotic stated in 4.2 **(20 marks)**

4.4. Describe the pharmacological basis of using the route of administration and duration of the antibiotic therapy stated in 4.2 **(30 marks)**

4.5. In the above clinical condition, combination of antibiotics is used. Write **two (02)** other infective diseases in which combination antibiotic therapy is indicated **(20 marks)**

5. A 20 year-old patient with mild intermittent asthma and on salbutamol inhaler presents with acute exacerbation of asthma. On admission his saturation is 90%, pulse rate is 110 beats/min and respiratory rate is 24 breaths/min. He is unable to complete a sentence and has an audible wheeze with diffuse ronchi on auscultation.

5.1. List **five (05)** important steps in the acute management of this patient **(15 marks)**

5.2. Mention **three (03)** first line pharmacological agents that would be used in the acute management along with their mechanisms of action **(30 marks)**

5.3. State **two (02)** intravenous infusions that would be used if the initial management shows poor response **(15 marks)**

5.4. State **one (01)** acute cardiac adverse effect of each of the medication you mentioned in 5.3 **(10 marks)**

5.5. Comment on the long-term treatment he is on at the time of admission and explain how it should be changed on discharge **(30 marks)**