SECOND EXAMINATION FOR MEDICAL DEGREES PART (I)
September 2023
2018/2019
Microbiology -Paper II

Date: 26.09.2023 **9.00 am to 11.00 am. (Two hours)**

Answer all four questions
Answer each question in a separate answer book

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1. A ten-year-old child was admitted with a history of gradual onset of fever for six days associated with malaise and frontal headache. His sister was diagnosed to have typhoid fever recently. He did not have any other significant history. On examination, he looked ill, his temperature was 39.5°C and he had mild splenomegaly.

   1.1 Name the causative agent of typhoid fever. (05 marks)

   1.2 Describe the possible sources and the modes of transmission of typhoid fever. (15 marks)

   1.3 Describe briefly the pathogenesis of typhoid fever. (20 marks)

   1.4 Name the microbiological investigation that confirms typhoid fever. (05 marks)

   1.5 Name the **other** microbiological investigation done in Sri Lanka for the diagnosis of typhoid fever if the test you mentioned in 1.4 is not available. (05 marks)

   1.6 Discuss the advantages and disadvantages of the investigations you mentioned in 1.4 and 1.5. (30 marks)

   1.7 Discuss the antibiotic treatment for this patient. (20 marks)

2. A blood culture set was collected from a 48-year-old neutropenic patient with fever. Growth was detected in four (4) hours of incubation and pure growth of a yeast was identified.

   2.1 Name the most common species of yeast responsible for this infection. (05 marks)

   2.2 Name five (5) **other** species of yeasts that can cause infection in this patient. (10 marks)

   2.3 Name five (5) **other** sites where the organism mentioned in 2.1 causes infection. (05 marks)

   2.4 Describe the risk factors for the infection at each site by the organism mentioned in 2.1. (35 marks)

   2.5 Explain what 'a blood culture set' is. (10 marks)

   2.6 State the temperature at which the blood for culture is stored and transported. (05 marks)

   2.7 Discuss the antimicrobial treatment of infections caused by the organism mentioned in 2.1 at different sites. (30 marks)

3. A 23-year-old medical student developed generalised vesiculopapular rash with erythematous base and malaise a few days before an exam. The following day she developed a few more lesions. On examination, she had different stages of skin lesions such as papules, vesicles, pustules and crusted lesions.

3.1 State the most possible diagnosis. (05 marks)

3.2 Name the causative agent of the infection you mentioned in 3.1. (05 marks)

3.3 Describe the possible sources and the modes of transmission of the infection in this patient. (25 marks)

3.4 Describe briefly the pathogenesis of the infection caused by the organism mentioned in 3.2. (20 marks)

3.5 Discuss briefly the specific treatment of this infection in this patient. (15 marks)

3.6 State how this infection could have been prevented in this patient. (10 marks)

3.7 Discuss the management of a pregnant woman who had a significant face to face exposure to this student. (20 marks)

4. A 45-year-old prisoner was admitted with a history of sudden onset of high fever for two days with chills, fatigue, headache and vomiting. On examination, he was drowsy and had neck stiffness. His CSF Gram staining report revealed Gram negative diplococci. Two others from the same prison were also admitted with similar features with one having generalized maculopapular rash as well.

4.1 State the most possible diagnosis of this patient. (05 marks)

4.2 Name the causative organism of the infection mentioned in 4.1 (05 marks)

4.3 Describe briefly how to prevent contamination of the specimen during CSF collection. (25 marks)

4.4 Discuss the empirical antimicrobial treatment of this patient. (20 marks)

4.5 Discuss briefly the measures which will reduce the transmission of this infection in the prison. (25 marks)

4.6 Discuss briefly the infection prevention and control measures which will reduce the transmission of this infection in the ward where this patient is admitted. (20 marks)