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POSTGRADUATE INSTITUTE OF MEDICINE
UNIVERSITY OF COLOMBO

MD (EMERGENCY MEDICINE) EXAMINATION – NOVEMBER 2021

Date:- 15th November 2021 **Time:-** 1.00 p.m. – 4.00 p.m.

STRUCTURED ESSAY QUESTION PAPER

Answer all ten (10) questions.
Answer each question in a separate book.

1. A 65-year-old patient was brought into the Emergency Department by his niece, complaining of dizziness at home. Patient informed his niece that he had taken a whole strip of diltiazem tablets prescribed for management of ischaemic heart disease. On arrival his pulse rate was 42/minute and regular with a blood pressure of 110/65 mmHg. He was conscious and able to give a reasonable history.

   1.1. Outline the factors associated with increased risk of toxicity in this patient. (20 marks)

   1.2.

   1.2.1. List Three (03) key information from the history that would be relevant in this patient. (15 marks)

   1.2.2. Mention three (03) other clinical features you would expect to find in this patient. (15 marks)

   1.3. Outline the immediate management of this patient. (50 marks)

2. A 68-year-old man presents to the Emergency Department with pain in his right leg of two days duration. The pain was severe and he was unable to stand or walk. The right calf was swollen and tender.

   His vitals were:

Pulse rate	110/minute
Blood pressure	100/60 mmHg
Respiratory rate	26/minute
SpO_2	92% on air

   He has a past history of diabetes, hypertension and had undergone coronary stenting one year ago.

   2.1. List three (03) differential diagnoses. (15 marks)

   2.2. Describe briefly, how you would differentiate the conditions mentioned in 2.1 at the bedside. (40 marks)

   2.3. Briefly outline the steps in the initial management of each of these three (03) conditions mentioned in 2.1. (45 marks)

Contd..../2-

3. A previously healthy 17-year-old girl presented with a 7 day history of fever, chest pain, dry cough and shortness of breath on exertion. She found it difficult to lie flat on bed and complained of several episodes of loose stools.
   She denied recent COVID-19 infection or a contact history. Both parents are fully vaccinated.
   On examination there was conjunctival suffusion, no icterus, generalised erythematous rash and swollen lips. Tender cervical lymphadenopathy was present but no other palpable lymph nodes.
   Pulse rate was 120/minutes with elevated JVP and a 3rd heart sound.
   There was vesicular breathing with bi basal end inspiratory crepitations.
   COVID-19 rapid antigen test was negative.
   USS lung showed bilateral symmetrical B-lines.
   Trans-thoracic echo showed mild global left ventricular hypokinesia.
   Chest X-ray taken on admission shows hilar congestion with cardiomegaly.

   3.1. Name four (04) differential diagnoses for this presentation. (20 marks)

   Subsequent investigations were as follows:

Covid PCR	positive with CT value 32	
Covid antibodies	>100 IU/L	
D-Dimer	1360 ng/ml	(<250)
LDH	387 U/L	(140-280)
Serum ferritin	856 µg/L	(224-336)
Serum procalcitonin	7.6 ng/ml	(<0.05)

   3.2. What is the most likely diagnosis? (20 marks)

   3.3. Name four (04) further specific investigations you would do to exclude other differential diagnoses mentioned in 3.1. (20 marks)

   3.4. Briefly outline four (04) medications you would use in the management of this patient giving reasons. (30 marks)

   3.5. List two (02) possible life threatening complications that could occur in this patient. (10 marks)

Contd...../3-

4. A 38-year-old, sewage worker is transferred from a Base Hospital with a history of fever, headache, severe body aches for 6 days. He has anorexia, vomiting and dark colour urine.
   On examination : icteric with conjunctival suffusion, pulse rate 112 beats/minute, blood pressure 90/64 mmHg, respiratory rate 28/minute with SpO_2 88% on room air. He has bilateral basal crepitations.

4.1. List five (05) important information you would obtain in the history. (10 marks)

Following investigations were documented in his transfer note:

Hb	13.2 g/dL	(13 - 17)
WBC	15.8 x 10^9/L	(4 - 7)
N	88%	
L	11%	
Platelet count	98 000 x 10^9/L	(150 - 400)
Serum creatinine	238 µmol/L	(74 - 135)
CRP	234 mg/L	(<1)
UFR		
Protein	+	
WBC	7-8/hpf	
RBC	20 -30/hpf	

4.2. List five (05) more investigations/bed side tests you would perform on admission. (10 marks)

4.3. Outline five (05) important steps in your initial management. (25 marks)

Two hours later the patient had an episode of haemoptysis and you notice that his work of breathing has increased and oxygen saturation dropped to 84% on 15L/minute non rebreather mask.

4.4. List three (03) likely causes for sudden respiratory distress in this patient and explain how you would differentiate each of them. (15 marks)

4.5. Outline the immediate management of his respiratory distress. (20 marks)

Patient's haemodynamic and respiratory distress were stabilised and you notice that he has only produced 20 ml of urine during last four hours.

The venous blood gas showed:

pH	7.21	
HCO_3^-	12 mmol/L	
Base excess	11 mmol/L	
Lactate	2.1 mmol/L	
K^+	6.3 mEq/L	
Creatinine has risen to	341 µmol/L	(74 - 135)

4.6. List four (04) important management steps at this stage. (20 marks)

Contd...../4-

5. A 68-year-old woman who had a significant loss of weight over one month presented to the Emergency Department with fever, chills and rigors for one week and altered level of consciousness for one day.

   On arrival she was febrile and axillary temperature was 41.5°C with profuse sweating and agitation. GCS was 12/15, oxygen saturation 98% on room air, pulse rate 144 beats/minute, irregularly irregular, blood pressure 88/64 mmHg with a noticeable thyroid nodule. Her right lower limb was red and swollen.

   5.1. What is the most likely diagnosis? (10 marks)

   5.2. List five (05) important questions you would need in the history to help in the initial management. (15 marks)

   5.3. List three (03) potentially life threating problems you can identify in this patient. (15 marks)

   5.4. Describe your initial management of the problems identified in question 5.2. (30 marks)

   After initial management her pulse rate was 112 beats/minute and blood pressure was 105/70 mmHg.

   5.5. Outline the subsequent management in the Emergency Department. (30 marks)

6. An 80-year-old woman was brought to the Emergency Department with left proximal hip pain after falling from a standing position on a wet floor. She denies any loss of consciousness, dizziness or chest pain at the time of the fall.
   On examination she was well oriented and rational, had no other complains other than local pain at the left hip.
   No other external injuries were noted.

   Her vitals were; axillary temperature 37.2°C, pulse rate 92 beats/minute, blood pressure 130/90 mmHg, respiratory rate 15/minute, SpO_2 97% on room air.
   On examination the left leg was short and rotated externally, was able to move the ankle, foot and toes, distal pulses were normal.

   6.1. What is the most likely diagnosis? (10 marks)

   6.2. List five (05) initial investigations you would perform to confirm the diagnosis and to facilitate further management. (15 marks)

   6.3. Outline five (05) main management steps you perform. (25 marks)

   6.4. Briefly explain how you will perform fascia iliaca block. (30 marks)

   6.5. Outline four (04) other methods of pain relief you would consider. (20 marks)

Contd..../5-

7. A 2-year-old boy is presented to the Emergency Department of a Teaching Hospital with severe drowsiness. He has had fever for 2 days. On day one of fever the child had a transient episode of vacant stare and few jerky movements of limbs. He was treated by a general practitioner for febrile fits, as he had 2 previous episodes of febrile fits at 8 months and 15 months of age. He was otherwise well and not on any long-term medication. Parents were advised to give only paracetamol. The parents had brought the child to the hospital as child was getting progressively drowsy.

   On examination the child was averagely built. He had no dysmorphic features. On examination: Axillary temperature 100.6°F, pulse rate 100 beats/minute, blood pressure 90/60 mmHg, respiratory rate 24/ minute and regular. He was opening eyes only to deep pain, made incoherent noises, and flexed his upper and lower limbs in response to painful stimuli. Bilateral papilloedema was noted.

7.1. Calculate the Glasgow Coma Scale, using the information provided. (15 marks)

7.2. State the significance of his history of febrile fits with regards to this presentation. (10 marks)

7.3. List three (03) likely causes for this presentation. (15 marks)

7.4. List three (03) other important physical signs that would help to identify the cause for his presentation. (15 marks)

7.5. List five (05) investigations that should be done at the time of admission. (15 marks)

7.6. Outline the management of this child during the first 2 hours of admission. (30 marks)

8. A 52-year-old woman presented to the Emergency Department with a history of pain, redness and tearing in her right eye of 2 days duration.

8.1. Give five (05) differential diagnoses for her condition. (15 marks)

8.2. List six (06) relevant factors in the history which will help you to arrive at a diagnosis in this patient. (30 marks)

8.3. State five (05) important examination findings that would help you to decide on her initial management. (15 marks)

8.4. Intra ocular pressure measurement was noted to be 60 mmHg (12-22) on the affected eye. Outline your principles of management in the Emergency Department. (20 marks)

8.5. Outline the management of acute angle closure glaucoma in the Emergency Department. (20 marks)

Contd..../6-

9. A 45-year-old man comes to the Emergency Department with a history of increasing breathlessness over the past 2 days. He had become short of breath on relatively minimal exertion over the past few weeks. His past medical history includes hypertension and he had a myocardial infarction two years ago.

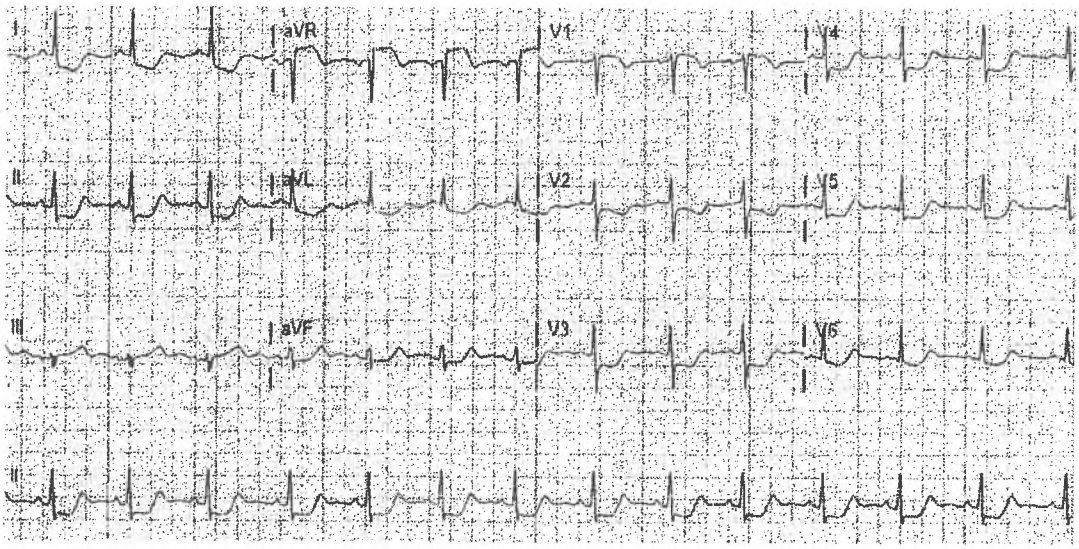
   On examination he had mild pitting oedema with elevated jugular venous pressure, respiratory rate 18/minute, Saturation 98% on air with clear lung bases, pulse rate 96 beats/minute, blood pressure 140/90 mmHg. A diagnosis of heart failure was suspected.

9.1. List five (05) questions you would ask in the history that would suggest an underlying cause for the heart failure. (20 marks)

9.2. List four (04) important investigations/bed side tests you would do on admission giving reasons to support your clinical diagnosis. (20 marks)

9.3. Outline five (05) important steps in your initial management. (25 marks)

ECG done on this patient is given below



9.4. List three (03) possible causes for the above ECG finding. (15 marks)

9.5. Outline five (05) steps in the subsequent management in the Emergency Department. (20 marks)

10. A 78-year-old man from a nursing home was brought to the Emergency Department with delirium for 2 days. According to the nursing home staff the patient had been previously well, but had few episodes of loose stools. No medical records were available.

On examination : A - gurgling sounds
B - respiratory rate 28/minute, thoraco- abdominal breathing
C - blood pressure- 186/78mmHg, pulse rate 110 beats/minute
D - GCS- 9
E - Temperature- 100°F
RBS - 154 mg/dL

Initial investigations showed:

Serum sodium	166 mmol/L	(135-145)
Serum potassium	4.6 mmol/L	(3.52-5.5)
Serum creatinine	234 µmol/L	(65-119)
Blood urea	24 mmol/L	(2.1-8.5)
FBC	Mild leukocytosis but no other abnormality	

10.1. How would you manage his airway? (20 marks)

10.2. List two (02) possible causes for his electrolyte abnormality. (10 marks)

10.3. Briefly explain four (04) principals involved in the correction of the electrolyte abnormality mentioned in 10.2 (30 marks)

10.4. How will you calculate his water deficit? (10 marks)

10.5. Outline three (03) possible life threatening complications of treatment of the above abnormality? (30 marks)