Confidential

**BACHELOR OF MEDICINE AND BACHELOR OF SURGERY (MBBS) ACADEMIC YEAR 2025/2026**

**YEAR 4 CRITICAL CARE MEDICINE POSTING QUIZ**

**INSTRUCTIONS**

1. There are 10 questions in this Posting Quiz. You have to complete all the questions.
2. Choose the single best (most appropriate) answer for each question.

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| Question 1: | A 65 year old man with past medical history of ischaemic heart disease and lung carcinoma presents with worsening breathlessness for one week. On examination, his temperature is 37.9°C, blood pressure 115/65 mmHg, pulse rate 90 beats per minute and respiratory rate 25 breaths per minute. His SpO2 is 89% on room air. He has decreased chest movements and stony dullness to percussion up to the fourth intercostal space in his left chest with reduced breath sounds and coarse inspiratory crackles heard.  What is the most appropriate **next step** in management? | |
|  | (A) | Give a bolus of frusemide intravenously |
|  | (B) | Give supplemental oxygen via a facemask |
|  | (C) | Insert a chest drain |
|  | (D) | Perform a chest x-ray |
|  | (E) | Intubate and start mechanical ventilation |

**Correct Response: B**

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| Question 2: | A 55 year old man with past medical history of hypertension and diabetes mellitus presents with a sudden onset of central chest pain. On examination, he is diaphoretic and tachypnoeic. His jugular venous pressure is raised and fine crepitations are heard bilaterally at his lung bases. A stat 12-lead ECG done is shown below.  P55C2T2#yIS1  What does the ECG show? | |
|  | (A) | Anterior non ST-elevation myocardial infarction |
|  | (B) | Anterior ST-elevation myocardial infarction |
|  | (C) | Inferior non ST-elevation myocardial infarction |
|  | (D) | Inferior ST-elevation myocardial infarction |
|  | (E) | Posterior myocardial infarction |

**Correct Response: B**

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| Question 3: | A 30 year old woman presents with complaints of fever and cough productive of purulent sputum for the past three days. She is lethargic and her vital signs are temperature 39.5°C, heart rate of 120 beats per minute, blood pressure of 84/50 mmHg, respiratory rate of 26 breaths per minute and SpO2 at 92% while breathing room air. On examination, she has decreased breath sounds and dullness to percussion up to the 7th intercostal space, with coarse inspiratory crackles on her right chest.  What is the most appropriate **next step** in management? | |
|  | (A) | Give a stat intravenous bolus of Hartmann’s solution 500 ml over 1 hour |
|  | (B) | Intubate and start mechanical ventilation |
|  | (C) | Order a stat chest x-ray |
|  | (D) | Start intravenous empiric broad spectrum antibiotics |
|  | (E) | Start intravenous noradrenaline at 0.1 mcg/kg/min |

**Correct Response: A**

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| Question 4: | A 70 year old man is admitted to the Intensive Care Unit with septic shock. His vital signs are heart rate at 130 beats per minute, blood pressure at 75/35 mmHg and SpO2 at 94% on FiO2 60%. He has been intubated and started on mechanical ventilation. You decide to start him on an inotrope to increase his blood pressure.  Which of the following is true in your choice of inotropic agent to use? | |
|  | (A) | Adrenaline acts only on -adrenergic receptors and should be started in septic shock as first line therapy. |
|  | (B) | Dobutamine acts mainly on  adrenergic receptors and is recommended for septic shock. |
|  | (C) | Inotropes may worsen metabolic acidosis and should be used with  caution in septic shock. |
|  | (D) | Low dose dopamine should be started to prevent acute kidney injury  in septic shock. |
|  | (E) | Noradrenaline acts on both  and  adrenergic receptors and is recommended for septic shock. |

**Correct Response: E**

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| Question 5: | When assessing patients in the ward who might be critically ill, which of the following vital signs is the most sensitive indicator of critical illness? | |
|  | (A) | Fever |
|  | (B) | Tachypnoea |
|  | (C) | Oxygen desaturation |
|  | (D) | Tachycardia |
|  | (E) | Hypotension |

**Correct Response: B**

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| Question 6: | A 48-year-old woman is admitted to the ICU with acute urinary tract infection complicated by septic shock. She is intubated, mechanically ventilated, and received fluid resuscitation and vasopressor support. She is started on intravenous gentamicin for empiric antimicrobial coverage. Her serum creatinine is within normal limits. However, after three days, the ICU team notes that despite standard dosing, therapeutic drug monitoring shows subtherapeutic gentamicin levels.  Which of the following best explains the likely cause of the altered pharmacokinetics in this critically ill patient? | |
|  | (A) | Decreased volume of distribution due to hypovolemia |
|  | (B) | Increased protein binding reducing free drug availability |
|  | (C) | Increased volume of distribution due to capillary leak and fluid resuscitation |
|  | (D) | Reduced hepatic metabolism due to decreased hepatic blood flow |
|  | (E) | Enhanced renal clearance due to acute nephropathy |

**Correct Response: C**

Question 7: A 60 year old woman presents to the Emergency Department with acute pulmonary oedema. She is 1.58 m tall and weighs 45 kg (predicted lean weight of 50 kg). She is intubated and placed on initial ventilator setting of FiO2 1.0, tidal volume 600 ml, respiratory rate 22 breaths per minute and PEEP 5 cm H2O.

An arterial blood gas done 30 minutes later show pH 7.52, PaO2 350 mmHg, PaCO2 28 mmHg and plasma HCO - 22 mmol/L.

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Which of the following adjustments to the ventilator settings is most appropriate?

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|  | **FiO2** | **Tidal volume** | **Respiratory rate** |
| A) |  to 0.6 |  to 400 ml | Maintain at 22 |
| B) |  to 0.6 |  to 400 ml |  to 26 |
| C) |  to 0.6 | Maintain at 600 ml |  to 18 |
| D) | Maintain at 1.0 | Maintain at 600 ml |  to 18 |
| E) | Maintain at 1.0 |  to 400 ml | Maintain at 22 |

(A) A

(B) B

(C) C

(D) D

(E) E

**Correct Response: A**

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| Question 8: | A 40 year old man complains of headache over the past month which has been worsening in the past three days. The pain is not relieved by paracetamol and he has noticed increasing clumsiness of his left hand. An urgent CT scan of his head reveals a large meningioma in his right parietal lobe with mass effect.  Which of the following is the most appropriate therapy to reduce his intracranial pressure? | |
|  | (A) | Blood transfusion to increase his haemoglobin from 10 to 13 g/dL |
|  | (B) | Induced hypothermia to 35°C for 24 hours |
|  | (C) | Initiation of steroid therapy |
|  | (D) | Intubation and controlled ventilation |
|  | (E) | Reduction of his blood pressure from 160/100 mmHg to 120/80 mmHg |

**Correct Response: C**

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| Question 9: | A 45 year old man has just undergone a right hemi-colectomy for a cancer in his colon. He is having severe pain and the house officer administers an intravenous bolus of morphine 10 mg. His pain improves 15 minutes later. About an hour later, his nurse notices that he is unarousable with small pupils bilaterally. An arterial blood gas done while breathing room air shows  -  pH 7.24, PaO2 65 mmHg, PaCO2 60 mmHg, HCO3 25 mmol/L and SaO2  92%.  What is the most appropriate intervention? | |
|  | (A) | Administer intravenous flumazenil |
|  | (B) | Administer intravenous naloxone |
|  | (C) | Initiate non-invasive ventilation |
|  | (D) | Insert oro-pharyngeal airway |
|  | (E) | Intubate and initiate mechanical ventilation |

**Correct Response: B**

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| Question 10: | A 70 year old woman is found to have a serum sodium of 125 mmol/L. She has a background history of small cell lung cancer. On examination, she is euvolaemic.  Which of the following is most likely to be the cause of her hyponatraemia? | |
|  | (A) | Cerebral salt wasting |
|  | (B) | Chronic kidney disease |
|  | (C) | Congestive heart failure |
|  | (D) | Diarrhoea |
|  | (E) | Syndrome of inappropriate ADH secretion |

**Correct Response: E**