



THE COLLEGES OF MEDICINE OF SOUTH AFRICA

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Sample MCQ questions for the
College of Surgeons of South Africa

Principles of Surgery in General

1 Nutrition

Routine blood results from a 24-year-old patient in a surgical ward on total parenteral nutrition (TPN) for three (3) months reveals abnormal liver enzymes. On examination the patient's vitals are normal. Detailed analysis of the patient's blood results shows the following: C-reactive protein = 17, white cell count = $7 \times 10^9/l$, alanine transaminase = 213, aspartate transaminase = 254, alkaline phosphatase = 113 and total bilirubin of 18g/dl. Which one of the potential causes of derangement of liver function in patients on TPN is the most plausible explanation for the abnormal liver function results in this patient?

- a) Bacterial translocation and endotoxaemia.
- b) Central venous catheter related sepsis.
- c) Excessive infusion of non-protein calorie.
- d) Hypovitaminosis A.
- e) Intrahepatic cholestasis.

Answer: c

2 Blood Transfusion

A 43-year-old male is being evaluated for bradycardia after transfusion of six (6) units of 32 day old packed cells. Urgent electrocardiography (ECG) shows slow rhythm with broad QRS complexes and tall peaked T-waves. Derangement of which one of the following electrolytes is the most plausible explanation of the ECG findings?

- a) Calcium.
- b) Magnesium.
- c) Phosphate.
- d) Potassium.
- e) Sodium.

Answer: d

3 Research

A senior registrar under pressure to do something for his/her MMed has been advised to review post-mortem results of surgical patients who died unexpectedly at academic hospital(s) of a particular province in the Republic of South Africa. The registrar's supervisor emphasised that the main objectives should be to study the demography of patients who died unexpectedly and the causative injuries. Which one of the following study methods would be most appropriate description of the registrar's research?

- a) Feasibility study.
- b) Longitudinal study.
- c) Meta-analysis.
- d) Retrospective study.
- e) Systemic review.

Answer: d

4 Fluid and electrolytes/Neurosurgery

A 20-year-old patient who weighs 56 kilograms is in a neurosurgical intensive care unit after sustaining closed head injury following pedestrian-motor vehicular accident. On admission twelve (12) days ago the patient's Glasgow Coma Scale (GCS) was 9/15 and the patient was only given midazolam. Nurses allocated to look after him have for the past four days reported urine output persistently above 350mls/hr. Biochemistry reveals serum Na^+ of 161mmol/l and, serum and urine osmolality of 324mOsmol/kg and 212 mOsmol/kg, respectively. Which one of the following drugs would be the most appropriate to prescribe for management of this patient?

- a) D-arginine vasopressin.
- b) Dopamine.
- c) Furosemide.
- d) Methylprednisolone.
- e) Nitric oxide.

Answer: a

5 Endocrine Emergencies

A 56-year-old patient is admitted to a surgical ward in coma. On examination she is markedly dehydrated. Blood results on this admission shows: haemoglobin of 13g/dl, s-[Urea] = 34.5mmol/l, s-[Creatinine] = 407mmol/l, s- [Corrected total calcium] = 3.88, s-[Phosphate] = 0.63mmol/l and s- [Albumin] = 42g/dl. Background history reveals that she has had longstanding mood swings and has been taking omeprazole for non-healing duodenal ulcer. Which one of the following is the most appropriate fluid to use to rehydrate this patient?

- a) 0.9% NaCl.
- b) 5% Dextrose.
- c) Dextran.
- d) Ringers lactate.
- e) Whole blood.

Answer: a

6 Organ System Failure (Renal)

A 45-year-old patient is admitted to your local Intensive Care Unit for management of acute renal failure. On further inquiry the patient was admitted to a smaller hospital a week prior following punishment beating (sjambok injury). The patient's renal function has been progressively getting worse despite central venous pressure persistently above 18mmHg and she has passed 20mls of urine in the past 24 hours. The most recent blood results are: Sodium = 137mmol/l, potassium = 2.9 mmol/l, urea = 82.9mmol, creatinine = 1315micromoles/l, arterial pH = 7.28 and bicarbonate of 14mmol/l. Which one of the following treatment options would be the most appropriate to request for?

- a) Continuous furosemide infusion.
- b) Haemodialysis.
- c) Intravenous potassium chloride.
- d) Renal dose of dopamine.
- e) Sodium bicarbonate.

Answer: b

7 General Surgery

A 59-year-old male presents at Outpatients Department complaining of easy fatigue and weight loss. On further inquiry he denies other symptoms except for some weight loss. Examination is unremarkable. Haematological investigations reveal haemoglobin of 7.9g/dl, haematocrit of 0.32, MCV of 60.6fl and platelets of 463×10^9 . Which one of the following would be the most appropriate action to take regarding further management of this patient?

- a) Bone marrow biopsy.
- b) Check serum CA 19.9 levels.
- c) Gastrointestinal endoscopy.
- d) Intramuscular Vitamin B₁₂.
- e) Transfusion of packed red blood cells.

Answer: c

8 Organ System Failure (Liver)

A 16-year-old patient presents to Accident and Emergency confused. On physical examination the patient's Glasgow Coma Scale (GCS) is 7/15 with equal but sluggishly reacting pupils, no neck stiffness and his temperature is normal. Blood results reveals: Total bilirubin of 230, direct bilirubin of 112, urea of 34, INR of 2.7, alkaline phosphatase of 194, aspartate transferase of 543. Reviews of his hospital records shows that he was admitted 10 days prior for tonsillectomy and all his blood tests were then normal. He only started taking the prescribed pain killer (Paracetamol) every day post operatively for anticipated mild to moderate pain, and sometimes increasing the dose when he could cope with the pain. Which one of the following drugs would be the most appropriate to prescribe in the management of this patient?

- a) Acetylcysteine.
- b) Furosemide.
- c) Somatostatin.
- d) Spironolactone.
- e) Warfarin.

Answer: a

9 Vascular/Venous Thrombo-embolism

A 70-year-old female is brought to Casualty Department complaining of dyspnoea. On further enquiry she indicated that she has been struggling with left-sided chest pain associated with haemoptysis which started five days after she was discharged from the hospital post excision of a mucinous adenocarcinoma of the stomach. The operation lasted for more than five hours. On examination her BMI is 22, is tachypnoeic and has central cyanosis. Arterial blood gas shows pO₂ of 65mmHg and pCO₂ of 27mmHg. Frontal view chest x-ray reveals a focus of relative oligoemia at the periphery of the right lung. Which one of the following is the most plausible underlying diagnosis which can explain the clinical findings and results of diagnostic investigations?

- a) Acute coronary syndrome.
- b) Bronchopneumonia.
- c) Lung metastases.
- d) Pulmonary embolism.
- e) Right sub-phrenic abscess.

Answer: d

10 Infections and Antibiotics

A 60-year-old patient on intravenous Augmentin 1.2 grams 8 hourly who is in a high dependency ward. Day 11 post laparotomy for perforated diverticulitis has persistent fever. At operation she had fecal peritonitis and was taken to theatre for one planned re-look. On examination her temperature is 38.5 degree Celsius and swinging, pulse of 102, respiratory rate 26 and lingering ileus. Blood results show her white cell count to be 14(admission WBC count: 22). Microscopy, culture and sensitivity of the blood and pus specimens collected on admission and during the first operation, respectively revealed organisms extremely sensitive to Augmentin. Which one of the following management options would be the next most appropriate management option to consider?

- a) Add intravenous fluconazole.
- b) Add intravenous metronidazole.
- c) Increase augmentin dose.
- d) Source control.
- e) Start indomethacin suppository.

Answer: d

11 Radiology/Imaging

A 43-year-old patient is admitted to a surgical ward for esophagectomy. On examination the patient looks generally stable but has blue discoloration of the tongue and fingers. On background history the patient has a 40 year history of smoking. The patient has recently been relying on an "asthma" spray and the latest forced expiratory volume in one second (FEV1) before the addition of steroid nebulisation pump was 40% of the predicted. Which one of the following radiological findings on frontal view chest x-ray would be the most plausible abnormality in keeping with the likely underlying disease?

- a) Flattened diaphragms.
- b) If one can count more than four (4) ribs anteriorly.
- c) If one can count more than seven (7) ribs posteriorly.
- d) Paucity of hilar vascular markings.
- e) Prominent lung markings.

Answer: a

12 Ventilation

Mechanical ventilation of the non head-injured critically ill patient is adjusted to achieve blood-gas

- a) Normocapnoeic hyperoxic values with normal pH.
- b) Permissive hypocapnoeic normoxic values with normal pH.
- c) Permissive hypercapnoeic normoxic values with low-normal pH.
- d) Hypocapnoeic hyperoxic values with high-normal pH.
- e) Normocapnoeic normoxic values with low pH.

Answer: c

13 Endocrine

A 45-year-old patient is brought to your local Accident and Emergency for management of a septic left foot. The patient denies any previous medical problem. On examination the patient is acutely ill, has tachypnoea and dry. The foot is ulcerated, has a terrible smell and its plantar aspect looks like bag of pus, and there is crepitus. Biochemistry reveals random blood sugar of 27mmol/l, s-Na⁺ of 143mmol/l, s-K⁺ of 4.0mmol/l, s-urea of 24mmol/l and s-creatinine level in the upper limit of normal sl. other blood. Which one of the following intravenous fluids would be the most appropriate to initiate fluid therapy with?

- a) 0.45% Saline.
- b) 0.9% Saline.
- c) 10% Maintelyte.
- d) 5% Dextrose.
- e) Modified Ringers lactate.

Answer: b

14 Fluid and electrolytes

A 41-year-old patient is presenting with peri-oral parathesia and tetany eight hours after a neck procedure. Biochemical tests reveal ionized calcium of 0.6mmol/l. You would have preferred giving this patient intravenous calcium gluconate but your niggling colleague would rather have you use calcium chloride. Which one of the following is the purported advantage of using calcium chloride over calcium your colleague is probably basing his argument on?

- a) Carries more calcium in milligrams.
- b) Does not react with bicarbonate.
- c) Induces less local tissue reaction.
- d) Is fast acting.
- e) Its freed calcium does not bind to albumin.

Answer: a

15 HIV and AIDS

Which one the following would be the most suggestive of advanced Human Immunodeficiency Virus disease (AIDS) in a patient who is HIV positive presenting with resectable oesophageal carcinoma?

- a) Oesophageal candidiasis.
- b) Fusiform infra-renal abdominal aorta aneurysm.
- c) Generalised lymphadenopathy.
- d) Concurrent Kaposi's sarcoma of the tongue.
- e) Concurrent deep venous thrombosis.

Answer: d