SURGERY MCQs AND EMQs

by

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Greenwich Medical Media Limited
137 Euston Road, London
NW1 2AA

870 Market Street, Ste 720
San Francisco, CA 94102

ISBN 1841101869

First Published 2003

A catalogue record for this book is available from the British Library.

Typeset by Mizpah Publishing Services, Chennai, India
Printed by Bell & Bain Ltd, Glasgow

Distributed by Plymbridge Distributors Ltd and
in the USA by JAMCO Distribution

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Section 2 – Extended Matching Questions (EMQs)

Section 1

Multiple Choice Questions (MCQs)

Preoperative Management Questions

Q 1. The American Society of Anesthesiologists (ASA) classification of fitness of patients for surgery includes the following

A. ASA 1 where there is no organic, physiological, biochemical or psychiatric disturbance
B. ASA 3 where there is mild to moderate systemic disturbance which does not limit normal activity
C. ASA 4 where there are severe life-threatening systemic disorders
D. ASA 5 where the patient is moribund with little chance of recovery
E. ASA E where the letter E after a particular classification denotes an emergency operation

Q 2. Concerning the risk of myocardial infarction during or following surgery

A. Infarction $<$3 months prior to surgery increases the risk by 30%
B. Infarction $>$6 months prior to surgery increases the risk by 6%
C. The risk is 5–10% when there is no previous history of infarction
D. Elective surgery should not be performed within 6 months of a myocardial infarction
E. Gastrointestinal endoscopy should not be performed within 6 months of a myocardial infarction

Q 3. Hypertension

A. Is defined by the World Health Organisation as a systolic blood pressure $>$160 mmHg and/or a diastolic blood pressure $>$105 mmHg
B. Is present in approximately 25% of adult patients
C. Is a contraindication to elective surgery if the diastolic pressure exceeds 115 mmHg

D. Should be treated with intravenous beta-blockers or glyceryl trinitrate if emergency surgery is necessary
E. Treatment should be discontinued 2 weeks before elective surgery

Q 4. The following drugs should be discontinued prior to surgery

A. Prednisolone
B. Progesterone-only oral contraceptive pill
C. Aspirin
D. Propranolol
E. Warfarin

Q 5. The following investigations are appropriate prior to surgery

A. An ECG in all patients >30 years
B. A chest X-ray on all patients >40 years
C. A biochemical screen (block) on all patients >30 years undergoing major surgery
D. A haematocrit on all female patients
E. A coagulation screen in all patients with obstructive jaundice

Q 6. In a diabetic patient undergoing surgery

A. The dose of depot insulin should be halved on the day prior to surgery and supplemented with soluble insulin later in the day
B. Half the morning dose of insulin should be given on the day of surgery
C. An intravenous infusion of 5% dextrose is erected on the morning of surgery
D. Insulin requirements may increase after major surgery
E. The majority of diabetic patients undergoing surgery have insulin-dependent (Type I) diabetes

Q 7. The following statements concerning prophylaxis of thrombo-embolic disease are true

A. An appropriate regimen involves enoxaparin 20 mg bd, given subcutaneously

B. Clinically significant thromboembolism occurs in approximately 1% of patients undergoing major surgery
C. Mechanical measures contribute significantly to reduce the incidence of thromboembolism
D. Dextran 70 is widely used to reduce the incidence of postoperative deep vein thrombosis
E. Age >35 years, obesity and malignancy are all significant risk factors for the development of deep vein thrombosis

Principles of Anaesthesia

Questions

Q 1. The following are intravenous induction anaesthetic agents

A. Propofol
B. Etomidate
C. Sevoflurane
D. Thiopentone
E. Halothane

Q 2. The following are depolarising neuromuscular blocking drugs

A. Suxamethonium
B. Atracurium
C. Vecuronium
D. Pancuronium
E. Atracurium

Q 3. The following statements concerning opioid analgesics are true

A. Morphine is a synthetic alkaloid
B. Morphine may be administered orally, intravenously, intramuscularly, subcutaneously and via the epidural (neuraxial) route
C. Papavertum contains a mixture of morphine, pethidine and papaverine
D. Fentanyl is a synthetic derivative of morphine
E. Fentanyl causes significant cardiovascular instability

Q 4. The following are correct contents of common crystalloid solutions

A. NaCl 0.9% contains 154 mmol of sodium per litre
B. NaCl 0.9% contains 72 mmol of chloride per litre

C. Glucose 5% contains 20 mmol of potassium per litre
D. Hartmann's contains 40 mmol of potassium per litre
E. Hartmann's contains 150 kCal per litre

Q 5. The following are significant advantages of regional anaesthesia

A. Avoidance of unconsciousness
B. Absence of respiratory depression
C. Sympathetic blockade
D. Blockade of motor function
E. Avoidance of Hypotension

Q 6. Local anaesthesia

A. Only affects sensory nerve fibres
B. Is very effective for incision and drainage of cutaneous abscesses
C. Must be injected into the tissues to become effective
D. In high doses can cause convulsions and bradycardia
E. May not be used in the region of an end-artery

Q 7. In general anaesthesia

A. Pulse oximetry is used routinely to record the heart rate and oxygen saturation
B. Patients require mechanical ventilation for the operative period
C. Preoperative starvation ensures that the stomach is empty
D. Bradycardia is treated with neostigmine
E. Opioids do not cause direct myocardial depression

Postoperative Management Questions

Q 1. Complications of blood transfusion are

A. Urticaria
B. Hypokalaemia
C. Hepatitis C
D. ARDS
E. Jaundice

Q 2. Atelectasis

A. May impair gas exchange
B. May predispose to chest infection
C. Can be prevented by prophylactic treatment with antibiotics
D. Is a common cause of an early postoperative fever
E. May necessitate fibreoptic bronchoscopy to extract mucus plugs

Q 3. Postoperative fluid management of the surgical patient should

A. Include administration of 40–60 mmol of potassium in the first 24 h
B. Account for insensible losses of up to 1500 ml if the patient is septic
C. Include packed red blood cells if the haematocrit falls below 40%
D. Aim to provide at least 1000 calories for the first three postoperative days
E. Be increased if the central venous pressure falls below 8 cm H_2O

Q 4. With regard to postoperative complications

A. The most common site of intra-abdominal abscess formation is in the pelvis

B. Secondary haemorrhage is often associated with diffuse bleeding from an infected operative site
C. Hypotension is the earliest sign of hypovolaemia
D. The risk of deep venous thrombosis and pulmonary embolism is increased with malignancy
E. Acute tubular necrosis due to inadequate renal perfusion is irreversible

Q 5. Following major abdominal surgery

A. Epidural anaesthesia often masks the clinical signs of post-operative secondary haemorrhage
B. Insertion of a nasogastric tube prevents intestinal ileus
C. Swinging pyrexia and diarrhoea are characteristic clinical features of a pelvic abscess
D. Open drainage reduces the risk of septic complications
E. Subcutaneous heparin administration reduces the incidence of deep venous thrombosis

Q 6. Postoperative pyrexia may occur secondary to

A. Subphrenic abscess
B. Deep venous thrombosis
C. Urinary tract infection
D. Atelectasis
E. Blood transfusion

Q 7. The following are well-recognised specific postoperative complications

A. Renal failure in jaundiced patients
B. Deep venous thrombosis after varicose vein surgery
C. Hyperglycaemia, high lactate levels and a prolonged prothrombin time following liver resection for colorectal metastases
D. Positive Chvostek's sign after thyroid lobectomy
E. Urinary incontinence following inguinal hernia repair

Nutritional Support

Questions

Q 1. Parameters used to assess nutritional status include:

A. Serum albumin
B. Triceps skin-fold thickness
C. White cell count
D. Handgrip strength
E. Prothrombin time

Q 2. Severe malnutrition is indicated by

A. >10% recent weight loss
B. Serum albumin <30 g/l
C. Peripheral oedema
D. Koilonychia
E. Gynaecomastia

Q 3. Enteral nutrition

A. Increases the incidence of bacterial translocation
B. Maintains the gut mucosal barrier function
C. May be safely administered immediately after abdominal surgery
D. Should be considered the first choice of feeding for severe head injury patients
E. Is associated with increased risk of infective complications compared to TPN-fed patients

Q 4. Daily nutritional requirements for a 70 kg man are:

A. 35–40 kCal/kg/day
B. 1–2 g nitrogen/day
C. 15 g protein/day
D. 70 mmol K^+/day
E. 2500 ml water/day

Q 5. TPN

A. Most commonly is administered via large central veins
B. Is indicated in approx 25% of patients in hospital requiring nutritional support
C. Is indicated for all patients with paralytic ileus
D. Should be administered using an infusion pump
E. May induce hepatocyte dysfunction

Surgical Sepsis: Prevention & Therapy

Questions

Q 1. Features of the systemic inflammatory response syndrome (SIRS) include

A. Temp >38.4°C
B. Temp <35.6°C
C. WCC <4 cells/ml
D. Respiratory rate >20/min
E. $PaCO_2$ >32 mmHg

Q 2. Factors which prevent overgrowth of pathogenic bacteria in the gastrointestinal tract include

A. Small intestinal stasis
B. Secretion of IgE
C. Mucus production
D. Antibiotics
E. Blind loops

Q 3. Factors predisposing to nosocomial pneumonia include

A. Oropharyngeal colonisation due to increased mouth breathing
B. Routine use of H_2 antagonists
C. Use of a nasogastric tube
D. Endotracheal intubation
E. Impaired gag reflex

Q 4. Systemic endotoxin may trigger the release of

A. Pro-inflammatory cytokines
B. Anti-inflammatory cytokines
C. Complement
D. Platelet activating factor (PAF)
E. Endotoxin antibodies

Q 5. Factors predisposing to wound infection include

A. Inadequate haemostasis
B. Prolonged operation
C. Diabetes
D. Obstructive jaundice
E. Malnutrition

Q 6. Features of Adult Respiratory Distress Syndrome (ARDS) include

A. Increased lung compliance
B. Hypoxaemia associated with decreasing inspired oxygen concentration
C. Pulmonary infiltrates on a chest X-ray
D. Encephalopathy
E. Dyspnoea or tachypnoea

Q 7. Regarding antibiotics

A. Penicillins act by disrupting the peptidoglycan of the bacterial cell wall
B. Ampicillin is effective against pseudomonas infections
C. Cephalosporans are usually prescribed as a monotherapy
D. Vancomycin is the treatment of choice for MRSA
E. Aminoglycosides may cause nephrotoxicity

Q 8. Indications to isolate patients infected with HIV, HBV or HCV include those with

A. Bleeding oesophageal varices
B. Profuse diarrhoea
C. Urinary tract infections
D. Diabetes
E. Surgical drains

Surgical Techniques & Technology

Questions

Q 1. Injection of 1% lignocaine with 1 in 200,000 adrenaline is a useful form of anaesthesia for

A. Reducing a Smith's fracture
B. Performing a Zadek's procedure
C. Repair of an indirect inguinal hernia
D. Central line insertion
E. Insertion of a Seton suture

Q 2. Diathermy

A. Produces coagulation by oscillation of tissue ions
B. In bipolar form is useful at circumcision
C. In monopolar form is useful to obtain haemostasis in grade IV liver injuries
D. May cause burns at sites distant from the point of contact
E. In NdYAG form is used to destroy lesions in the gastrointestinal tract

Q 3. Wound healing

A. Is characterised by increased vascular permeability
B. Is associated with release of growth factors and cytokines by leukocytes and macrophages
C. Is characterised by wound contracture due to shortening of myofibrils
D. Is retarded by vitamin A deficiency
E. Is improved by nutrients

Q 4. The following factors may adversely affect the healing of wounds

A. Exposure to ultraviolet light
B. Obstructive jaundice
C. Advanced neoplasia

D. Exposure to ionising radiation
E. Infection

Q 5. Wound infection rates

A. Are approximately 10% in clean wounds
B. Can be reduced by shaving the operative site 24 h prior to surgery
C. Can be reduced by minimizing the prehospital stay
D. Can be reduced by application of chlorhexidine or iodine preparations in theatre to the operative site
E. Are increased in patients with zinc deficiency

Q 6. Burn injuries

A. Involving 20% of body surface area can be managed by daily dressings by a district nurse
B. Involving the thorax may require escarotomy
C. Of partial thickness are often painless, but needle pricks can usually be felt
D. Requires fluid replacement of 2–4 ml/kg per percent body surface burn within the first 24 h
E. To the head and neck have the lowest mortality rates

Q 7. The general effects of burn injury are

A. Increased metabolic rate
B. Impaired immune function
C. Hypernatraemia
D. Hypoalbuminaemia
E. Impairment of gut barrier function

Q 8. Contemporary management of burn injuries includes

A. Early enteral feeding
B. Administration of broad-spectrum antibiotics to prevent colonisation of the burn site prior to skin grafting
C. Meshing of split-skin grafts to allow up to six times the potential coverage of the graft
D. Application of occlusive, nonabsorptive dressings which should be changed on a daily basis
E. Early release of contractures to allow early mobilisation and to obtain the best functional and aesthetic result

Trauma: General Principles of Management

Questions

Q 1. When a casualty has severe facial injuries

A. An immediate danger to life is blood loss
B. Transport to the casualty department should be in the supine position
C. Airway obstruction can occur due to inhaled blood
D. Surgical cricothyroidotomy may be required due to oedema
E. Cervical spine injury should be considered after securing a definitive airway

Q 2. In the early assessment and resuscitation of a trauma patient

A. Application of a tourniquet to control obvious external blood loss from a limb is essential to minimise hypovolaemic shock
B. Airway patency ensures adequate ventilation
C. A urinary catheter should be inserted if the patient is unconscious
D. A normal lateral cervical spine X-ray excludes a cervical spine injury
E. Nasotracheal intubation should be undertaken in the apnoeic patient

Q 3. In compensated hypovolaemia due to haemorrhage

A. There is no significant reduction of systemic blood pressure
B. The vital organs are inadequately perfused
C. There will be associated bradycardia
D. The patient may feel thirsty
E. 1000 ml of blood may have been lost from the intravascular compartment

Q 4. Severe head injury may be associated with

A. Raised systemic arterial blood pressure
B. No evidence of damage on CT scan
C. Secondary injury due to tissue hypoxia
D. Retention of carbon dioxide
E. A Glasgow Coma Score of 10

Q 5. Indications for emergency thoracotomy include

A. Patients with penetrating precordial injuries who are in EMD
B. Immediate evacuation of 750 ml blood on insertion of a chest drain
C. Continued blood loss from a chest drain of 200 ml/h for >3 h
D. A haemodynamically stable patient with a wide mediastinum on chest X-ray
E. A patient with hypoxia and a flail chest segment

Q 6. Definite indications for emergency laparotomy are

A. Stab wounds to the back with evidence of injury to the renal parenchyma
B. Gunshot wound to the abdomen
C. Stab wound to periumbilical region with protrusion of bowel
D. Haemodynamically stable patient with a liver laceration and free intra-abdominal fluid on CT scan
E. Injured diaphragm

Q 7. Diagnostic peritoneal lavage (DPL)

A. Is less sensitive than a CT scan for intraperitoneal bleeding
B. Is positive if the red cell count is $>10{,}000$ RBCs/mm^3
C. Is positive if the white cell count is >1000 WBCs/mm^3
D. Should be performed in a haemodynamically unstable patient with peritonism
E. Is positive if the aspirate contains bowel contents

Q 8. Liver injuries

A. Are predominantly due to blunt trauma in the UK
B. Due to deceleration forces, as in road traffic accidents, commonly cause lacerations between the anterior and posterior sectors of the right lobe of the liver
C. May result in hyperpyrexia
D. Frequently necessitate anatomical resection of the involved liver lobe
E. Can be managed by packing gauzes into hepatic lacerations and transferring the patient to a specialist liver unit for definitive surgical treatment

Q 9. In the management of burn injuries

A. Patients should receive 35% oxygen via a face mask if inhalation injury is suspected
B. 2–4 ml crystalloid per kilogram body weight per percent body surface burn is required in the first 24 h to maintain an adequate circulating blood volume
C. One half of the estimated fluid requirement for the first 24 h should be administered over the first 4 h
D. Prophylactic antibiotics are indicated in the early postburn period
E. Acid burns are generally more serious than alkali burns

Q 10. The metabolic response to injury includes

A. Increased ADH secretion
B. Elevation of serum growth hormone
C. Increased ACTH secretion from the hypothalamus
D. Transient hypoglycaemia in the early stage after injury
E. Increased urinary resorption of potassium

Intensive Care Questions

Q 1. Cardiac output

A. Is a function of stroke volume and mean arterial pressure
B. Is regulated by the autonomic nervous system
C. Is regulated by chemoreceptors
D. Can be measured by a thermodilutional technique
E. Can increase to 40 L/min with exercise

Q 2. Cardiac tamponade

A. Is exacerbated by restrictive pulmonary disease
B. May result from penetrating cardiac wounds
C. Results in a low CVP
D. Is associated with pulsus paradoxus
E. Requires open surgical evacuation of blood and clot

Q 3. The Adult Respiratory Distress Syndrome (ARDS)

A. May occur following massive blood transfusion
B. Is characterised by the development of radiological signs prior to clinical deterioration
C. Is associated with the systemic inflammatory response syndrome (SIRS)
D. Is associated with increased lung compliance
E. Often requires respiratory support using artificial ventilation with positive end-expiratory pressure (PEEP)

Q 4. Artificial ventilation

A. Is indicated for type III respiratory failure
B. Is best achieved with relatively low tidal volumes at a relatively fast rate
C. For a short duration will be easier to be weaned from than that continued for a more prolonged period
D. Necessitates paralysis of the patient
E. May reduce venous return if PEEP is used

Q 5. The Systemic Inflammatory Response Syndrome (SIRS)

A. Implies a focus of sepsis which must be localised and treated
B. Rarely leads to end organ failure
C. Stimulates fixed tissue macrophages to secrete cytokines
D. May be associated with gut barrier dysfunction
E. May be associated with a compensatory anti-inflammatory response

Q 6. Acute renal failure

A. May cause a metabolic acidosis
B. Is diagnosed when the urinary output falls below 800 ml in 24 h
C. In critically ill patients should be treated by haemodialysis
D. Is associated with hypokalaemia
E. May be minimised by treating with a Dopamine infusion at 0.5–3 mg/kg/h

Q 7. Acute liver failure may be associated with

A. Reduced systolic blood pressure
B. Hyperglycaemia
C. Hypernatraemia
D. An increased prothrombin time
E. Encephalopathy