

## ICU

### Severe V/Q abnormalities are associated with:

- a) a small decrease in tidal volume
- b) a rise in the (A-a) O<sub>2</sub> difference \$
- c) a major pulmonary embolus \$
- d) a shift in the Hb-oxygen dissociation curve
- e) an increase in the alveolar dead-space \$

### The following can cause a decrease in the arterial partial pressure of oxygen:

- a) V-Q mismatch \$
- b) decreased FiO<sub>2</sub> \$
- c) hyperventilation
- d) FiO<sub>2</sub> 0.5
- e) old age \$

### Recognised effects of positive end-expiratory pressure include:

- a) sodium retention \$
- b) fall in cardiac output \$
- c) rise in closing volume
- d) rise in functional residual capacity \$
- e) fall in central venous pressure

### Psychogenic hyperventilation in a normal person causes:

- a) a fall in the PaCO<sub>2</sub> \$
- b) a rise in ionised plasma calcium
- c) a paresthesia \$
- d) a rise in the PaCO<sub>2</sub>
- e) a rise of pH \$

### Hyaline membrane disease:

- a) usually occurs within 12 hours of delivery
- b) usually occurs after Caesarean section
- c) has a better prognosis if steroids are given to the infant
- d) is uncommon after 36 weeks' gestation \$
- e) is more common in multiple pregnancies \$

### The following are good indicators of the severity of an acute severe asthma attack:

- a) a low p<sub>a</sub>O<sub>2</sub> \$
- b) a high p<sub>a</sub>CO<sub>2</sub> \$
- c) scattered rales and crackles
- d) pyrexia
- e) an increased pulsus paradoxus \$

**Clinical features of pneumothorax include:**

- a) Chest pain \$
- b) Breathlessness \$
- c) Productive cough
- d) Dull percussion note
- e) Reduced breath sounds \$

**Acute respiratory distress syndrome is characterized by:**

- a) acute onset \$
- b) oxygenation index  $paO_2 / FiO_2 < 300$  mmHg on PEEP 5 cmH<sub>2</sub>O \$
- c) bilateral lung opacities on chest X-ray \$
- d) bilateral pulmonary oedema due to cardiac failure
- e) hypotension, fever and oliguria

**ARDS has:**

- a) 2 phases: early phase (exudative) and later phase (fibroproliferative) \$
- b) Pulmonary and extrapulmonary causes \$
- c) Has 30-40% mortality \$
- d)  $PaO_2 / FiO_2$  ratio  $> 300$  mmHg
- e) Severe unilateral infiltrates

**Indications for mechanical ventilation are:**

- a) inadequate oxygenation \$
- b) inadequate ventilation \$
- c) pneumonia with respiratory rate 20/min, SpO<sub>2</sub> 92%
- d) inability to protect the airway \$
- e) head injury with GCS 12

**Acute untreated hemorrhagic shock in a patient will lead to:**

- a) an increase in the arterio-venous pO<sub>2</sub> difference \$
- b) an increase in the arterio-venous pCO<sub>2</sub> difference
- c) a fall in the pulmonary vascular volume \$
- d) an increase in antidiuretic hormone secretion \$
- e) an increase in plasma bicarbonate concentration

**Autoregulatory mechanisms used in hypovolaemia include:**

- a) an increase in precapillary sphincter tone \$
- b) an increase in capillary hydrostatic pressure
- c) a decrease in baroreceptor activity \$
- d) stimulation of the juxtaglomerular apparatus
- e) an increase in angiotensin II

**Myocardial contractility is increased by:**

- a) catecholamines \$
- b) an increase in heart rate
- c) hypertrophy of myocardium \$
- d) an increase in parasympathetic nervous system activity
- e) calcium ions \$

**In patients with haemorrhagic shock:**

- a) physiological dead space is increased \$
- b) renal blood flow is decreased \$
- c) antidiuretic hormone secretion is increased \$
- d) the oxygen dissociation curve is shifted to the left
- e) O<sub>2</sub> delivery is increased

**Shock:**

- a) Obstructive \$
- b) Hypervolaemic
- c) Cardiogenic \$
- d) Hypovolaemic \$
- e) Redistributive

**Hypovolaemic shock:**

- a) Vasopressors should be used first
- b) Can be haemorrhagic and non-haemorrhagic \$
- c) Can be caused by profuse vomiting and diarrhoea \$
- d) Should be treated by volume replacement first \$
- e) Develops due to tension pneumothorax

**Obstructive shock:**

- a) Tension pneumothorax \$
- b) Pulmonary embolism \$
- c) Tamponade \$
- d) Anaphylaxis
- e) Sepsis

**Distributive shock:**

- a) Tension pneumothorax
- b) Massive bleeding
- c) Anaphylaxis \$
- d) Sepsis \$
- e) Massive MI

**Cardiogenic shock:**

- a) Massive MI \$
- b) Tamponade
- c) Cardiomyopathy \$
- d) Sepsis
- e) Massive bleeding

**Systemic inflammatory response syndrome (SIRS) criteria in adults are:**

- a) heart rate > 90 beats /min. \$
- b) respiratory rate > 20 breaths /min. \$
- c) oliguria < 20 ml/kg/hod.
- d) leukocytosis > 12,000 or leukopenia < 4,000 \$
- e) temperature > 38 C or < 36 C \$

**In septic shock:**

- a) peripheral hypothermia is associated with good prognosis
- b) the patients usually have an increased cardiac output \$
- c) the patients usually have a depleted circulating volume \$
- d) the causative organisms are always Gram negative
- e) antibiotics should not be given before blood culture results are available

**In early sepsis syndrome:**

- a) cardiac output is normal \$
- b) a decreased white cell count is a poor prognostic sign \$
- c) adrenocorticotrophic hormone levels are low
- d) Insulin is raised \$
- e) PaO<sub>2</sub> is raised

**Regarding a patient with severe burns:**

- a) dangerous rises in serum potassium may occur \$
- b) a catabolic state exists for several days \$
- c) an arm represents 9% of the body surface area \$
- d) half of the fluid replacement should be given as blood
- e) hyperglycaemia requiring insulin may occur \$

**The following occur after massive transfusion of citrated blood:**

- a) Metabolic acidosis \$
- b) Decreased plasma ionized calcium \$
- c) Hypokalaemia
- d) Hyponatraemia
- e) Hypothermia \$

**After head injury, increased intracranial pressure is indicated by:**

- a) fall in blood pressure
- b) reduction in the Glasgow coma score \$
- c) increase in heart rate
- d) increase in blood pressure \$
- e) small pupils

**An acute intracranial extradural haematoma occurs usually:**

- a) after a lucid interval \$
- b) in association with contralateral pupillary dilatation
- c) in the elderly
- d) in association with a skull fracture \$
- e) as a result of arterial bleeding \$

**In the diagnosis of brain death:**

- a) lack of EEG activity is essential
- b) caloric tests must be performed bilaterally \$
- c) the admitting consultant must certify death
- d) lack of stretch reflexes in all limbs is essential
- e) the pupils must be fixed and dilated \$

**An 8-year-old child is rescued 20 minutes after drowning and has a core temperature of 30 degrees C and fixed dilated pupils. Further appropriate treatment includes:**

- a) phenobarbitone
- b) rapid rewarming \$
- c) hypoventilation
- d) steroids
- e) cardiopulmonary resuscitation \$

**Hypothermia:**

- a) Is defined by a core temperature of less than 34C
- b) Can result from exposure of tissue surfaces \$
- c) Re-warming from 20C must be passive
- d) Shivering can increase metabolic rate by 600% \$
- e) Bradycardia with hypertension will occur

**The following are causes of a metabolic acidosis:**

- a) uretero-colic fistula \$
- b) vomiting
- c) diarrhea \$
- d) CO<sub>2</sub> retention
- e) hypoxaemia \$

**A low serum potassium is associated with:**

- a) Cushing's disease \$
- b) hyperventilation \$
- c) frusemide \$
- d) metabolic acidosis
- e) metabolic alkalosis \$

**Hypokalaemia requiring treatment is found in the following situations:**

- a) following cardiac resuscitation in a patient with chronic renal failure
- b) during treatment for diabetic ketoacidosis \$
- c) after major burns
- d) after giving depolarising relaxants
- e) excessive alcohol use \$

**Methods for lowering serum potassium include:**

- a) glucose and insulin      \$
- b) calcium gluconate
- c) frusemide                      \$
- d) bicarbonate                      \$
- e) calcium resonium resin      \$

**Hyponatraemia may cause the following:**

- a) confusion                      \$
- b) hypertension
- c) convulsions                      \$
- d) coma                              \$
- e) bradycardia

**The compression: ventilation ratio during CPR is:**

- a) in adults 30:2 when resuscitated by 1 provider                      \$
- b) in adults 15:2 when resuscitated by 2 providers
- c) in newborns 3:1                      \$
- d) in children 15:2                      \$
- e) in children 5:1 when resuscitated by 2 providers

**Paediatric BLS:**

- a) Cardiac arrest is mostly due to cardiac issues
- b) Cardiac arrest is mostly due to airway and respiratory issues      \$
- c) Includes 5 initial breaths                      \$
- d) Compression:ventilation ratio 5:1
- e) AED should not be used in paediatric population

**Foreign body airway obstruction:**

- a) Is mild if coughing, breathing and talking is possible      \$
- b) Heimlich maneuver works better than cough
- c) 5 back blows and 5 abdominal thrusts only if cough ineffective      \$
- d) Chest thrusts should be used during pregnancy      \$
- e) Abdominal thrusts can be used for infants

**Shockable rhythm:**

- a) Asystole
- b) Ventricular fibrillation                      \$
- c) Ventricular bradycardia
- d) Pulseless electrical activity
- e) Pulseless Ventricular tachycardia                      \$

**Shockable rhythm:**

- a) Give 3 initial shocks and continue CPR
- b) Give 1 shock and continue CPR without a pulse check \$
- c) Give 1 shock and check pulse immediately
- d) Give adrenaline 1mg iv before the first shock
- e) The shock is more important than adrenaline \$

**Asystole:**

- a) Give 1 shock and continue CPR without a pulse check
- b) Resume CPR immediately for 5 cycles \$
- c) Adrenaline is not indicated
- d) Search for a treatable cause (5Hs+5Ts) \$
- e) Don't start CPR

**Ventricular fibrillation:**

- a) Give 1 shock and continue CPR without a pulse check \$
- b) Is unlikely to respond to defibrillation
- c) Consider Amiodarone 300mg iv \$
- d) Give adrenaline 1mg every 3-5min
- e) Check pulse every 2min

## Physiology

### Human plasma albumin:

- a) is the greatest contributor to plasma oncotic pressure \$
- b) is produced in the liver \$
- c) carries carbon dioxide in the blood
- d) is an anion at pH 7.5 \$
- e) is actively filtered by the glomerulus

### The following ions have a higher intracellular than extracellular concentration:

- a) sodium
- b) calcium
- c) potassium \$
- d) chloride
- e) bicarbonate

### In comparison with intracellular fluid, extracellular fluid has:

- a) greater volume
- b) greater potassium concentration
- c) lower bicarbonate concentration
- d) greater chloride concentration \$
- e) greater osmolarity

### Total plasma calcium:

- a) increases with phosphate
- b) increases with a rise in albumin \$
- c) changes its degree of ionisation with pH changes \$
- d) is decreased in osteoporosis
- e) is affected by vitamin D \$

### The Frank-Starling mechanism:

- a) relates forces of contraction to fibre length \$
- b) does not operate in the human heart
- c) operates only in the denervated heart
- d) is abolished by changes in contractility
- e) is unaffected by afterload

### Stroke volume:

- a) is a determinant of cardiac output \$
- b) is unaffected by preload
- c) is related normally to afterload
- d) is determined normally by heart rate
- e) is independent of myocardial contractility

**Cardiac output:**

- a) increases with a drop in preload
- b) increases with a rise in left ventricular end-diastolic volume \$
- c) increases with a rise in afterload
- d) increases with a rise in myocardial contractility \$
- e) can be estimated with echocardiography \$

**Cardiac output:**

- a) may increase to 35l/min during exercise \$
- b) is increased by vagal stimulation
- c) is uninfluenced by noradrenaline infusion
- d) is increased by adrenaline \$
- e) is increased when contractility increases \$

**Cardiac output in a normal person:**

- a) increases with increased central venous pressure \$
- b) increases with increase in metabolic rate \$
- c) increases in pyrexia \$
- d) increases with increase in systemic arterial pressure
- e) increases with decrease in systemic arterial pressure

**In the heart:**

- a) atrial contraction is not significant in ventricular filling
- b) the SA node is innervated by the left vagus
- c) the AV node is innervated by the right vagus
- d) stroke volume falls when the vagus is stimulated
- e) coronary blood flow is greatest during diastole \$

**In the normal adult heart:**

- a) mitral valve closure occurs before tricuspid valve closure \$
- b) pulmonary valve closure occurs before aortic valve closure
- c) there is isometric contraction of the left ventricle after the aortic valve opens
- d) atrial contraction is of more importance to ventricular filling if the heart rate increases \$
- e) the aortic valve cusps are immobile during ventricular filling \$

**The absolute refractory period for cardiac muscle is:**

- a) as long as the entire action potential
- b) the period when no further action potential can be stimulated \$
- c) twice the length of the S-T interval
- d) as long as the mechanical contraction
- e) shorter for pacemaker tissue than for normal cardiac muscle \$

**Pulse pressure increases with an increase in:**

- a) stroke volume \$
- b) left ventricular end-diastolic volume \$
- c) arterial partial pressure of oxygen
- d) systemic vascular resistance
- e) blood viscosity

**The cerebral blood flow of a normal person is increased:**

- a) when the arterial PCO<sub>2</sub> increases from 5.3 to 8.0 kPa \$
- b) when placed in the head-down position
- c) if the mean arterial blood pressure rises from 90 to 110 mmHg
- d) if the intracranial pressure is increased
- e) during physiological sleep \$

**Skeletal muscle blood flow:**

- a) increases with norepinephrine
- b) receives 50% of the cardiac output at rest
- c) may cease during isometric contraction \$
- d) increases with rhythmic contraction \$
- e) increases with epinephrine \$

**The oxygen-haemoglobin dissociation curve is moved to the right by:**

- a) acidosis \$
- b) raised body temperature \$
- c) passage through the pulmonary capillaries
- d) ageing
- e) anaemia

**The Hb-oxygen dissociation curve is shifted to the:**

- a) right by a raised arterial PCO<sub>2</sub> \$
- b) right by a raised arterial pH
- c) left by hypothermia \$
- d) left in 14 day old stored blood \$
- e) right if the P50 is increased \$

**The P<sub>50</sub>:**

- a) is increased by violent exercise \$
- b) is increased when blood pH decreases \$
- c) is unaffected by the operation of the Bohr effect
- d) is increased by increase in 2,3-DPG concentration in the erythrocytes \$
- e) is increased during ascent to high altitudes

**The oxygen-haemoglobin dissociation curve is shifted to the left by:**

- a) acidosis
- b) CO \$
- c) hypercapnia
- d) decreased temperature \$
- e) reduced concentration of 2,3-DPG \$

**The oxygen content of blood is decreased in:**

- a) COHb \$
- b) Methemoglobinaemia \$
- c) Anaemia \$
- d) Chronic renal failure \$
- e) Hyperbaric conditions

**The partial pressure of carbon dioxide in arterial blood:**

- a) rises during sleep \$
- b) rises when acclimatised at an altitude of 5000 metres
- c) is halved when the minute ventilation is doubled (with constant production of CO<sub>2</sub>) \$
- d) differs from that of mixed venous blood by about 0.8 kPa (6 mmHg) \$
- e) normally rises at about 0.5 kPa (4 mmHg) per minute during apnoea \$

**Carbon dioxide is transported in the blood mostly:**

- a) as carboxyhaemoglobine
- b) in combination with plasma protein
- c) as bicarbonate \$
- d) dissolved in plasma as carbonic acid
- e) at a partial pressure of 3 kPa in mixed venous blood

**Effect of hypercapnia include:**

- a) drowsiness and coma when paCO<sub>2</sub> exceeds 10 kPa \$
- b) a reduction in sympathetic tone
- c) an increase in serum potassium concentration \$
- d) an increase in intracranial pressure \$
- e) potentiation of depolarizing relaxants

**Carbone dioxide retention may cause:**

- a) increase in plasma catecholamine concentrations \$
- b) sweating \$
- c) cardiac arrhythmias \$
- d) constricted pupils
- e) decreased cardiac output

**Haemoglobine:**

- a) is a mucopolysaccharide
- b) binds four molecules of oxygen per molecule \$
- c) has an oxygen carrying capacity of 1.34 ml/g \$
- d) is catabolized in the reticulo-endothelial system \$
- e) does not have a buffer function in the blood

**Functional residual capacity:**

- a) is the sum of residual volume and the inspiratory reserve volume
- b) is uninfluenced by posture
- c) becomes less than closing volume with advancing age \$
- d) is measured at the end of normal expiration \$
- e) is measured by a respirometer

**Functional residual capacity:**

- a) is the volume of air present in the lungs at the end of passive expiration \$
- b) is decreased in restrictive lung disease \$
- c) is decreased with an increase in airways resistance
- d) is the volume of air present in the lungs after the most forcible expiration
- e) is the volume at which closure of small airways occurs

**Minute volume ventilation is increased by:**

- a) ascent to altitude \$
- b)  $p_aO_2$  of 10 kPa
- c) chronic anaemia
- d)  $FiO_2$  of 0.1 \$
- e) Inspired  $CO_2$  concentration of 0.03%

**A respirometer can be used to measure:**

- a) functional residual capacity
- b) residual volume
- c) vital capacity \$
- d) inspiratory reserve volume \$
- e) closing volume

**Muscles active during force expiration include:**

- a) Sternocleidomastoid
- b) External oblique \$
- c) Internal oblique \$
- d) Rectus abdominis \$
- e) Scalenus anterior

**An area in the lung with extremely high ventilation/perfusion ratio:**

- a) represents shunt
- b) represents dead space \$
- c) is responsible for a decrease in  $p_aO_2$  with no change in  $p_aCO_2$
- d) may be compensated for by increased minute ventilation \$
- e) its effect on  $p_aO_2$  can be corrected by increased  $FiO_2$  \$

**In normal human lungs:**

- a) a low  $PO_2$  produces pulmonary vasodilatation
- b) beta-2 agonists cause bronchoconstriction
- c) pulmonary vascular resistance is increased by norepinephrine \$
- d) pulmonary vascular resistance is decreased by histamine \$
- e) pulmonary vascular resistance is decreased by norepinephrine

**Surfactant:**

- a) is a mucopolypeptide
- b) causes a decrease in surface tension \$
- c) results in the same surface tension for different sized alveoli \$
- d) causes an increase in compliance \$
- e) production is reduced after a prolonged reduction in pulmonary blood flow \$

**In the elderly:**

- a) chest wall compliance is decreased \$
- b) vital capacity is decreased by 20 ml each year \$
- c) closing volume is less than functional residual capacity
- d)  $PaO_2$  is lower than in the young \$
- e) in a 70-year-old, the alveolar/arterial oxygen difference is about 2.7 kPa \$

**With regard to kidney function:**

- a) sodium is mainly reabsorbed from the proximal tubule \$
- b) urinary potassium content is regulated by the distal tubule \$
- c) glucose is completely reabsorbed if the blood concentration is normal \$
- d) a rise in blood volume results in an increase in antidiuretic hormone secretion
- e) acidosis results in an increased excretion of ammonium chloride \$

**Nerve impulses:**

- a) are slower in large diameter nerve fibres than in small ones
- b) are transmitted via electrical impulses \$
- c) are stopped if the nerve is frozen \$
- d) result from ionic movement across the membrane \$
- e) cannot be transmitted during the absolute refractory period \$

**The conduction velocity along a nerve:**

- a) increases with diameter \$
- b) is increased by myelination \$
- c) increases when serum potassium is low
- d) is greater in motor than in sensory nerves \$
- e) is greater in delta than alpha fibres

**The velocity of conduction of a nerve action potential:**

- a) is inversely related to the cross-sectional area of the axon
- b) is faster in a myelinated fibre than in an unmyelinated one \$
- c) is decreased by cooling the nerve \$
- d) can exceed 100 m/s in humans \$
- e) is highest in pre-ganglionic autonomic fibres

**Immediately after complete transection of the spinal cord the following features may be found below the lesion:**

- a) loss of motor power but preservation of limb reflexes
- b) urinary incontinence \$
- c) loss of muscle power but preservation of sensation
- d) flaccid paralysis with loss of limb reflexes \$
- e) loss of muscle power but preservation of muscle joint position sense

**The sympathetic nervous system:**

- a) has cholinergic post-ganglionic fibres \$
- b) has fibres in the vagus
- c) causes miosis
- d) has acetylcholine as the ganglionic neurotransmitter \$
- e) has its outflow from the spinal cord from T1 to L2

**Catecholamine release is stimulated by the following:**

- a) hypoxaemia \$
- b) hypothermia
- c) hypoglycemia \$
- d) hypercapnia \$
- e) hypocalcemia

**Stimulation of alpha adrenergic receptors will cause:**

- a) vasoconstriction of the coronary arteries \$
- b) increased tone in the bladder neck muscle \$
- c) increased platelet aggregation \$
- d) lipolysis
- e) bronchodilation

**Increased vagal activity results in:**

- a) reduced rate of depolarization of the cardiac muscle \$
- b) reduced SA node activity \$
- c) increased heart rate
- d) increased contractility
- e) decreased cardiac output \$

**In thermoregulation:**

- a) respiratory heat loss is insignificant under normal conditions \$
- b) brown fat is an important source of heat production in neonates \$
- c) shivering is due to impulses conducted via autonomic efferents
- d) peripheral vasoconstriction increases heat production
- e) sweating is mediated by sympathetic adrenergic neurones

**The carotid sinuses:**

- a) have stretch receptors in their walls \$
- b) give afferent impulses via the glossopharyngeal nerve \$
- c) stimulate the respiratory centre
- d) contain chemoreceptors
- e) stimulate the vasomotor centre \$

**In respect of the ABO blood groups:**

- a) these are inherited in Mendelian fashion \$
- b) a patient with group AB has anti-A and anti-B antibodies
- c) antibodies are found in saliva \$
- d) group AB is the universal donor
- e) group AB is the universal recipient \$

**The following blood transfusions will result in agglutination:**

Donor Recipient

- a) O AB
- b) B O \$
- c) AB B \$
- d) O A
- e) B AB

**Insulin:**

- a) Blocks K<sup>+</sup> entry into cells
- b) Promotes protein anabolism \$
- c) Promotes hepatic glycolysis
- d) Stimulates glucagon release \$
- e) Promotes fat synthesis and deposition \$

**Pain:**

- a) transmission normally occurs in the corticospinal tracts
- b) may be modulated at a spinal level by peptidergic interneurons \$
- c) is modified at a spinal level by descending fibres from the periaqueductal grey matter of the mid-brain \$
- d) is integrated in the thalamus \$
- e) fibres terminate in the cord in laminae VII-X



## Monitoring

### Regarding reading blood pressure by a standard automatic non-invasive method:

- a) measurement is not influenced by a size of cuff
- b) it may not be accurate at low pressures \$
- c) it is affected by arrhythmias \$
- d) it may cause ulnar nerve damage \$
- e) provides continuous BP monitoring

### Invasive arterial pressure monitoring:

- a) allows beat to beat monitoring of the systolic and diastolic blood pressure \$
- b) is used in every surgery lasting more than 2 hours
- c) via radial artery cannulation should only be performed following an Allen 's test \$
- d) is used in high risk surgeries \$
- e) is a high risk procedure

### Concerning pulse oximetry:

- a) Oxyhaemoglobin and deoxyhaemoglobin light absorption is equal at the isobestic point of 660nm
- b) Measurements are accurate in the presence of carboxyhaemoglobin
- c) Measurements are accurate in the presence of high levels of bilirubin
- d) Oxyhaemoglobin absorbs more infrared light (910nm) \$
- e) Measurements are accurate in the presence of pigmented skin \$

### Pulse oximetry:

- a) Is based on a difference in absorption of red and infrared light by deoxyhaemoglobin and oxyhaemoglobin \$
- b) deoxyhaemoglobin absorbs more of red and less of infrared light \$
- c) will show falsely high saturation in the presence of carboxyhaemoglobin \$
- d) will show falsely high saturation in the presence of methylene blue
- e) is based on a difference in absorption of red and infrared light by carboxyhaemoglobin and oxyhaemoglobin

### Regarding pulse oximetry:

- a) anaemia causes under-reading \$
- b) ambient light may cause interference \$
- c) it is inaccurate if arterial saturation reading < 70% \$
- d) presence of carboxyhaemoglobin causes under-reading
- e) two LEDs are needed \$

### Capnography:

- a) is the same as capnometry
- b) shows a steep upward slope in COPD \$
- c) infrared systems are the most frequently employed clinically \$
- d) sidestream analysers require water trap \$
- e) mainstream analysis is slower

**Capnography:**

- a) is used to confirm a correct position of ETT \$
- b) is based on CO<sub>2</sub> absorption of infrared light \$
- c) is used to monitor oxygenation and ventilation
- d) is used to confirm

**Expired CO<sub>2</sub> as measured by a capnography:**

- a) increases with malignant hyperthermia \$
- b) increases with pulmonary embolism
- c) increases with exercise \$
- d) can be used as an indicator of cardiac output \$
- e) decreases in air embolism \$

## Pharmacology

### Morphine:

- a) stimulates the chemoreceptor trigger zone \$
- b) is more lipid soluble than pethidine
- c) is a constituent of papaveretum \$
- d) causes significant depression of cardiac output
- e) may cause histamine release \$

### Morphine:

- a) causes histamine release \$
- b) has no active metabolites
- c) undergoes extensive first-pass hepatic metabolism \$
- d) has an elimination half-life of 3-4 hours \$
- e) is antagonised by anexate

### Morphine administered epidurally may cause:

- a) nausea and vomiting \$
- b) respiratory depression \$
- c) itching \$
- d) muscle weakness
- e) a fall in blood pressure

### The following are constituents of raw opium:

- a) heroin
- b) methadone
- c) morphine \$
- d) papaverine \$
- e) codeine \$

### Significant agonist activity at opioid receptors occurs with:

- a) clonidine
- b) pentazocine \$
- c) buprenorphine \$
- d) ketamine
- e) naloxone

### Naloxone:

- a) is an agonist at K receptors
- b) is an antagonist at mu receptors \$
- c) reverses ventilatory depression due to morphine \$
- d) may precipitate opiate withdrawal symptoms \$
- e) is a ventilatory depressant

**Paracetamol:**

- a) inhibits prostaglandin synthesis \$
- b) is highly protein bound
- c) has a low bioavailability due to first pass metabolism
- d) can cause thrombocytopaenia at therapeutic levels \$
- e) is conjugated in the liver to both glucuronide and sulfate conjugates \$

**Non-steroidal anti-inflammatory drugs (NSAIDs):**

- a) should not be used in hypertensive patients
- b) reduce platelet stickiness \$
- c) increase the effect of warfarin \$
- d) are available in parenteral form \$
- e) affect prostaglandin synthesis \$

**At the neuromuscular junction:**

- a) the resting potential is -45 mV
- b) acetylcholine reduces the permeability of the post-junctional membrane to sodium
- c) neostigmine directly displaces NDMR from the motor end plate
- d) hypokalaemia increases sensitivity to an NDMR \$

**Muscle relaxants:**

- a) depolarizing and non-depolarizing \$
- b) ionizing and non-ionizing
- c) aminosteroids and benzylisoquinolinium compounds \$
- d) all can be reversed by neostigmine
- e) non-depolarizing muscle relaxants can't be reversed

**The following are anticholinesterases:**

- a) organophosphates \$
- b) neostigmine \$
- c) prilocaine
- d) ranitidine
- e) atropine

**In a patient who fails to breathe 1 hour after administration of 80 mg suxamethonium:**

- a) the pseudocholinesterase gene is likely to be homozygous atypical \$
- b) a serum potassium of 2.5 mmol/L is a possible cause
- c) 2.5 mg neostigmine should be given
- d) the metabolism of lidocaine may well be impaired
- e) the same response would be expected in all siblings

**The duration of non-depolarising neuromuscular blocking agents may be prolonged by:**

- a) acidosis \$
- b) alkalosis
- c) hypothermia \$
- d) hypocarbia
- e) hypokalaemia \$

**Suxamethonium:**

- a) is metabolised in the blood \$
- b) is contraindicated in malignant hyperthermia \$
- c) is antagonised by neostigmine
- d) may cause hypokalaemia
- e) may cause bradycardia \$

**Suxamethonium is contraindicated:**

- a) during the first 24 hours following major burns
- b) in day-case anaesthesia
- c) in patients with hypokalemia
- d) in patients with hyperkalemia \$
- e) in the presence of autonomic neuropathy

**Features of depolarising block include:**

- a) fasciculations \$
- b) long duration of action
- c) fast onset \$
- d) antagonism by anticholinesterases
- e) a rise in intraocular pressure \$

**Atracurium:**

- a) is degraded by Hoffmann elimination \$
- b) is degraded by ester hydrolysis \$
- c) is metabolized in the liver
- d) is metabolized to active metabolites
- e) must be stored at room temperature

**Vecuronium:**

- a) is a monoquatary aminosteroid \$
- b) has a shorter duration of action than suxamethonium
- c) is a benzyl isoquinolinium ester
- d) crosses the placenta
- e) can be reversed by sugamadex \$

**Rocuronium:**

- a) is a benzylisoquinolinium compound
- b) is an aminosteroid \$
- c) is an amid local anaesthetic
- d) can not be reversed
- e) can be reversed with sugamadex \$

**Dantrolene:**

- a) has muscle relaxant property \$
- b) is a respiratory stimulant
- c) is useful in treating malignant hyperthermia \$
- d) is an opiate antagonist
- e) a calcium channel blocker

**Acetylcholine is a neurotransmitter at:**

- a) sweat glands \$
- b) the adrenal medulla \$
- c) the parotid gland \$
- d) parasympathetic ganglia \$
- e) the neuromuscular junction \$

**Atropine:**

- a) crosses the blood/brain barrier \$
- b) can cause an initial bradycardia \$
- c) increases the rate of gastric emptying
- d) increases conduction through the A-V node \$
- e) produces bronchoconstriction

**Atropine:**

- a) has an antidiuretic effect
- b) is used for treatment of bradycardia \$
- c) can cause mydriasis \$
- d) increases salivation
- e) has a marked antimuscarinic and antinicotinic activity

**Desflurane:**

- a) exceptionally low blood gas solubility resulting in a slow wash in and wash out
- b) causes an airway irritation \$
- c) may be trigger for malignant hyperthermia \$
- d) has a very rapid recovery \$
- e) decreases cerebrovascular resistance and decreases cerebral blood flow

**Concerning the minimum alveolar concentration of isoflurane:**

- a) it decreases with age \$
- b) it is decreased with acute alcohol intake \$
- c) it is lower in men than in women
- d) it is higher in neonates compared with a two year old
- e) it is decreased in pregnancy \$

**Sevoflurane:**

- a) low blood:gas solubility gives rapid induction characteristics \$
- b) causes an airway irritation
- c) only 3-5% are metabolized \$
- d) higher tissue solubility than desflurane means recovery is slower \$
- e) potentiates nondepolarizing muscle relaxants \$

**All anaesthetic ethers:**

- a) are inflammable
- b) are not metabolised in the body
- c) contain a halogen
- d) contain oxygen \$
- e) are likely to cause arrhythmias

**Halothane:**

- a) is the only inhalational agent implicated in precipitating malignant hyperpyrexia
- b) is the best agent for inhalational induction of general anaesthesia
- c) undergoes a greater degree of metabolism in the liver than does isoflurane \$
- d) is a halogenated ether
- e) sensitises the myocardium to the arrhythmogenic action of adrenaline, even at a concentration of 1 MAC \$

**Ketamine may:**

- a) increase the pulse rate \$
- b) increase the blood pressure \$
- c) cause muscle rigidity \$
- d) cause delirium \$
- e) decrease the blood pressure

**Induction with ketamine is contraindicated:**

- a) in an asthmatic patient
- b) for caesarean section
- c) in a patient with facial burns
- d) in a hypertensive patient \$
- e) in a shocked patient

**Midazolam is:**

- a) metabolised to active metabolites
- b) acetylated in the liver
- c) antagonised by flumazenil \$
- d) able to produce anterograde amnesia \$
- e) water soluble \$

**The actions of benzodiazepines:**

- a) result from inhibition of GABA receptors
- b) include amnesia \$
- c) relieve anxiety \$
- d) mostly result from active metabolites
- e) can be reversed by naloxon

**Flumazenil:**

- a) will reverse the sedative effects of benzodiazepines \$
- b) can precipitate convulsions \$
- c) will reverse the sedative effects of fentanyl
- d) will reverse the sedative effects of halothane
- e) can cause dysrhythmias \$

**Clonidine:**

- a) is an alpha-2 receptor agonist \$
- b) is a dopamine antagonist
- c) causes tachycardia
- d) can cause sedation \$
- e) has an analgesic effect \$

**Concerning propofol:**

- a) it has no active metabolites \$
- b) it can cause convulsions \$
- c) it causes less nausea than thiopentone \$
- d) it can cause pain on injection \$
- e) it can cause metabolic alkalosis

**Ondansetron:**

- a) may be useful to treat postoperative nausea and vomiting \$
- b) is an antagonist at muscarinic receptors for acetylcholine
- c) should be given by slow intravenous infusion
- d) has a peripheral site of action \$
- e) is an antagonist at 5-HT-3 receptors \$

**The following drugs can be used to treat bronchospasm occurring during anaesthesia:**

- a) aminophylline \$
- b) halothane \$
- c) salbutamol \$
- d) sodium dicromoglycate
- e) propranolol

**Tachycardia may be expected following administration of:**

- a) pancuronium \$
- b) ketamine \$
- c) metoprolol
- d) vecuronium
- e) atropine \$

**Norepinephrine reduces heart rate by:**

- a) the baroreceptor reflex \$
- b) coronary artery vasoconstriction
- c) effects on beta receptors
- d) increased cardiac output
- e) ganglion blockade

**Epinephrine:**

- a) is synthesised by demethylation of norepinephrine
- b) increases coronary blood flow \$
- c) increases free fatty acids in the blood \$
- d) mobilises glycogen stores from the liver \$
- e) is metabolised in the plasma by monoamine oxidase

**Ephedrine:**

- a) causes increased noradrenaline release from nerve terminals \$
- b) has bronchoconstrictor activity
- c) increases systemic vascular resistance \$
- d) reduces uterine tone \$
- e) displays tachyphylaxis \$

**Isoprenaline:**

- a) acts at beta 1 adrenoreceptors \$
- b) increases total peripheral vascular resistance
- c) is excreted unchanged in the urine
- d) produces bronchodilatation \$
- e) is the first choice drug in anaphylactic shock

**Bupivacaine:**

- a) is an amid local anaesthetic \$
- b) is an ester local anaesthetic
- c) increases the speed of cardiac conduction
- d) the hyperbaric solution for spinal anaesthesia contains dextrose \$
- e) the 0.5% solution contains bupivacaine at a concentration of 50mg/ml

**The following are recommended maximum doses for local anaesthetics according to body weight:**

- a) lignocaine 3mg/kg \$
- b) bupivacaine 2mg/kg \$
- c) bupivacaine with adrenaline 4mg/kg
- d) lignocaine with adrenaline 6mg/kg \$
- e) prilocaine 6mg/kg \$

**Amid local anaesthetics are:**

- a) bupivacaine \$
- b) lignocaine \$
- c) cocaine
- d) prilocaine \$
- e) procaine

**Lignocaine:**

- a) has a vasodilator properties \$
- b) is metabolized in the liver \$
- c) is an amid \$
- d) is a long acting local anaesthetic
- e) has a slow onset time

**There is 100 mg of lidocaine in:**

- a) 100 ml of 1% solution
- b) 1 ml of 10% solution \$
- c) 50 ml of 2% solution
- d) 20 ml of 5% solution
- e) 20 ml of 0.5% solution \$

**The anticoagulant effect of warfarin:**

- a) is exerted directly on the blood
- b) is slow in onset \$
- c) can be reversed by vitamin K \$
- d) is potentiated by vitamin K
- e) is potentiated by calcium

**The following factors encourage passage of a substance across the cell membrane:**

- a) high lipid solubility \$
- b) low concentration gradient
- c) high molecular weight
- d) low lipid solubility
- e) high degree of ionisation

**Glucagon:**

- a) is a positive inotrope \$
- b) is produced by the B cells of the pancreas
- c) stimulates production of free fatty acids in the blood \$
- d) release is increased in starvation \$
- e) stimulates glycogen synthesis

**Clonidine:**

- a) is an alpha-2 receptor agonist \$
- b) is a dopamine antagonist
- c) causes tachycardia
- d) can cause sedation \$
- e) has an analgesic effect \$

**Drug clearance by the body:**

- a) only refers to elimination by the kidney
- b) refers to the volume of blood cleared of the drug in unit time \$
- c) cannot exceed the glomerular filtration rate
- d) may be influenced by renal tubular secretion \$
- e) is the same as creatinine clearance

**The following are largely metabolised in the body prior to elimination:**

- a) midazolam \$
- b) atracurium \$
- c) halothane
- d) isoflurane
- e) gallamine

**Methaemoglobinaemia can be:**

- a) caused by prilocaine \$
- b) caused by blood transfusion
- c) caused by carbon monoxide poisoning
- d) treated by methylene blue \$
- e) treated by ascorbic acid \$

**The following pairs comprise an agonist and a competitive antagonist:**

- a) morphine and naloxone \$
- b) vecuronium and neostigmine
- c) diazepam and flumazenil \$
- d) histamine and promethazine \$
- e) paracetamol and N-acetylcysteine

## Anaesthesia

### Concerning the history of anaesthesia:

- a) Thomas Morton gave the first public demonstration of ether \$
- b) Nieman was the first to isolate cocaine \$
- c) Waters was the first anaesthetist to use halothane
- d) Humphrey Davey isolated oxygen
- e) Snow gave ether to Queen Victoria

### Disociative general anaesthesia is typical for:

- a) midazolam
- b) ketamin \$
- c) thiopental
- d) propofol
- e) diazepam

### The following may indicate awareness during general anaesthesia:

- a) profuse sweating \$
- b) bradycardia
- c) sudden increase in systemic blood pressure \$
- d) dilated nonreacting pupils
- e) lacrimation \$

### General anaesthesia:

- a) is controlled and reversible loss of consciousness \$
- b) may include analgesia and paralysis \$
- c) is characterized by a regional loss of sensation
- d) can be achieved by muscle relaxants
- e) is the only option for a Caesarean delivery

### Pain sensation:

- a) is carried by A delta fibers \$
- b) is carried by C fibers \$
- c) undergoes supratentorial modification \$
- d) is carried by A gama fibers
- e) is caused by stimulation of touch and temperature receptors in the skin

### The following increase the speed of inhalational induction of anaesthesia:

- a) hyperventilation \$
- b) hypotension
- c) higher concentration of inhalational agent \$
- d) an increase in dead-space
- e) high Hb concentration

**If 50% nitrous oxide is inhaled for 3 days:**

- a) the lymphocyte count falls \$
- b) methionine synthetase activity is reduced \$
- c) megaloblastic bone marrow changes occur \$
- d) vitamin B12 deficiency anaemia develops \$
- e) peripheral neuropathy develops \$

**A healthy adult breathing an FiO<sub>2</sub> of 0.1 will:**

- a) have a decreased cardiac output
- b) have a normal PaO<sub>2</sub>
- c) have a tachypnoe \$
- d) have an unchanged respiratory rate
- e) have a low PaCO<sub>2</sub> \$

**If a normal person hyperventilates for 2 hours:**

- a) the cerebral blood flow decreases \$
- b) the standard bicarbonate decreases
- c) the haemoglobin-oxygen dissociation curve shifts to the left \$
- d) the ionised calcium concentration decreases \$
- e) the plasma bicarbonate increases

**Airways resistance:**

- a) is greater during inspiration than expiration
- b) can be measured by whole body plethysmography \$
- c) is increased by ephedrine
- d) is one factor determining the work of breathing \$
- e) is expressed in kPa/L/s \$

**Success of cricoid pressure in preventing aspiration depends on:**

- a) absence of a nasogastric tube \$
- b) an intact cricoid cartilage \$
- c) the oesophagus being pressed onto the vertebral body \$
- d) extension of the neck \$
- e) preoxygenation for 5 minutes

**The laryngeal mask may be useful for:**

- a) ventilation during general anaesthesia \$
- b) ventilation during CPR \$
- c) management of difficult airway \$
- d) ventilation during major abdominal surgery
- e) ventilation during ophthalmic surgery \$

**Hyperventilation throughout general anaesthesia results in:**

- a) increased anaesthetic requirements
- b) shift of the oxygen dissociation curve to the right
- c) increased arterial to venous pO<sub>2</sub> difference
- d) shift of the oxygen dissociation curve to the left      \$
- e) hyperkalaemia

**Stridor following thyroidectomy may be caused by:**

- a) recurrent laryngeal nerve damage      \$
- b) wound haematoma      \$
- c) thyroid storm
- d) hypocalcaemia      \$
- e) tracheomalacia      \$

**Difficult airway**

- a) Can be predicted by the Mallampati classification      \$
- b) Can be unexpected despite thorough examination      \$
- c) Is more likely when thyromental distance is more than 6.5 cm
- d) Is more likely when inter-incisor gap is more than 3 cm
- e) Can be predicted by the LEMON method      \$

**Features of Mendelson's syndrome include:**

- a) urticarial rash
- b) bronchospasm      \$
- c) hypoxia      \$
- d) hypotension
- e) aspiration of at least 100 ml of gastric contents

**Tracheal deviation to the right can be caused by:**

- a) a large left pleural effusion      \$
- b) right upper lobe fibrosis      \$
- c) a right pneumothorax
- d) a retrosternal goiter      \$
- e) a previous left pneumonectomy

**Spinal (intrathecal) anesthesia is characterized by:**

- a) a low volume of local anesthetic administered to the epidural space
- b) a faster onset than epidural anaesthesia      \$
- c) an appearance of CSF when subarachnoid space is entered      \$
- d) a loss of resistance technique to locate a subarachnoid space
- e) a larger incidence of post dural puncture headache in younger population      \$

**Boundaries of the epidural space include the:**

- a) interspinous ligament
- b) posterior surface of the lamina
- c) anterior longitudinal ligament
- d) posterior longitudinal ligament
- e) sacro-coccygeal membrane \$
- f) Ligamentum flavum \$

**Headache after spinal anaesthesia:**

- a) is less likely with a 26G than with a 22G needle \$
- b) is due to an increase in cerebrospinal fluid pressure
- c) is unlikely to develop after 24 hours
- d) may be accompanied by a 6th cranial nerve palsy \$
- e) is more frequent in the elderly

**The following can influence the height of a spinal block:**

- a) strength of local anaesthetic solution \$
- b) volume of local anaesthetic solution \$
- c) baricity of local anaesthetic solution \$
- d) the interspace used \$
- e) addition of adrenaline to the local anaesthetic solution

**Hypotension during spinal anaesthesia may be due to:**

- a) preganglionic autonomic blockade \$
- b) venoconstriction
- c) block of the dorsal roots
- d) ischaemia of the vasomotor centre
- e) block of nerves to the adrenal medulla

**The femoral nerve:**

- a) Lies medial to the femoral artery
- b) Lies within the femoral sheath with artery, vein and lymph node
- c) Lies lateral to the femoral artery \$
- d) When blocked provides suitable anaesthesia for hip surgery
- e) When blocked provides suitable analgesia after knee surgery \$

**Signs of a Horner's syndrome include:**

- a) dry forehead \$
- b) conjunctival injection
- c) ptosis \$
- d) exophthalmos
- e) miosis \$

**Aortic stenosis:**

- a) Symptoms include angina, syncope, heart failure \$
- b) Is a contraindication for a spinal block \$
- c) Is a contraindication for a general anaesthesia
- d) Leads to concentric hypertrophy of the heart \$
- e) Has a 10 year life expectancy after developing agina if untreated

**Features of aortic regurgitation include:**

- a) right ventricular hypertrophy
- b) wide pulse pressure \$
- c) a systolic murmur
- d) pulsus paradoxus
- e) cardiac failure \$

**The pain of angina typically:**

- a) is stabbing in nature
- b) is aggravated by hot weather conditions
- c) occurs mainly on the left side of the chest
- d) is relieved by rest within 2 or 3 seconds of stopping exercise
- e) is associated with nausea \$

**Concerning postoperative myocardial infarction:**

- a) it is often silent \$
- b) it has a lower mortality than in non-surgical patients
- c) postponement of elective surgery should take place if a myocardial infarct has occurred within the last 2 years
- d) it is associated with large intraoperative changes in blood pressure \$
- e) it occurs most commonly within 1 hour of surgery

**The presence of a slow junctional rhythm(45/min) in a fit 50 year old man receiving halothane:**

- a) requires immediate treatment
- b) suggests hypoxia
- c) suggests the patient is light
- d) should be treated with beta-blockers
- e) may be treated with glycopyrrolate \$

**P waves are absent in:**

- a) atrial fibrillation \$
- b) Wolff-Parkinson-White syndrome
- c) massive pulmonary embolism
- d) first degree heart block
- e) nodal rhythm \$

**Reduced central venous pressure may be due to:**

- a) intermittent positive pressure ventilation
- b) constrictive pericarditis
- c) increased venous capacitance \$
- d) tricuspid incompetence
- e) reduced myocardial contractility

**Central venous pressure is raised and cardiac output is reduced in the following:**

- a) sepsis
- b) pulmonary embolism \$
- c) tamponade \$
- d) tension pneumothorax \$
- e) pre-eclampsia

**In the ECG:**

- a) T wave indicates repolarization \$
- b) the transmembrane potential is the ratio of  $K^+$  in to  $K^+$  out
- c) a single V lead requires one connection only
- d) QRS width is proportional to muscle mass
- e) negative deflection indicates movement away from the electrode \$

**The following ECG changes are seen with hyperkalaemia**

- a) Loss of P wave \$
- b) Widening of QRS \$
- c) VF \$
- d) Increased size of T wave \$
- e) Increased size of U wave

**In a normal resting subject, a bradycardia would be expected following:**

- a) an increase in carotid sinus pressure \$
- b) an increase in right atrial pressure
- c) application of pressure to the eyeball \$
- d) a Valsalva manoeuvre \$
- e) inspiration

**In cardioversion for dysrhythmias:**

- a) the shock is given on the upstroke of the T wave
- b) general anaesthesia is always required for synchronised cardioversion
- c) AC is safer than DC current
- d) no preoperative assessment is needed for elective cases
- e) ventricular fibrillation may result \$

**DC cardioversion may be indicated in:**

- a) Ventricular tachycardia \$
- b) Premature atrial contractions
- c) Atrial flutter \$
- d) Supraventricular tachycardia \$
- e) Bradycardia 35/min

**Preoperative pacing is required in:**

- a) Wolf-Parkinson-White syndrome
- b) first-degree heart block
- c) type two second degree heart block \$
- d) third-degree heart block \$
- e) cardiogenic shock with sinus rhythm

**The following are of use in the initial therapy of an anaphylactic reaction to thiopentone:**

- a) intravenous fluids \$
- b) 100% oxygen \$
- c) adrenaline intravenously \$
- d) hydrocortisone 100 mg intravenously
- e) antihistamines intravenously

**Hypoglycaemia:**

- a) is caused by excessive insulin secretion \$
- b) is caused by excessive glucagon secretion
- c) is caused by hydrocortisone administration
- d) can be treated by glucagon \$
- e) can lead to a coma \$

**In the treatment of established malignant hyperthermia, the following are recognised as part of the treatment:**

- a) chlorpromazine
- b) EDTA sodium
- c) sodium bicarbonate \$
- d) magnesium sulphate
- e) glucose and insulin \$

**The following are safe in malignant hyperthermia:**

- a) suxamethonium
- b) halothane
- c) nitrous oxide \$
- d) Propofol \$
- e) pancuronium \$

**The following features are essential to diagnose malignant hyperthermia:**

- a) muscle rigidity
- b) hypercapnia \$
- c) renal failure
- d) body temperature greater than 38 degrees C \$
- e) family history

**The management of life-threatening hyperkalaemia may include:**

- a) sodium bicarbonate intravenously \$
- b) resonium orally \$
- c) calcium intravenously \$
- d) corticosteroids intravenously
- e) dextrose and insulin intravenously \$

**Faulty positioning on the operating table may damage the following nerves:**

- a) trigeminal
- b) radial \$
- c) ulnar \$
- d) common peroneal \$
- e) obturator

**The following cause delayed gastric emptying:**

- a) trauma \$
- b) anxiety \$
- c) morphine \$
- d) metoclopramide
- e) ranitidine

**Expected changes in a patient with a pheochromocytoma include:**

- a) a decreased haematocrit
- b) a decreased total blood volume \$
- c) a decreased serum sodium concentration
- d) an abnormal glucose tolerance test \$
- e) a reduced metabolic rate

**In prolonged operations, core temperature is accurately monitored at:**

- a) the tympanic membrane \$
- b) the lower third of the oesophagus \$
- c) the muscle in the thigh
- d) the nasopharynx
- e) the rectum

**Features of amniotic fluid embolus include:**

- a) convulsions \$
- b) cardiovascular collapse \$
- c) bronchospasm \$
- d) abnormal bleeding \$
- e) pulmonary hypertension \$

**Signs of fat embolism include:**

- a) pyrexia \$
- b) bradycardia
- c) petechial rash \$
- d) bronchospasm \$
- e) mental changes \$

**A man collapses 72 hours after a total gastrectomy. The following measurements are made:**

Temperature, 39 degrees C  
Blood pressure, 80/30 mmHg  
Pulse, 110 bpm, Hb 120 g/L  
Central venous pressure, +2 cmH<sub>2</sub>O

**The diagnoses may include:**

- a) septicaemia \$
- b) tension pneumothorax
- c) breakdown of anastomosis \$
- d) haemorrhage
- e) tamponade

**Causes of prolonged postoperative unconsciousness:**

- a) large intraoperative dose of morphine \$
- b) an intracerebral event during the operation \$
- c) severe pain
- d) prolonged action of muscle relaxants \$
- e) remifentanil infusion during surgery

**Concerning postoperative nausea and vomiting:**

- a) it is more common in women than in men \$
- b) the incidence is 80% with general anaesthesia
- c) it is more common with thiopentone than with Propofol \$
- d) butyrophenones can decrease the incidence \$
- e) it is more common with ear surgery \$