

1. Thoracic surgery predisposes a patient to a pulmonary embolism which can accompany as well as mimic all of the following cardiopulmonary illnesses EXCEPT:
 - A. Pneumothorax with unexplained hypoxemia
 - B. Thoracic aorta dissection
 - C. Myocardial infarction with unexplained bronchospasm
 - D. Lung metastases

2. Which of the following narcotics is contraindicated when concurrently administered with monoamine oxidase inhibitor (MAOI) therapy?
 - A. morphine
 - B. pethidine
 - C. codeine
 - D. fentanyl
 - E. pentazocine

3. Compared to adults, the MOST likely reason that uptake of inhaled agents is more rapid in infants is because they have an increase:
 - A. Metabolic rate
 - B. Alveolar ventilation to functional residual capacity ratio
 - C. Cardiac output
 - D. Tissue blood solubility
 - E. Stroke volume

4. which of the following statements regarding mivacurium is TRUE?
 - A. It has a similar elimination half-life as atracurium
 - B. Redistribution is the mode of termination of its initial clinical effect
 - C. It is metabolized by pseudocholinesterase
 - D. It does not cause histamine release
 - E. It depends on renal elimination

5. which of the following is the cardiac index?
 - A. Cardiac output X body weight
 - B. Cardiac output X TPR
 - C. LAP – LVP
 - D. CO divided by body surface area
 - E. Stroke volume X body surface area

6. Global cerebral blood flow is MOST markedly increased by:
 - A. hypercarbia
 - B. hypoxia
 - C. cerebral activity
 - D. epinephrine
 - E. an increase in mean arterial pressure

7. Apnea results in a more precipitous reduction in PaO₂ in pregnant patients than in non-pregnant patients because of:
- A. Increased closing volume
 - B. Decreased functional residual capacity
 - C. Decreased vital capacity
 - D. Decreased total lung capacity
 - E. Increased residual volume
8. The vocal cords are shortened and relaxed by which of the following intrinsic muscles of the larynx?
- A. Lateral cricoarytenoid
 - B. Posterior cricoarytenoid
 - C. Anterior cricoarytenoid
 - D. Cricothyroid
 - E. Thyroarytenoid
9. A 40:60 mixture of helium:O₂ is more desirable than a 40:60 mixture of nitrogen:O₂ for a spontaneously breathing patient with tracheal stenosis because:
- A. Helium has a lower density than nitrogen
 - B. Helium is a smaller molecule than O₂
 - C. Absorption atelectasis decreased
 - D. Helium has a lower critical velocity for turbulent flow than does O₂
 - E. Helium is toxic to most microorganisms
10. Which of the following regarding Bier's block in an orthopedic patient is TRUE?
- A. It provides long acting post operative analgesia
 - B. The addition of epinephrine to local analgesics increases the motor block
 - C. It is limited to 45 minutes because of the tourniquet
 - D. It is limited to use in the upper arms
 - E. It can cause local anesthetic toxicity in cases of tourniquet failure
11. Patients with alcohol abuse will develop:
- A. Increased anesthetic requirements in the acute state of intoxication
 - B. Reduced anesthetic requirements to the chronic abuse state
 - C. Tolerance to the CNS effects with chronic use
 - D. Tolerance to the respiratory effects with chronic use
 - E. Tolerance to the cardiovascular effects with chronic use
12. Which of the following agents increases gastrointestinal movements?
- A. Hyoscine (scopolamine)
 - B. Atropine
 - C. Atracurium
 - D. Neostigmine
 - E. Fentanyl

13. A 35-year-old patient, status post-cystoscopy under lidocaine spinal anesthesia presents with new complaints of pain and dysesthesia in the buttocks 24 hours after the procedure. The condition spontaneously resolved after 72 hours. A risk factor implicated in the development of this condition is:
- A. Total dose of lidocaine used for spinal
 - B. Size of spinal needle used to puncture dura
 - C. Lithotomy position
 - D. Blood-tinged CSF at injection of spinal dose
14. For a normal healthy patient, what is the average range of hemoglobin saturation from venous to arterial blood?
- A. 26-75 %
 - B. 40-75 %
 - C. 40-97 %
 - D. 60-90 %
 - E. 75-97%
15. Bronchoconstriction may be caused by all of the following EXCEPT:
- A. Reflex stimulation
 - B. Cholinergic blockade
 - C. Release of locally active mediators
 - D. Direct stimulation of airway smooth muscle
 - E. Inhaled lidocaine aerosols
16. The optimal level of extrinsic PEEP that can be applied without the risk of worsening dynamic hyperinflation due to auto PEEP is:
- A. Equal to intrinsic PEEP
 - B. 50% of intrinsic PEEP
 - C. 75% of intrinsic PEEP
 - D. 90% of intrinsic PEEP
17. Which of the following statements is NOT true regarding a retrobulbar block?
- A. The superior oblique muscle may not be blocked
 - B. Accidental intra-arterial administration of local anesthetic can cause seizures
 - C. Optic nerve damage can occur with this block
 - D. It is a safe technique for patients with high myopia
18. One minute after delivery, an infant has a heart of 120 bpm, a weak cry, active movements, and cyanotic hands feet but responds vigorously to stimulation. The APGAR score is:
- A. 5
 - B. 6
 - C. 7
 - D. 8
 - E. 9

19. All of the following may contribute to postoperative hepatic dysfunction EXCEPT:
- A. Hypertension
 - B. Hypoxia
 - C. Hypercarbia
 - D. Septicemia
 - E. Blood transfusion
20. A 28-year-old patient is diagnosed with arteriovenous malformation (AVMS). Regarding the evaluation and anesthetic management of this condition, all of the following statements are correct EXCEPT:
- A. A majority of AVMS occurs supratentorially
 - B. There is a 4-10% incidence of cerebral aneurysm associated with AVMS
 - C. Excessive hyperventilation will help facilitate surgical exposure
 - D. Hypotonic and glucose containing solutions should be avoided
21. Fetal circulation is characterized by:
- A. High pulmonary vascular resistance
 - B. High systemic vascular resistance
 - C. Left to right shunting
 - D. Functional closure of ductus arteriosus rith at the time of birth
22. Most of the carbon dioxide in blood is transported as:
- A. Plasma-dissolved carbon dioxide
 - B. Plasma bicarbonate
 - C. Red-cell dissolved carbon dioxide
 - D. Red-cell carbamino carbon dioxide
 - E. Red-cell bicarbonate
23. A CO-oximeter is used to monitor a patient in the intensive care unit and displays an elevated level for methemoglobinemia which would not be associated with which of the following drugs?
- A. Nitroglycerin
 - B. Nitrous oxide
 - C. Sodium nitroprusside
 - D. Nitric oxide
24. What is the blood/gas partition coefficient of sevoflurane?
- A. 0.47
 - B. 0.69
 - C. 1.40
 - D. 1.90
 - E. 2.30
25. Which of the following is TRUE regarding an atrial septal defect?
- A. It is the most common congenital heart disorder

- B. It usually is asymptomatic until adulthood
 - C. Treat if pulmonary: systemic flow ratio > 2
 - D. Severest symptoms occur during fourth and fifth decades of life
26. The principal sensory nerve of the larynx is the:
- A. Inferior laryngeal
 - B. Superior laryngeal
 - C. Palatine
 - D. Recurrent laryngeal
 - E. Glossopharyngeal
27. Incomplete jaw relaxation after halothane induction and succinylcholine administration in children is MOST likely:
- A. A harbinger of malignant hyperthermia
 - B. Due to an overdose of succinylcholine
 - C. Found only in patients with atypical pseudocholinesterase
 - D. A normal response
 - E. Indicative of underlying myotonia
28. Which of the following statements about the use of various modalities of mechanical ventilation is MOST accurate?
- A. Risk of pulmonary barotrauma is decreased with airway pressure release ventilation compared to conventional mechanical ventilation with positive end expiratory pressure
 - B. During synchronized intermittent mandatory ventilation (SIMV), the tidal volume of every spontaneous breath is determined by the ventilator
 - C. Resistance to spontaneous ventilation is unrelated to demand valve resistance during SIMV
 - D. Pressure support ventilation is designed to increase functional residual capacity by augmenting
 - E. One advantage of inverse I:E ventilation is the avoidance of intrinsic positive end expiratory pressure
29. A 62-year-old patient complains of low back pain for 6 month duration. The pain is less intense with flexion and there is leg pain with ambulation. The pain is relieved with sitting and resting. What is the most likely diagnosis for the low back pain?
- A. Spinal stenosis
 - B. Herniated nucleus pulposus disease
 - C. Vascular claudication
 - D. Sacroiliac disease
30. The spinal cord terminates at:
- A. L1 vertebra in infants
 - B. L3 vertebra in infants
 - C. L3 vertebra in adults

D. S2 vertebra in adults

31. Which of the following statements about the risks of blood transfusion is TRUE?
- A. The risk of transmitting the AIDS virus is approximately 1:10.000 per unit blood transfused
 - B. The risk of transmitting hepatitis B is approximately 1:200.000 per unit of blood transfused
 - C. Animal studies have demonstrated cardiac dysfunction with hematocrits of 25%
 - D. Human recombinant hemoglobin, when transfused as a blood substitute, remains in the intravascular space approximately one week.
 - E. Acute immune hemolytic reaction occurs in approximately 1:205.000 per unit of blood transfused.
32. A neonate is born precipitously at 31 estimated gestational age. Initial APGAR score is 3. the neonate is warmed, stimulated, repositioned and supplemental oxygen administered but continues to be apneic with heart rate of 35 beats per minute after positive pressure ventilation. The MOST appropriate next step is:
- A. Administer atropine
 - B. Administer epinephrine
 - C. Start chest compressions
 - D. Continue positive pressure ventilation only
33. The incidence of maternal aspiration of vomitus during anesthesia for cesarean delivery can be reduced by all of the following EXCEPT:
- A. Oral administration of an antacid prior to induction
 - B. Rapid endotracheal intubation
 - C. Avoiding positive pressure ventilation prior to intubation
 - D. Use of cricoid pressure during endotracheal intubation
 - E. Extubating the patient only after she is fully awake
34. Which of the following statements is TRUE regarding glycopyrronium bromide?
- A. It is a quaternary amine
 - B. It is shorter acting than atropine
 - C. It causes fetal tachycardia
 - D. It crosses the blood brain barrier
 - E. It is an antiemetic
35. Which of the following is the MOST useful in improving neurologic outcome after cardiac arrest?
- A. Steroids
 - B. Hypothermia
 - C. Barbiturates
 - D. Ibuprofen
 - E. Calcium

- 36- When residual paralysis is suspected after surgery, what indicator is most useful?
- A. Inspiratory pressure of 15 cm H₂O
 - B. Sustained head lift for 5 seconds
 - C. tidal volume of 450 ml
 - D. respiration of 12
 - E. Vital capacity of 20% of normal
- 37- In which clinical conditions would pulmonary capillary wedge pressure be higher than left ventricular end diastolic pressure?
- A. Noncompliant left ventricle
 - B. Aortic regurgitation
 - C. Mitral stenosis
 - D. Aortic stenosis
- 38- Following the application of positive end expiratory pressure at 7.5 cm H₂O, which of the following parameters is likely to increase?
- A. Atrial PCO₂
 - B. Cardiac output
 - C. Functional residual capacity
 - D. Left ventricular end diastolic volume
 - E. lung water
- 39- In the recovery room, a patient suddenly loses consciousness, quits breathing, and has no palpable pulse. The ECG monitoring is as shown. What is the first action to be taken?
- A. Call for cardiac arrest team
- 40- A 31-year-old patient who is in the ICU on a ventilator does not open the eyes to any stimulus and has no verbal or motor response. The Glasgow coma scale corresponding to this patient is:
- A. 0
 - B. 1
 - C. 2
 - D. 3
 - E. 4
- 41- A female patient suffering from chronic obstructive pulmonary disease develops acute exacerbation following abdominal surgery. The patient's respiratory rate is 35 per minute, there is bilateral wheeze on auscultation, PaO₂ is 55 mmHg, and PaCO₂ is 72 mmHg. Success with the trial of non-invasive ventilation for this patient will be predicted by:
- A. Short duration of the acute exacerbation
 - B. Short duration of the chronic obstructive pulmonary disease
 - C. Decrease in respiratory rate and PaCO₂ within 30 minutes
 - D. Decrease in respiratory rate and increase in tidal volume within 2 hours

- 42- Intra-aortic balloon counter pulsation is contraindicated in which of the following?
- A. Cardiogenic shock due to myocardial infarction
 - B. Failure to separate from cardiopulmonary bypass
 - C. Bridge to cardiac transplant
 - D. Severe aortic regurgitation
- 43- A 55-year-old patient with end-stage renal disease presents for emergency surgery with a serum potassium level of 7 meq/l and prolonged QRS complex on ECG. The MOST appropriate initial treatment is:
- A. Glucose with insulin infusion
 - B. Sodium bicarbonate 1 meq/l IV
 - C. Calcium gluconate 1 gm IV
 - D. Calcium chloride 1 gm IV
- 44- Which of the following is NOT a prominent finding in eclampsia?
- A. Proteinuria
 - B. Uteroplacental insufficiency
 - C. Coma or convulsions
 - D. Hypervoemia
 - E. Hypertension
- 45- A patient is intubated and ventilated, but cyanosis remains increased and a reduction in blood pressure persists. What is the MOST likely cause?
- A. Rupture major artery
 - B. Aspiration asphyxia
 - C. Acute lung injury
 - D. Tension pneumothorax
 - E. Electromechanical dissociation
- 46- Which of the following is the MOST likely mechanism of action of local anesthetics?
- A. Alteration of the resting membrane potential
 - B. Inhibition of sodium influx
 - C. Prevention of potassium efflux
 - D. Prevention of potassium influx
 - E. Decrease of the threshold
- 47- The epidural space is between the:
- A. Pia and the arachnoid
 - B. Spinal dura and the arachnoid
 - C. Arachnoid and the cord
 - D. Spinal dura and vertebral column

E. Pia and the cord

- 48- What is the hemodynamic parameter MOST commonly abnormal in a patient with essential hypertension?
- A. Cardiac output
 - B. Cardiac index
 - C. Peripheral vascular resistance
 - D. Left ventricular preload
 - E. Heart rate
- 49- Which of the following anesthetic drugs must be avoided in patients with acute intermittent porphyria or variegated porphyria?
- A. Succinylcholine
 - B. Atracurium
 - C. Propofol
 - D. Thiopental
 - E. Halothane
- 50- A 6-month-old child presenting to the pediatric emergency department has been diagnosed with hydrocephalus. During ideal anesthetic management for ventriculoperitoneal shunt surgery for hydrocephalus, what levels of carbon dioxide should be maintained following tracheal intubation?
- A. Mild hypocapnia may prevent further elevation of the ICP
 - B. Moderate hypocapnia may prevent further elevation of the ICP
 - C. Severe hypocapnia may prevent further elevation of the ICP
 - D. Normocapnia be maintained in the patients with raised ICP
- 51- which of the following drugs is the MOST useful for a second degree block type I?
- A. calcium chloride
 - B. naloxone
 - C. Atropine sulfate
 - D. Adrenaline
 - E. Bicarbonate
- 52- Which of the following are important landmarks for performing a sciatic nerve block (classic approach of Labat)?
- A. Iliac crest, sacral hiatus, greater trochanter
 - B. Iliac crest, coccyx, and greater trochanter
 - C. Posterior superior iliac spine, coccyx, and greater trochanter
 - D. Posterior superior iliac spine, greater trochanter and sacral hiatus

E. Posterior superior iliac spine and greater trochanter

- 53- A 55-year-old patient is scheduled to undergo transurethral resection of the prostate for benign prostatic hypertrophy. On admission, the patient is cyanotic and plethoric, hematocrit is 51%, PaO₂ is 49 mmHg, PaCO₂ is 48 mmHg, and pH is 7.36. The patient has a history of heavy smoking, chronic cough, and purulent sputum production in the morning. The most likely diagnosis is:
- A. Panlobular emphysema
 - B. Sarcoidosis
 - C. Goodpasture's syndrome
 - D. Acute alveolitis
 - E. Chronic bronchitis
- 54- What abnormality is shown in the blood gases taken after septic shock with the following results: pH, 7.22; PaCO₂, 60 mmHg; PCO₂, 30 mmHg, Base Excess, -6?
- A. Compensated respiratory alkalosis
 - B. Uncompensated respiratory acidosis
 - C. Uncompensated metabolic acidosis
 - D. Compensated metabolic acidosis
 - E. Uncompensated respiratory alkalosis
- 55- Scopolamine delirium can be reversed by:
- A. Prostigmin
 - B. Physostigmine
 - C. Diazepam
 - D. Thiopental
 - E. Neostigmine
- 56- All of the following are measures of central tendency of data EXCEPT:
- A. Median
 - B. Percentile
 - C. Range
 - D. Mean
- 57- A patient with diabetic ketoacidosis presents for emergency surgery. Arterial blood gas analysis shows metabolic acidosis. Sodium bicarbonate therapy is BEST indicated:
- A. Immediately
 - B. Only if pH decreases to 7.1
 - C. Serum bicarbonate level of 15 meq/l
 - D. Serum potassium of 5.5 meq/l

- 58- in mouth-to-mouth resuscitation the victim's dentures routinely should be:
- A. removed because they contain bacteria
 - B. left in because they help to make an airtight mouth-to-mouth seal
 - C. removed because they frequently obstruct the airway
 - D. left in because it is illegal to remove them without the victim's consent
 - E. removed to prevent damage
- 59- Which of the following is FALSE regarding the larynx?
- A. It extends from epiglottis to thyroid cartilage
 - B. It consists of three paired and three unpaired cartilages
 - C. Arytenoid cartilage sits on posterolateral border of cricoid cartilage
 - D. Laryngeal inlet is bounded by the following: epiglottis, aryepiglottic folds, posterior cartilage, and interarytenoid notch
- 60- A patient is undergoing a pneumonectomy. At the onset of one lung ventilation, the end-tidal CO₂ of dependent lung will show:
- A. An initial transient fall followed by an increase
 - B. An initial transient increase followed by a fall
 - C. An increase with increase PaCO₂ – ET CO₂ gradient
 - D. A sustained decrease with increased PaCO₂ – ET CO₂ gradient
- 61- Which of the following statements regarding suxamethonium is TRUE?
- A. It is a steroid
 - B. It is required in higher doses in infants
 - C. It is vagolytic
 - D. The onset is 90 seconds
 - E. It is hydrolyzed by second-order pharmacokinetics
- 62- In diabetes mellitus, all of the following statements are true EXCEPT:
- A. The endocrine response to hyperglycemia is reduced by anesthesia
 - B. The dose of pre-medicants should be reduced
 - C. Type II patients on oral medication may require insulin preoperatively
 - D. Unexpected cardiac arrest may occur more frequently than in non-diabetics
 - E. Beta-blockade may mask the signs of hypoglycemia
- 63- Which of the following local anesthetics is the MOST potent?
- A. Bupivacaine
 - B. Lidocaine
 - C. Procaine

- D. Mepivacaine
- E. Chlorprocaine

64- A patient with bronchogenic carcinoma is scheduled for pneumonectomy. If given a choice of a single pulmonary function test, which of the following should be selected to predict postoperative respiratory complications?

- A. Vital capacity
- B. Closing volume
- C. Forced expiratory volume in 1 second
- D. Residual volume/total lung capacity ratio

65- When applying Poiseuille's equation to the flow through an intravenous cannula, the critical factor is:

- A. Height of the IV bag
- B. Viscosity of the fluid running through the cannula
- C. The difference in pressure across the cannula
- D. The diameter of the cannula
- E. The length of the cannula

66- All of the following statements about the blood pressure responses to tracheal intubation under light anesthesia are true EXCEPT:

- A. Blood pressure on hospital admission is helpful in predicting the extent of response
- B. The response is greater in patients with controlled hypertension than in normotensive patients
- C. Severe reactive hypertension occurs in approximately 25% of patients
- D. Myocardial ischemia as evidenced by ST segment depression ensues in some patients with occlusive disease
- E. The response can be decreased by deepening the level of anesthesia prior to intubation

67- Postoperative pain and stress have been shown to result in:

- A. Reduction in prostaglandin production
- B. Increased lung and chest wall compliance
- C. An increased incidence of thromboembolic events
- D. Decreased gastrointestinal sphincter tone
- E. Increased vagal tone

68- Following a motor vehicle accident, a previously healthy 100-kg patient is being mechanically ventilated with 40% oxygen. The tidal volume is 850 ml, the

intermittent mandatory ventilation rate is 8/min, and the spontaneous rate is 8/min. The following blood gas values were obtained:

PaO₂ 310 mmHg
PaCO₂ 60 mmHg
pH 7.28
HCO₃⁻ 26 mEq/L

Oxygen consumption is 260 ml/min and carbon dioxide production is 260 ml/min.

These blood gas values indicate:

- A- Metabolic acidosis
- B- Metabolic alkalosis
- C- An error
- D- A defect in diffusion
- E- Respiratory failure

69- A 79-year-old patient with Parkinson's disease undergoes a cataract operation under GA. In the recovery room, the patient experiences 2 episodes of emesis and complains of sensation of nausea. Which of the following anti-emetics would be the BEST choice for treatment for nausea?

- A. Droperidol
- B. Promethazine
- C. Ondasetrom
- D. Thiethylperazine
- E. Metoclopramide

70- An orthopedic surgeon requests an "intra-operative wake-up test" during general endotracheal anesthesia in order to assess the sciatic nerve function after a congenitally displaced hip is repositioned. The patient is opioid tolerant with methadone 60 mg three times a day for chronic pain. The surgeon requests no paralytic due to neuromuscular monitoring. Which of the following combination of agents will best give an intra-operative assessment of sciatic nerve function and enable the patient to follow commands?