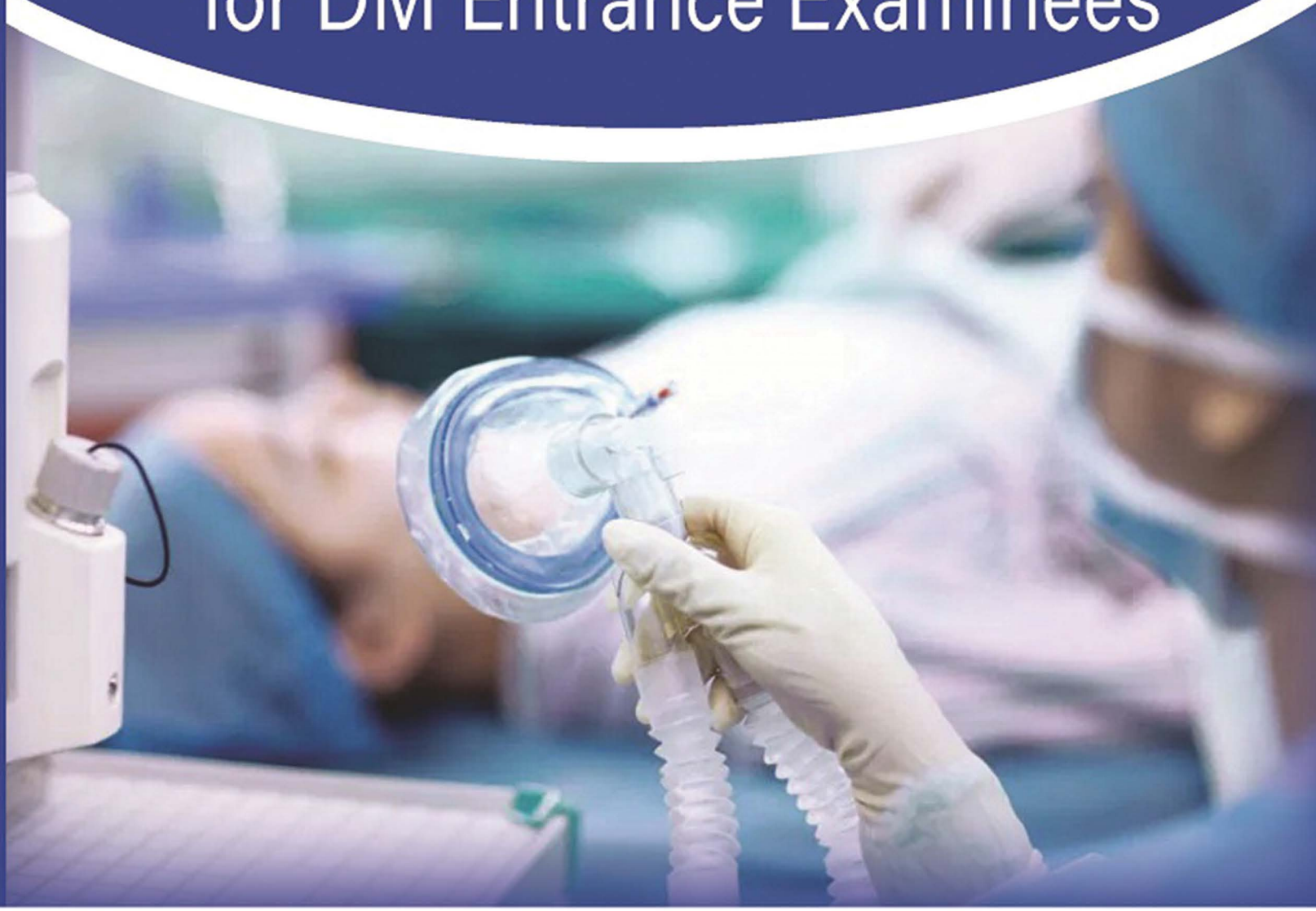
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MCQs for Anesthesiology Postgraduates for DM Entrance Examinees



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JAYPEE

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QUESTIONS

1. The global cerebral blood flow (CBF) in adults is:
a. 25 mL/100 g/min
b. 50 mL/100 g/min
c. 100 mL/100 g/min
d. 150 mL/100 g/min

2. What will be the cerebral perfusion pressure (CPP) (mm Hg) of a patient with mean arterial pressure (MAP) of 80 mm Hg, intracranial pressure (ICP) of 10 mm Hg and central venous pressure (CVP) of 15 mm Hg?
a. 70
b. 65
c. 55
d. 57

3. Which intravenous anesthetic agent does not decrease CBF?
a. Etomidate
b. Propofol
c. Ketamine
d. Thiopental

4. Which of the following agents has the least effect on somatosensory-evoked potentials (SSEPs)?
a. Rocuronium
b. Propofol
c. Fentanyl
d. Sevoflurane

5. The electrophysiological monitor most resistant to anesthetic agents is:
a. Somatosensory-evoked potentials
b. Motor-evoked potentials
c. Electroencephalography
d. Brainstem auditory-evoked potentials (BAEP)

6. What is *true* regarding the acute management of a subarachnoid hemorrhage (SAH)?
a. The peak incidence of vasospasm occurs at day 4
b. Intravenous magnesium reduces the incidence of vasospasm
c. Hypervolemia, hypertension and hemodilution therapy reduces the incidence of vasospasm
d. Mean arterial pressure (MAP) targets should be set to >90 mm Hg following clipping of the aneurysm

7. Which of the following tests helps confirm the diagnosis of brainstem death?
a. Sluggishly reacting pupils
b. Absent visual evoked responses alone
c. Absent cough reflex response to bronchial stimulation by a suction catheter placed down the trachea to the carina
d. Absent motor response to a sternal rub

8. Which of the following is considered as a risk factor for aneurysmal SAH?
a. Male gender
b. Ehlers-Danlos syndrome
c. Pregnancy
d. Hypotension

9. Which of the following statements is *incorrect* in context to a trauma patient with a high cervical spine injury?
a. There is progressive bradycardia and hypotension due to the developing spinal shock
b. In the hypotensive patient, hemorrhage should be sought and excluded as a matter of priority
c. A MAP of 90 mm Hg is advised to optimize cord perfusion
d. Abdominal breathing is a sign of impending respiratory deterioration

10. What is *true* regarding ICP monitoring?
a. Lundberg A waves are normal
b. P1 represents the dicrotic notch correlating with the closure of the aortic valve
c. P2 corresponds to transmission of the venous pressure from the choroid plexus
d. When the amplitude of P2 exceeds P1 this is suggestive of reduced brain compliance

11. Which statement is *true* regarding vascular access during cardiopulmonary resuscitation (CPR)?
a. Peripherally injected drugs should be flushed with at least 20 mL of fluid followed by arm raise
b. Drug doses should be doubled if delivered via the intraosseous route
c. Tracheal drug administration is recommended route if intravenous route not possible
d. Flow rates are higher when intraosseous access is secured in the tibia than the humerus

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12. Which of the following cannot be used to lower the ICP in a patient undergoing craniotomy for subdural hematoma?
a. Mannitol
b. Hyperventilation
c. Steroids
d. Furosemide

13. After providing a shock with an automated external defibrillator (AED) you should:
a. Start CPR, beginning with chest compressions
b. Check pulse
c. Give a rescue breath
d. Let the AED reanalyze the rhythm

14. During CPR with no advanced airway in place the compression-to-ventilation ratio is:
a. 5:1
b. 30:2
c. 10:1
d. 20:2

15. The basic life support (BLS) assessment focuses on:
a. Early CPR and early defibrillation
b. Early use of advanced airways and drugs
c. Rapid access to emergency services
d. Proper rhythm interpretation

16. Which of the following statement would not be ideal for effective resuscitation team dynamics?
a. Team leaders and team members should have clear, closed-loop communication
b. Team members inform the team leader when a task begins or ends
c. Team members do not question team leaders orders even if doubt exists
d. Team leaders define all roles of team members in the clinical setting

17. Which of the following is performed before the BLS assessment?
a. Make sure the scene is safe
b. Activate EMS and get an AED if available
c. Tap the victim's shoulder and say "Are you alright?"
d. Call for help

18. Which of the following is the *correct* sequence of steps for BLS CPR?
a. Chest compressions, airway, breathing
b. Airway, breathing, circulation
c. Circulation, airway, breathing
d. Access care early, begin CPR, check pulse

19. When providing BLS/ACLS to a known or suspected cervical spine trauma which of the following is *incorrect* when attempting to open the airway?
a. Open the airway using the jaw thrust without head extension
b. Use a head tilt-chin lift maneuver if the jaw thrust is not effective
c. Use manual restriction to stabilize the head
d. Use an immobilization device to stabilize the head

20. During the (C) circulation portion of the Primary Assessment, the following actions are carried out:
a. Look, listen, and feel
b. Obtain IV access, attach ECG leads, monitor rhythm, given medications to manage rhythm, give IV/IO fluids if needed
c. Obtain IV access, give supplemental oxygen, secure the advanced airway, give IV/IO fluids if needed
d. Check a pulse, monitor heart rhythm, begin CPR if indicated

21. In the Primary Assessment of the systematic approach to ACLS, the D stands for:
a. Defibrillation
b. Definitive care
c. Differential diagnosis
d. Disability

22. Which drugs are involved in the bradycardia algorithm as per the recent CPR guidelines?
a. Atropine, epinephrine, dopamine
b. Atropine, norepinephrine, dopamine
c. Atropine, lidocaine, adenosine
d. Atropine, epinephrine, lidocaine

23. The *correct* dose of dopamine recommended in the bradycardia algorithm as per the recent CPR guidelines is:
a. 5–20 mcg/kg/min infusion
b. 2–8 mcg/kg/min infusion
c. 5–10 mcg/kg/min infusion
d. 1–5 mcg/kg/min infusion

24. The *correct* dose of atropine given in the bradycardia algorithm is:
a. 1 mg atropine, may repeat up to a total dose of 3 mg
b. 0.5 mg atropine, may repeat up to a total dose of 2 mg
c. 0.5 mg atropine, may repeat up to a total dose of 3 mg
d. 1 mg atropine, may repeat up to a total dose of 4 mg

25. Which of the following are treated with synchronized shocks?
a. Unstable atrial fibrillation
b. Sinus tachycardia
c. VT without a pulse
d. VF

26. Which of these is NOT a recommended pharmacological treatment for a stable patient with a wide complex ventricular tachycardia (monomorphic)?
a. Epinephrine
b. Sotalol
c. Amiodarone
d. Procainamide

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27. Where should you palpate for a pulse on an unconscious infant during CPR?
a. Radial pulse
b. Brachial pulse
c. Femoral pulse
d. Carotid pulse

28. A 36-year-old woman has palpitations, lightheadedness, and a stable tachycardia. The monitor shows a regular narrow-complex QRS at a rate of 180/min. Vagal maneuvers have not been effective in terminating the rhythm. An IV has been established. What drug should be administered IV?
a. Epinephrine 2–10 μg/kg per minute
b. Atropine 0.5 mg
c. Lidocaine 1 mg/kg
d. Adenosine 6 mg

29. A patient is in cardiac arrest. High-quality chest compression are being given. The patient is intubated and an IV has been established. The rhythm is asystole. The first drug/dose to be administered is:
a. Epinephrine 3 mg via ETT
b. Dopamine 2–20 μg/kg per minute IV
c. Atropine 1 mg IV
d. Epinephrine 1 mg IV

30. A patient is in pulseless VT. Two shocks and one dose of epinephrine have been given. The next drug/dose to anticipate to administer is:
a. Vasopressin 40 U
b. Lidocaine 0.5 mg/kg
c. Epinephrine 3 mg
d. Amiodarone 300 mg

31. Which of the following will not be seen in a patient with air embolism?
a. Hypertension
b. Heart murmur
c. Arrhythmia
d. Decreased $EtCO_2$

32. Most sensitive method to detect air embolism is:
a. Transesophageal echocardiogram (TEE)
b. Decreased end-tidal carbon dioxide
c. Increased end-tidal nitrogen
d. Mill wheel murmur

33. Where should the transducer of the arterial line be zeroed in a patient undergoing craniotomy?
a. Level of hypothalamus
b. Level of heart
c. Level of external auditory meatus
d. Level of atmosphere

34. What is *true* regarding cerebrospinal fluid (CSF)?
a. It is formed in the third ventricle
b. It is absorbed in arachnoid granulations present in fourth ventricle
c. Total volume of CSF is about 150 mL
d. Major mechanism of formation is by passive diffusion of ions

35. Which of the following will not be seen in a patient with Acromegaly?
a. Hypotension
b. Obstructive sleep apnea
c. Difficult airway
d. Hyperglycemia

36. Which of the following statements regarding Glasgow Coma Scale (GCS) is *true*?
a. The minimum score is 0
b. A GCS of 10 means the patient is in coma
c. Eye opening to command/speech is scored as 2
d. A GCS of 6 means the patient is in coma

37. When does primary brain injury occur?
a. At the moment of impact
b. In the first hour after injury
c. In the first 4 h after injury
d. In the first 24 h after injury

38. Cerebral autoregulation maintains normal CBF in what range of mean arterial blood pressures?
a. 50–150 mm Hg
b. 50–100 mm Hg
c. 25–50 mm Hg
d. 80–200 mm Hg

39. Patients with severe head injury often develop a low blood sodium level (hyponatremia). Which of the following is the cause?
a. The syndrome of inappropriate secretion of antidiuretic hormone (SIADH)
b. Uncontrolled diabetes insipidus
c. Uncontrolled diabetes mellitus
d. Excess production of cortisol

40. In what percentage of patients with head injury do late seizures (i.e. >1 week after head injury) occur?
a. 20%
b. 5%
c. 50%
d. 90 %

41. Which of the following statements regarding compartment syndrome is *true*?
a. It is detected by a loss of distal pulses and sensation
b. It produces pain out of all proportion to the injury
c. It is more common in open fractures than closed ones
d. It only occurs close to a fracture

42. Which of the following compensatory mechanism maintains normal ICP in the face of an increasing intracranial mass lesion in adults?
a. Reduction in venous blood volume
b. Increase in skull volume
c. Sunsetting eyes
d. Increase in CSF production

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43. What is the safest and most reliable way to clear the cervical spine in an unconscious patient?
a. Cervical spine series of plain X-rays
b. Flexion and extension views
c. Magnetic resonance imaging (MRI)
d. Keep the patient on a spine board until he recovers consciousness

44. Which of the following statement regarding spine injury is *true*?
a. Cervical spine cord injuries are common
b. The size of the spinal canal makes the cervical spine especially susceptible to injury
c. The stability of the cervical spine is mainly provided by the bony anatomy
d. The cervicothoracic junction is especially susceptible to injury because it is a transition zone from the mobile to the rigid segment of the spinal cord

45. What organ is most at risk as the limbs start to reperfuse in a patient gradually rewarmed after a severe crush injury?
a. Brain—due to hypoxic shunting to the crushed limbs
b. Liver—due to blood breakdown products
c. Kidney—due to release of muscle degradation products
d. Lung—due to multiple microemboli

46. Neurological complications are common with COVID-19 infection. Which of the following is the least likely mechanism of SARS-CoV-2 causing neurological symptoms?
a. Entry of SARS-CoV-2 virus through the olfactory nerves
b. Crosses the blood-brain barrier following viremia
c. Entry via neuronal and mucosal alpha (α) receptors
d. Innate adaptive immune response to the COVID-19 virus

47. A 55-year-old man has quadriplegia after undergoing suboccipital craniotomy in the sitting position for the treatment of acoustic neuroma. Which of the following is the most likely cause?
a. Air embolism with the presence of probe patent foramen ovale
b. Cervical cord compression
c. Jugular venous obstruction
d. Sustained elevation of CPP

48. Which statement is *true* regarding analgesia and delirium?
a. Morphine is associated with increased incidence of delirium
b. Patient controlled analgesia (PCA) use in contraindicated in patients with delirium
c. Opioids should be avoided
d. Inadequate analgesia may present similarly to delirium

49. Which of the following is the most effective response to changes in body temperature?
a. Cutaneous vasoconstriction
b. Cutaneous vasodilation
c. Behavioral changes
d. Non-shivering thermogenesis

50. Regarding guidelines for brain death in children, which of the following is *true*?
a. Preterm infants less than 37 weeks gestational age are excluded from the guidelines
b. Apnea testing is not required in children for diagnosing brain death
c. EEG is mandatory in determining brain death in children
d. One examination will suffice for determining brain death in children

51. Which of the following is *true* regarding serum glucose in patients with injured brain?
a. Hypoglycemia has little impact on injured brain
b. Hyperglycemia is not a problem in patients with cerebral ischemia
c. Perioperative hyperglycemia is common in adults but not children undergoing craniotomy for traumatic brain injury
d. Patients with intraoperative hyperglycemia during neurosurgical procedures are more likely to develop postoperative neurologic dysfunction

52. A 54-year-old female with h/o severe aortic stenosis with moderate left ventricular failure, is scheduled for emergent craniotomy for evacuation of hematoma. Which of the following is *true*?
a. Rapid sequence induction with propofol is preferred
b. Phenylephrine is preferred for treating hypotension
c. Pulmonary catheter may not be valuable
d. Mannitol is safe for brain relaxation for this patient

53. During transsphenoidal pituitary surgery, which of the following is most appropriate?
a. Administer dexamethasone routinely for PONV prophylaxis
b. Hyperventilate the patient to facilitate surgical exposure
c. Tape the endotracheal tube at the upper lip close to midline
d. Control blood pressure to reduce intraoperative nose bleeding

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54. Which of the following statements concerning the cerebral effects of barbiturates is *true*?
a. Barbiturate coma produces greater cerebral protection than hypothermia to 17°C
b. Barbiturates decrease the cerebral metabolic rate for oxygen by decreasing CBF
c. Somatosensory evoked potentials and the EEG are equally sensitive to suppression by barbiturates
d. When administered in doses sufficient to produce an isoelectric EEG, barbiturates decrease the cerebral metabolic rate for oxygen by 50%

55. Regional cerebral metabolism is increased by:
a. Halothane b. Mannitol
c. Pain d. Ketamine

56. A 55-year-old patient undergoes elective craniotomy for tumor resection. How long prior to elective craniotomy should systemic steroids (methylprednisolone) be administered to show a reduction in edema formation, a reduction in ICP, and an improved clinical outcome?
a. At least 6 hrs prior
b. At least 12 hrs prior
c. At least 24 hrs prior
d. At least 48 hrs prior

57. Out of the following statements regarding osmotic agents to lower ICP, which statement is *incorrect*?
a. They create an osmotic gradient forcing fluid into the intravascular compartment
b. Mannitol and hypertonic saline (HTS) can cause hypernatremia
c. In a situation of low blood pressure, mannitol is preferable
d. Treatment goals for osmotic agents include serum osmolality 310–320 mOsm/L

58. A 39-year-old male presents with scoliosis for complex spine surgery. He is morbidly obese, diabetes, hypertensive. The surgery was prolonged with large volume blood loss. He was resuscitated with 7 L crystalloid, 6 packed cells, 3 FFP and 1 platelets for a 3.5 liter blood loss. 4 hours into the postoperative in the ICU, he had hypotension and difficulty with ventilation and oxygenation. CXR shows fluffy infiltrates. The following could be least likely diagnosis:
a. Hemolytic transfusion reaction
b. Adult respiratory distress syndrome
c. Transfusion associated acute lung injury (TRALI)
d. Transfusion associated circulatory overload (TACO)

59. A 49-year-old man was involved in a motor vehicle accident and was brought to the casualty with a cervical collar. On initial examination, he appears drowsy. He does not move all four extremities. His blood pressure is 88/48 and heart rate is 46. What is the reason for his shock?
a. Vasodilation b. Cardiac failure
c. Epinephrine release d. Blood loss

60. Which of the following is *incorrect* with respect to volatile anesthetics as a part of your anesthetic plan for neurosurgery?
a. They make cerebral blood low pressure passive
b. At 0.9 MAC, metabolic coupling is maintained
c. They blunt the cerebrovascular response to CO_2
d. Decreases $CMRO_2$ while increasing CBF

61. Which of the following will not alter the cerebral autoregulation?
a. Hypercapnea b. Traumatic brain injury
c. Propofol
d. Volatile anesthetics in higher doses

62. Which maneuvre affects CBF the most?
a. Change of PaO_2 from 120 to 70 mm Hg
b. Change in MAC of isoflurane from 0.5 to 1.3
c. Change in MAC of sevoflurane from 0.6 to 1.5
d. Change of $PaCO_2$ from 40 to 60 mm Hg

63. Which of the following treatment for the traumatic spine injury is *incorrect*?
a. Urinary catheterization b. Prevent hypotension
c. Stress ulcer prophylaxis d. High dose steroids

64. A 65-year-old male with known history of deep vein thrombosis is on warfarin treatment. Patient has a fall and develops subdural hematoma requiring urgent exploration. Which treatment option is the least useful?
a. Fresh frozen plasma
b. Four factor prothrombin complex concentrate
c. Oral vitamin K_1
d. Recombinant Factor VIIa

65. Which of the following statements about pituitary adenomas is *false*?
a. They most often arise from the anterior pituitary
b. Functioning tumors produce a single, predominant hormone
c. Micro-adenomas are usually nonfunctioning and detected incidentally
d. Macro-adenomas present late with headache as the presenting complaint

66. Trans-sphenoidal approach for resection of pituitary tumor is NOT recommended for:
a. Functioning pituitary adenoma
b. Non-functioning adenoma
c. Large pituitary adenoma
d. Small pituitary adenoma

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67. Out of the following monitors which one is the least sensitive to detect venous air embolism?
a. Transesophageal echocardiogram
b. ECG changes
c. Capnography
d. Pulmonary artery pressure

68. About intraoperative evoked potential (EP) monitoring, which of the following statement is *true*?
a. Brainstem auditory EP (BAEP) are very sensitive to inhalational anesthetic agents
b. 50% of nitrous oxide is acceptable to use during monitoring
c. Midazolam and fentanyl have minimal effects on EP recordings
d. Equipotent doses of inhalational and intravenous anesthetics suppress EP equally

69. Regarding cerebral vasospasm which of the following statement is *incorrect*?
a. Vasospasm can be detected as early as in 3 hours of SAH
b. Calcium channel blockers have a role in treatment of vasospasm
c. Transcranial Doppler can show increase flow velocities before the actual ischemia setting in
d. Endovascular therapy has no role in the treatment of vasospasm

70. Which of the following is not *true* with regards to deep brain stimulator placement for Parkinson's disease?
a. Anti-Parkinson's medications should be given the morning of surgery
b. The procedure is an awake surgery
c. The lead is either placed at the subthalamic nucleus or the globus pallidus interna
d. Uncontrolled dyskinesia is one of the primary indication of this surgery

71. During a mechanical thrombectomy under monitored anesthesia care, a patient develops intracranial hematoma. Which maneuvre is *incorrect* from the following?
a. To maintain systolic blood pressure above 140 mm Hg
b. Rapid lowering of blood pressure to prevent bleeding
c. Should be converted to GA
d. Intravenous Protamine should be given

72. Which nerve is not anesthetized in the scalp block?
a. Supratrochlear nerve
b. Lesser occipital nerve
c. C4 cervical nerve root
d. Branches of the ophthalmic division of the trigeminal nerve

73. Which is not a characteristic feature of pituitary apoplexy?
a. 3rd cranial nerve palsy
b. Severe headache
c. Altered mental status
d. Unilateral visual field defect

74. What is not *true* about the brain metabolism?
a. Most of the transport of glucose in brain requires energy
b. Ionic homeostasis in brain requires energy
c. In hypoxemic conditions, anaerobic metabolism is insufficient for meeting brain energy requirements
d. Glucose transport in brain is a passive process

75. Which of the following does not cause hyperglycemia in traumatic brain injured patients?
a. Gluconeogenesis
b. Fentanyl
c. Cortisol
d. Corticotropin

76. What is not *true* about the trigeminal cardiac reflex (TCR)?
a. Can present as bradycardia and hypertension
b. Hypocarbia is a precipitating factor
c. Metoprolol can potentiate the reflex
d. Can occur because of stimulation of either peripheral or central sections of trigeminal nerve

77. Which of the following is *correct* for entropy - depth of anesthesia monitors?
a. Response entropy zero signifies awake state
b. It uses SHANON equation
c. It uses QUAZI analysis
d. It uses 2 channels

78. Match the *correct* EEG wave with their corresponding frequency:

Wave	Frequency
A. Alpha	1. > 30 Hz
B. Beta	2. < 3 Hz
C. Delta	3. 13–30 Hz
D. Gamma	4. 7–12 Hz

a. A-1, B-2, C-3, D-4
b. A-3, B-1, C-4, D-2
c. A-4, B-3, C-2, D-1
d. A-2, B-4, C-1, D-3

79. Isoelectric EEG is seen at what temperature?
a. 17°C
b. 0°C
c. 27°C
d. 37°C

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80. Which of the following is not *true* regarding as either prevention or the treatment of TCR?
a. Regional anesthesia
b. Adrenaline
c. Preemptive atropine
d. Clear communication with the surgeon

81. Which of the following statement is not *true* regarding coronary artery spasm during neurosurgical cases?
a. Female gender is a risk factor
b. It is a vagal mediated response
c. It predominantly occurs in patients who have coronary artery disease
d. Thalamic stimulation can precipitate the spasm

82. When is a pregnant woman with an intracranial arteriovenous malformation at greatest risk of rupture of the AVM?
a. 1st trimester
b. 2nd trimester
c. 3rd trimester
d. During labor

83. Spinal anesthesia for a cesarean section should be avoided in which of the parturients?
a. A pregnant lady with intracranial aneurysm
b. Parturients with tethered cord
c. Parturients with pseudotumor cerebri
d. None of the above parturients qualify

84. Which of the following about cerebral oximetry (near infrared spectroscopy) is *true*?
a. It is a non-invasive measurement of regional cerebral oxygenation
b. It measures the arterial oxygen in the brain
c. The normal values are between 90 and 100
d. It is more accurate when there is a component of extravascular blood

85. Which of the following is a *true* statement regarding pharmacological strategies in preventing postoperative delirium (POD)?
a. Gabapentinoids increase the risk of POD
b. Rivastigmine reduces the incidence of POD
c. Diphenhydramine is useful in preventing POD
d. Current evidence for antipsychotic prophylaxis for POD is insufficient

86. Which of the following statement for hepatic encephalopathy is not *correct*?
a. Hypermagnesemia is one of the cause of encephalopathy
b. Hypoxia can exacerbate the pre-existing cerebral edema
c. Acute fulminant hepatic failure is a common cause of encephalopathy
d. Ammonia causes astrocyte swelling

87. Which of the following agent does not contribute to neurodegeneration in neonates?
a. Isoflurane
b. Propofol
c. Ketamine
d. Dexmedetomidine

88. Which of the following is *true* regarding management of traumatic brain injury (TBI)?
a. Glasgow Coma Scale can accurately predict the outcome after TBI
b. Intracranial pressure monitoring can accurately predict the outcome following TBI
c. The initial severity of the TBI will ultimately determine the final outcome
d. Multimodal monitoring would better help to guide individual therapy following TBI

89. Which of the following statement regarding the pharmacokinetics of ketamine is *incorrect*?
a. It is highly lipid soluble
b. The elimination half life is 2–3 hours
c. Metabolized by liver
d. The bioavailability of intranasal route is 90%

90. Which of the following is *incorrect* for hyperventilation as a method to reduce the ICP?
a. It takes 2 hours for hyperventilation to become clinically effective
b. If hyperventilation is stopped abruptly, it can result in rebound cerebral edema
c. Cerebral ischemia is known complication of hyperventilation
d. The effect of hyperventilation lasts for approximately 8 hours

91. A surgeon is operating a pineal gland glioma in sitting position. During craniotomy there is sudden hypotension, tachycardia with fall of $ETCO_2$ from 35 mm Hg to 16 mm Hg. Which of the following is the *incorrect* step in the management?
a. Flushing the field with saline
b. Reverse Trendelenburg position
c. Aspiration of the central venous catheter
d. Fluid bolus

92. During an aneurysmal clipping surgery, there is a sudden intraoperative rupture of aneurysm. Which of the following is NOT a treatment option in emergent management?
a. Blood transfusion
b. Propofol bolus
c. Induced hypothermia
d. Cardiac arrest with adenosine

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93. Which of the statements about postoperative visual loss (POVL) after spine surgery is *false*?
a. Ischemic optic neuropathy (ION) is associated with emboli into the retinal artery
b. A central retinal artery occlusion (CRAO) is usually unilateral
c. ION is the most common cause for permanent POVL
d. Central retinal artery occlusion is associated with direct compression of the globe

94. Which of the following statements about ICP is *true*?
a. ICP should be maintained below 30 mm Hg
b. In a patient with severe TBI with a normal CT scan, ICP monitor can be excluded
c. ICP measurement is the direct reflection of CBF
d. Hyperventilation for raised ICP should only be used for a brief period

95. Which cells in cerebral cortex are responsible for EEG generation?
a. Golgi cells b. Pyramidal cells
c. Stellate cells d. Glial cells

96. Zipper opening pattern (EEG signatures) signifies which of the following feature of anesthesia?
a. Induction of anesthesia with propofol
b. Ketamine sedation
c. Maintenance of anesthesia with inhalational anesthesia
d. Awakening of anesthesia

97. Burst suppression is seen in which form of EEG analysis?
a. Time domain analysis
b. Phase domain analysis
c. Frequency domain analysis
d. Amplitude domain analysis

98. Which one of the following is measured by near infrared spectroscopy?
a. Non-invasive, global oxygenation
b. Invasive, focal oxygenation
c. Invasive global oxygenation
d. Non-invasive focal oxygenation

99. What arterial to venous ratio of contribution is incorporated in near infrared spectroscopy technology?
a. 25 : 75 b. 50 : 50
c. 40 : 60 d. 30 : 70

100. Transcranial Doppler measures:
a. Blood volume in brain circulation
b. Blood pressure in brain circulation
c. Blood flow velocity in brain circulation
d. Blood vessel diameter in brain circulation

101. Frequency of ultrasound probe sued for transcranial Doppler is:
a. 2 MHz b. 5 MHz
c. 10 MHz d. 8 MHz

102. Gold standard for ICP monitoring is:
a. Intra-parenchymal catheter
b. Subdural catheter
c. Intra-ventricular catheter
d. Epidural catheter

103. Which of the following is not a grading system used in SAH?
a. WFNS
b. Modified Fischer grade
c. Hunt and Hess grade
d. Marshall's grade

104. Antagonist of rivaroxaban is:
a. Idarucizumab b. Andexanet alfa
c. Fresh frozen plasma d. Vitamin K

105. Which anatomical site is described by Dennis three column model?
a. Spinal cord b. Brain
c. Vertebral column d. Vascular system

106. CRASH-3 trial is associated with which drug?
a. Tranexamic acid b. Methylprednisolone
c. Dexamethasone d. Ondansetron

107. Which is not included in the concept of triple low in anesthesia practice?
a. MAC < 0.7 b. MAP < 75 mm Hg
c. BIS < 45 d. Entropy < 50

108. Dexamethasone is used to reduce:
a. Interstitial edema b. Cytotoxic edema
c. Vasogenic edema d. Osmotic edema

109. Pupillary dilatation in severe traumatic brain injury patients is due to the:
a. 3rd nerve compression
b. Herniation of tonsils
c. Herniation of lateral temporal lobe
d. Hyperoxia

110. Which of the following is not *correct* about postoperative visual loss?
a. It is a rare complication
b. Mostly seen with prone craniotomy
c. Hypotension, hemodilution and prolonged surgery are important risk factors
d. Cherry red macula is seen in ION

111. Sodium content of Plasma-lyte A intravenous fluid is:
a. 26 mEq/L b. 52 mEq/L
c. 90 mEq/L d. 140 mEq/L

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112. Rivaroxaban, a non-vitamin K antagonist oral anticoagulants (NOACs) acts by inhibition of:
a. Factor XI a
b. Factor X a
c. Factor X a and II a
d. Factor II a

113. Which of the following trials evaluated role of corticosteroid in patients with TBI?
a. ENIGMA
b. IMPACT
c. DECRA
d. CRASH

114. Atlantoaxial dislocation in adult is defined as:
a. Anterior atlantodental interval (ADI) greater than 5 mm
b. ADI greater 3 mm
c. PDI (posterior atlantodental interval) greater 3 mm
d. PDI less than 5 mm

115. All of the following regarding myasthenia gravis is *true, except*:
a. Ice-pack test can be used for diagnosis
b. More common in males
c. It requires immunosuppression
d. Some cases need plasmapheresis

116. Which of the following is *false* regarding surface tension in an alveolus?
a. Smaller alveoli tend to empty into larger ones
b. Dipalmitoylphosphatidyl choline reduces surface tension
c. Surfactant is secreted by type IV pneumocytes
d. Positive end-expiratory pressure (PEEP) counteracts surface tension

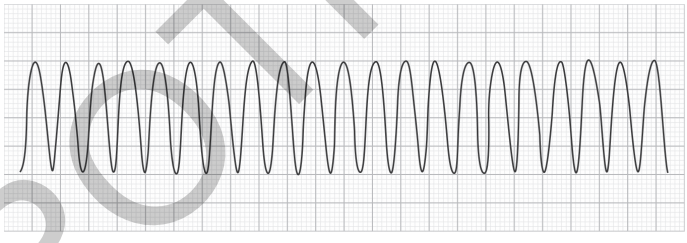
117. Which of the following are identified as lactose fermenting bacteria on MacConkey medium?
a. *Escherichia coli, Enterobacteria*
b. *Salmonella, Proteus, Yersinia*
c. *Staphylococci*
d. *Acid fast bacilli*

118. Which of the following is *false* regarding emphysema of lungs?
a. Diffusing capacity for carbon monoxide is reduced
b. Residual lung volume is increased
c. Lung compliance is decreased
d. Is commonly associated with smoking and chronic obstructive pulmonary disease (COPD)

119. Which of the following is *true* regarding extended-spectrum beta-lactamases (ESBL) producing organisms?
a. They are gram-positive organisms
b. They are resistant to cephamycins like cefoxitin, cefotetan
c. They are resistant to fourth generation cephalosporins like cefepime
d. They are intrinsically resistant to carbapenems

120. Which of the following is *false* regarding functional residual capacity (FRC)
a. It is determined by the balance between elastic recoil of lung and chestwall.
b. It helps in preventing desaturation after exhalation.
c. Lung compliance would decrease in absence of FRC
d. Continuous positive airway pressure (CPAP) therapy reduces FRC

121. A 62-year-old male underwent CABG and is being monitored in ICU. Four hours postoperatively, suddenly, the monitor shows the below pattern on ECG. Next best step in management would be:
a. IV Adrenaline
b. IV Adenosine
c. Defibrillation
d. Check pulse and blood pressure



122. High quality CPR for adult victim contains all *except*:
a. Chest compressions of at least 2 inches
b. Minimizing interruptions between compressions
c. Change of compressor every 5 minutes of compressions
d. 30:2 compression – ventilation ratio

123. In invasive arterial BP monitoring, square wave test is showing more than 2 oscillations when returning to baseline, and your arterial pressure waveform has an exaggerated appearance. What does that infer?
a. Optimally damped
b. Overdamped system
c. Underdamped system
d. Loose fitting of the tubing

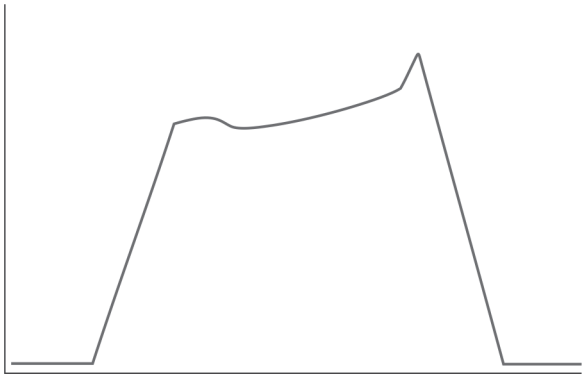
124. Following is *true* with regards to electrical safety and prevention of explosions:
a. Nitrous oxide is not flammable at atmospheric pressure
b. Anesthetic machines should be isolated from 'earth' to prevent completion of an electrical circuit
c. Currents of 10 microamps may initiate ventricular fibrillation
d. In surgical diathermy the heat released depends on the square of the potential difference between electrodes

125. Regarding ulnar neuropathy related to intraoperative positioning under anesthesia, which is *incorrect*?

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a. Is the most common perioperative neuropathy
b. 80% of 'only sensory neuropathy' resolve within 6 months
c. 20% of the combined sensory-motor neuropathy result in permanent motor dysfunction and pain
d. 80% of the combined sensory-motor neuropathy result in permanent motor dysfunction and pain

126. Choose the *correct* option for this mainstream capnography waveform:



a. Abnormal waveform seen in thin individuals with normal lungs
b. Normal waveform seen in lungs with good compliance
c. Normal waveform seen in very early pregnancy
d. Normal waveform seen in advanced pregnancy

127. Following changes in the coagulation system are seen in normal pregnancy:
a. All pro-coagulants increase and platelets decrease
b. Factors XI, XIII, antithrombin III, protein S, platelets decrease while II, V, protein C levels remain unchanged
c. Marked increase in factor I and factor VII with 20% increase in prothrombin time
d. Increase in I, VII, VIII, IX, X, XII von Willebrand factor and anticoagulant factors

128. Dural puncture epidural technique for labor analgesia is:
a. Another name for CSE technique
b. Placement of epidural catheter through inadvertent dural puncture
c. Dural puncture with 25 gauge spinal needle using "needle-through-needle" technique after locating epidural with epidural needle with no medication into the intrathecal space
d. Sequential subarachnoid/epidural technique of injecting opioid followed by local anesthetic

129. As per the 2020 AHA ACLS algorithm for cardiac arrest in in-hospital pregnant patients, in the potential etiology as per A, B, C, D, E, F, G, H mnemonic, H stands for:
a. Hypotension
b. Hypertension
c. Hyperemesis gravidarum
d. Hypothyroidism

130. With regard to cardiovascular changes in normal pregnancy, when does the cardiac output returns to prepregnancy levels?
a. Immediately postpartum
b. 6 – 8 weeks postpartum
c. 8 – 10 weeks postpartum
d. 12 – 24 weeks postpartum

131. With regard to respiratory changes, third trimester in normal pregnancy is characterized by:
a. Increased PaO_2, $PaCO_2$, HCO_3 and pH
b. Decreased PaO_2, $PaCO_2$, HCO_3 and pH
c. Increased PaO_2, decreased $PaCO_2$ and HCO_3 with pH towards alkalotic side
d. Decreased PaO_2, $PaCO_2$, HCO_3 and pH of 7.4

132. Changes in sleep pattern in normal pregnancy is characterized by:
a. Increased sleep time, decreased stage 3 and 4 NREM in 1st trimester with decreased REM and total sleep in 3rd trimester
b. Increased sleep time, increased stage 3 and 4 NREM from 1st to 3rd trimester
c. Decreased sleep time, decreased stage 3 and 4 NREM, increased REM from 1st to 3rd trimester
d. Decreased sleep time, increased stage 3 and 4 NREM in 1st trimester and increased sleep and REM in 3rd trimester leading to OSA in late pregnancy

133. Appropriate cricoid pressure in pregnancy is achieved by applying:
a. Initial force of 20 N when patient is awake increased to 40 N as patient becomes unconscious
b. A steady force of 30 N throughout the intubation attempt
c. Initial force of 10 N when patient is awake increased to 30 N as patient becomes unconscious
d. Initial force of 20 N when patient is awake increased to 45 N as patient becomes unconscious

134. Select the drugs that readily cross placental barrier:
a. Succinylcholine, vecuronium, pancuronium
b. Atropine, glycopyrrolate
c. Propofol, thiopentone, ketamine
d. Ephedrine, phenylephrine, nitroglycerin

135. Choice of drug to treat bradycardia during neonatal resuscitation:
a. Glycopyrrolate
b. Atropine
c. Ephedrine
d. Epinephrine

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136. Recommended dose of 20% lipid emulsion in treatment of local anesthetic systemic toxicity is:
a. 1.5 mg/kg bolus followed by 0.25 mg/kg infusion not exceeding 10 mg/kg in 30 minutes
b. 1.5 mL/kg bolus followed by 0.25 mL/kg/hr infusion not exceeding 12 mL/kg
c. 1.5 mL/kg bolus followed by 0.25 mL/kg/min infusion not exceeding 12 mL/kg
d. 1.5 mg/kg bolus followed by 0.25 mg/kg/min infusion not exceeding 10 mg/kg in 30 minutes

137. ACLS in treatment of local anesthetic systemic toxicity in pregnancy involves:
a. Epinephrine in higher doses than normal and use of vasopressin
b. Epinephrine in lower doses than normal and use of vasopressin
c. Epinephrine in higher doses than normal and avoiding vasopressin
d. Epinephrine in lower doses than normal and avoiding vasopressin

138. Following features were seen after catheter placement and approximately 15 minutes after injection of local anesthetic for labor analgesia, cranial nerve involvement with no sacral analgesia, patchy block, inability to speak, 10–20 mm Hg drop in systolic blood pressure. This is suggestive of catheter placement in:
a. Intrathecal space with total spinal anesthesia
b. Intrathecal space with high spinal anesthesia
c. Epidural space
d. Subdural space

139. In patients administered epidural analgesia for labor, second stage arrest is defined by no progress (descent or rotation) for:
a. Four hours or more in nulliparous women, 3 hours or more in parous women
b. Five hours or more nulliparous women, 3 hours or more in parous women
c. Four hours or more in nulliparous women, 2 hours or more in parous women
d. Six hours or more in nulliparous women, 4 hours or more in parous women

140. Following technique was used in a patient posted for Category 1 caesarean section-informed consent, intravenous line secured by staff, preoxygenation, 'No Touch Technique', donning only gloves, chlorhexidine painting, using glove packet as sterile surface, single attempt spinal with 2.8 cc bupivacaine (heavy), surgery started once sensory level >T10 and ascending with general anesthesia readiness. The technique best represents:
a. Routine subarachnoid block for Category 1 caesarean section
b. Low resource technique for Category 1 caesarean section
c. Rapid sequence spinal for Category 1 caesarean section
d. Double setup technique for Category 1 caesarean section

141. Following drug is preferred in treatment of spinal hypotension during caeserean section in patients with gestational hypertension:
a. Phenylephrine or ephedrine
b. Phenylephrine or mephentermine
c. Ephedrine or mephentermine
d. Mephentermine

142. Which of the following statement is *false* regarding use of phenylephrine for treatment of spinal hypotension in pregnant patients?
a. Higher doses are required for treatment as compared to non-pregnant patients
b. Phenylephrine has decreased uterine vascular resistance as compared to ephedrine
c. Placental transfer is greater for ephedrine than phenylephrine, with less early metabolism and/or redistribution in the fetus
d. Administration of atropine to treat reflex bradycardia can result in significant hypertensive response

143. Which of the following statement is *false* with respect to use of patient controlled analgesia (PCA) for post caesarean pain relief?
a. During PCA, a high ratio of patient demands to delivered bolus doses, signifies adequate pain relief
b. PCA can be used via the intravenous and epidural routes
c. Programmable PCA parameters include drug choice, bolus dose, maximum dose, and lockout interval
d. Use of opioids should invoke the application of algorithms for pain assessment, management, and monitoring

144. Which of the following statement is *correct* with respect to timing of epidural catheter placement and intravascular balloon catheter for obstetric hemorrhage?
a. Once the balloon catheter is placed, flexion of the hips during positioning for a neuraxial anesthetic technique is discouraged, because it may result in balloon dislodgement or occlusion and subsequent thrombosis
b. Use of local anesthesia with sedation for balloon catheter placement is preferable than epidural analgesia

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c. Epidural catheter if needed should be preferably placed after balloon catheter placement
d. Epidural catheter should not be used for cesarean delivery as heparin is given during the procedure

145. Which of the following statement is *false* with respect to use of opioids for postcaesarean pain relief?
a. Meperidine is recommended in obstetric patients due to longer duration of action and no effect on fetus
b. A 25-μg/h transdermal fentanyl patch is equianalgesic to approximately 50 mg of oral morphine per day
c. Morphine is relatively contraindicated in patients with impaired renal function
d. Intrathecal morphine 0.075 – 0.2 mg is equivalent to epidural morphine 2 – 3 mg

146. Which of the following definitions is an *incorrect* match?
a. Gestational hypertension: 20 weeks gestational age to 12 weeks postpartum, proteinuria present
b. Preeclampsia: 20 weeks gestational age to 12 weeks postpartum, proteinuria present
c. Chronic hypertension: Prior to 20 weeks gestational age and lasts beyond 12 weeks postpartum
d. Severe preeclampsia: 20 weeks gestational age to 12 weeks postpartum, BP >160/110, proteinuria 2+ present, persistent headache, S. Creatinine >1.2 mg%, persistent epigastric pain, platelets <1 lakh/cu mm

147. Which of the following is *true* about gestational diabetes mellitus?
a. Maternal insulin requirements decrease with the onset of labor, increase again during the second stage of labor
b. Intravenous glucose and insulin infusions during the peripartum period should be titrated to maintain a maternal blood glucose concentration of 110–140 L to prevent neonatal hypoglycemia
c. Diabetic scleredema can lead to increased local anesthetic volume requirement during neuraxial anesthesia
d. Pregnancy may accelerate the progression of diabetic nephropathy, but not proliferative retinopathy

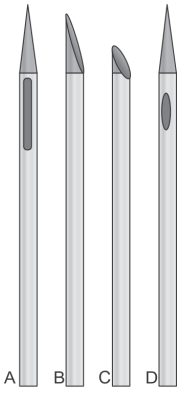
148. Which of the following is *false* about neuraxial opioid induced respiratory depression?
a. Respiratory monitoring after neuraxial administration of morphine should occur at least every hour for the first 12 hours and then every 2 hours for the next 12 hours
b. Respiratory monitoring after administration of neuraxial fentanyl should continue for a minimum of 2 hours
c. Early-onset respiratory depression associated with lipophilic opioids usually occurs within 30 minutes of administration
d. As per recent studies respiratory depression after neuraxial morphine administration is triphasic-immediate dose dependent, delayed due to rostral spread, late onset during dissociation phase

149. Which of the following is *false* about neuraxial opioid induced pruritus?
a. Opioid-induced histamine release from mast cells appears to be one of the causative mechanism for pruritus after neuraxial opioid administration
b. Pregnant patients may be more susceptible as a result of estrogen interaction with opioid receptors
c. There may be a genetic predisposition to pruritus due to opioid receptor genotype
d. Pentazocine, a κ-opioid receptor agonist and partial μ-opioid receptor agonist, may be a useful drug for treating opioid-induced pruritus

150. Select the *incorrect* pair of uterotonic drugs to relative contraindications and/or extreme caution during administration:
a. Carboprost: Asthma
b. Misoprostol: Malignant hyperthermia
c. Oxytocin: Malignant hyperthermia
d. Methylergonovine: Gestational hypertension

151. Which of the following is *false* about placental transfer of drugs?
a. Dantrolene crosses the placenta and may result in neonatal hypotonia if administered before delivery
b. Dabigatran crosses the placenta with an F/M ratio of 0.33
c. Sodium nitroprusside is lipid soluble, rapidly crosses the placenta, and can produce cyanide as a byproduct
d. Sugammadex, unlike neuromuscular blocking agents, has high placental transfer rates

152. Match the needles:



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Printed in India

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ISBN 978-93-5465-955-3