

## OB Written Board Questions

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1. Compared with the use of epidural bupivacaine 0.25% alone, the addition of fentanyl will result in

- (A) increased vagal activity
- (B) increased motor block
- (C) increased sympathetic block
- (D) more rapid onset of analgesia
- (E) no change in duration of analgesia

2. A 33-year-old primigravid woman with myasthenia gravis, well-controlled with pyridostigmine, is in labor with the cervix dilated 7 cm. She has a headache and feels very nervous. Blood pressure is 160/115 mmHg, she has 3+ pitting edema, and urinalysis shows 4+ protein. Appropriate management of her labor should include

- (A) lumbar epidural block with bupivacaine 8 ml of 0.5% solution
- (B) chlorpromazine 2.5 mg administered intravenously
- (C) avoidance of narcotics
- (D) lumbar epidural block with 2-chloroprocaine 8 ml of 3% solution
- (E) chlorpromazine 10 mg administered intramuscularly

3. An infant is delivered by forceps following labor in which variable decelerations were noted. Amniotic fluid was clear. Initial evaluation shows a cyanotic, limp infant with a heart rate of 80 bpm, poor respiratory efforts, and grimacing in response to suctioning. The most appropriate method of resuscitation for this newborn is

- (A) vigorous tactile stimulation
- (B) bag and mask ventilation with oxygen
- (C) immediate endotracheal intubation
- (D) administration of sodium bicarbonate 1 mEq/kg
- (E) volume expansion with normal saline solution 10 ml/kg

4. Upon removal of the epidural catheter after unevenful labor and delivery in a 25-year-old primiparous woman, approximately 1.2 cm of the Teflon catheter is left behind in the epidural space. The patient is informed of the complication. The most appropriate management is

- (A) immediate surgical removal
- (B) prophylactic antibiotics
- (C) lumbar myelogram
- (D) monthly neurologic examinations
- (E) no intervention

5. In a patient receiving an epidural analgesic infusion postoperatively, clear fluid is noted to drip back freely from the epidural catheter. Each of the following findings correctly identifies the associated fluid EXCEPT

- (A) precipitation when mixed with an equal volume of thioental-local anesthetic
- (B) pH 7.1-saline solution
- (C) glucose 55 mg/dl-CSF
- (D) sodium 150 mEq/L-CSF
- (E) PCO<sub>2</sub> 51 mmHg-CSF

6. Maternal adverse effects of beta-tocolytic therapy for preterm labor include

- (1) pulmonary edema
- (2) metabolic acidosis
- (3) ventricular arrhythmias
- (4) hypoglycemia

7. Effects of epidural sensory anesthesia to the T8 level include

- (1) decreased tidal volume
- (2) contraction of the bowel
- (3) maintenance of bladder tone
- (4) decreased venous return

8. Delayed respiratory depression occurring after administration of epidural morphine is

- (1) reversed with intravenous nalbuphine
- (2) more likely than after the same dose given intramuscularly
- (3) more frequent than after epidural fentanyl
- (4) increased by combination with a local anesthetic

9. A woman with a 32-week gestation is given a general anesthetic for repair of a fractured ankle. During the three-hour procedure, her PaO<sub>2</sub> is greater than 300 mmHg. Expected events in the fetus or newborn include

- (1) retrolental fibroplasia
- (2) respiratory distress
- (3) premature closure of the ductus arteriosus
- (4) fetal PaO<sub>2</sub> less than 60 mmHg

10. Following a vaginal hysterectomy in the lithotomy position under general anesthesia, a patient has numbness of the lateral aspect of the left calf and medial half of the dorsum of the left foot. On physical examination she has footdrop and the toes cannot be extended. Which nerve is most likely to be involved?

- (A) Common peroneal nerve

- (B) Deep peroneal nerve
- (C) Posterior tibial nerve
- (D) Saphenous nerve
- (E) Sciatic nerve

11. During the first stage of labor, the pain of uterine contractions and cervical dilatation is transmitted via the spinal cord segments

- (A) T6 to L1
- (B) T6 to S5
- (C) T10 to L1
- (D) T10 to S1
- (E) T10 to S5

12. A woman is undergoing a repeat cesarean delivery at term following a normal pregnancy. Anesthesia consists of thiopental 250 mg, succinylcholine infusion (180 mg in 20 minutes), nitrous oxide and oxygen (7:3 L/min) until delivery. Twenty minutes after the incision a floppy newborn with a 1-minute Apgar score of 5 is delivered. The most likely explanation for the infant's condition is

- (A) high serum thiopental concentration
- (B) high serum succinylcholine concentration
- (C) high serum nitrous oxide concentration
- (D) high serum glucose concentration
- (E) uterine hypoperfusion

13. You are asked to evaluate a 2000-g male infant three hours after vaginal delivery because of a respiratory rate of 50/min, pulse rate of 115 bpm, and the following arterial blood gas values while breathing room air: PaO<sub>2</sub> 64 mmHg, PaCO<sub>2</sub> 43 mmHg, and pH 7.33. His mother received meperidine 75 mg two hours before delivery. Appropriate management includes

- (A) administration of naloxone 50 ug intramuscularly
- (B) increasing the FIO<sub>2</sub> to 0.4
- (C) intubation and mechanical ventilation at an FIO<sub>2</sub> of 0.5
- (D) administration of oxygen 50% with 5 cmH<sub>2</sub>O continuous positive airway pressure
- (E) observation, with no action at present

14. In patients with pregnancy-induced hypertension, magnesium sulfate is most likely to

- (A) decrease maternal heart rate
- (B) decrease sensitivity to relaxants
- (C) decrease succinylcholine-induced fasciculations
- (D) prevent hypokalemia

(E) produce fetal bradycardia

15. Compared with epidural morphine, intrathecal morphine produces

- (A) better relief of visceral pain
- (B) greater loss of analgesia after administration of naloxone
- (C) less pruritus
- (D) less urinary retention
- (E) more respiratory depression

16. The most likely cause of a fetal heart rate pattern of variable decelerations to 90 bpm is

- (A) aortocaval compression
- (B) compression of the fetal head
- (C) fetal acidosis
- (D) maternal hypotension
- (E) umbilical cord compression

17. A 19-year-old woman receives a spinal anesthetic for a repeat cesarean delivery. Two days later she is afebrile but has severe occipital pain that is aggravated by sitting or standing and relieved by lying flat. Associated findings would likely include

- (A) bradycardia
- (B) difficulty swallowing
- (C) diplopia
- (D) facial pain
- (E) Horner's syndrome

18. Compared with morphine, a single epidural administration of fentanyl is associated with

- (A) delayed onset of analgesia
- (B) increased incidence of pruritus
- (C) increased incidence of respiratory depression
- (D) longer duration of action
- (E) more restricted segmental spread

19. The newborn infant of an 18-year-old heroin addict has an initial Apgar score of 1. After intubation of the trachea and ventilation with pure oxygen, the Apgar score is 3 at five minutes. Appropriate management at this would include administration of each of the following EXCEPT

- (A) dextrose 10%
- (B) epinephrine
- (C) naloxone

- (D) normal saline solution
- (E) sodium bicarbonate

20. Lumbar epidural analgesia administered to a preclamptic patient during labor and delivery

- (1) facilitates control of maternal blood pressure
- (2) decreases the requirement for magnesium sulfate
- (3) decreases the liberation of adrenal catecholamines
- (4) compensates for the hypervolemia

21. Induction of inhalation anesthesia is more rapid pregnant women because the

- (1) functional residual capacity is decreased
- (2) blood volume is increased
- (3) minutes ventilation is increased
- (4) cardiac output is increased

22. A 30-year-old woman underwent emergency cesarean delivery under general anesthesia at 36 weeks' gestation because of preeclampsia. Two hours after the operation, she is still intubated and apneic and cannot be aroused. Deep tendon reflexes are 1+. With mechanical ventilation at an FIO<sub>2</sub> of 0.4, PaO<sub>2</sub> is 130 mmHg, PaCO<sub>2</sub> is 32 mmHg, pH is 7.45, and base excess is -0.6. The most likely cause is

- (A) hypovolemic shock
- (B) intracerebral hemorrhage
- (C) nitroprusside toxicity
- (D) overdose of magnesium sulfate
- (E) pituitary necrosis

23. Maternal hyperventilation produces

- (A) decreased maternal arterial pH
- (B) increased fetal cerebral blood flow
- (C) increased fetal arterial pH
- (D) decreased maternal uterine artery flow
- (E) increased fetal arterial PO<sub>2</sub>

24. A complication of terbutaline therapy to terminate premature labor is

- (A) bronchoconstriction
- (B) hypoglycemia
- (C) fetal bradycardia
- (D) closure of the fetal ductus arteriosus
- (E) pulmonary edema

25. A 26-year-old woman has weakness on extension of the right knee one day after uneventful vaginal delivery under spinal anesthesia with lidocaine. The most likely cause is

- (A) femoral nerve injury from thigh abduction
- (B) obturator nerve injury from obstetric forceps
- (C) peroneal nerve compression from the leg support
- (D) saphenous nerve injury from the stirrups
- (E) chemical arachnoiditis following the spinal anesthetic

26. A multigravid woman is receiving oxytocin by infusion for augmentation of labor. Fetal heart rate is 190 bpm with beat-to-beat variability of 6 to 8 bpm. The most appropriate immediate action would be to

- (A) continue observation
- (B) sample fetal scalp blood
- (C) discontinue oxytocics
- (D) administer a beta-adrenergic blocker to the mother
- (E) deliver the fetus

27. A multiparous 24-year-old woman sustains an amniotic fluid embolism during general anesthesia. The LEAST likely clinical finding is

- (A) increased end-tidal carbon dioxide tension
- (B) increased uterine bleeding
- (C) jugular venous distention
- (D) ST and T wave abnormalities on ECG
- (E) wheezing

28. After cesarean delivery with thiopental induction, CNS thiopental concentration will be less in the neonate than in the mother because of

- (1) rapid maternal redistribution
- (2) shunting in fetal circulation
- (3) uptake by the fetal liver
- (4) fetal acidosis relative to the mother

29. The ratio of fetal to maternal serum concentration of bupivacaine is increased by

- (1) maternal hypoalbuminemia
- (2) maternal hyperventilation
- (3) fetal acidosis
- (4) paracervical administration

30. Maternally administered drugs that decrease beat-to-beat variability of fetal heart rate include

- (1) atropine
- (2) lidocaine
- (3) promethazine
- (4) meperidine

31. Changes associated with toxemia of pregnancy include

- (1) decreased cardiac output
- (2) increased intravascular volume
- (3) decreased glomerular filtration rate
- (4) unresponsiveness to loop diuretics

32. A 31-year-old woman at 30 weeks' gestation is undergoing resection of an intracerebral arteriovenous malformation following a subarachnoid hemorrhage. Analysis of arterial blood while breathing pure oxygen shows a PO<sub>2</sub> of 586 mmHg, PCO<sub>2</sub> of 17 mmHg, pH of 7.60, and bicarbonate concentration of 24 mEq/L. These findings are associated with

- (1) increased risk for infant respiratory distress syndrome
- (2) increased risk for retrolental fibroplasia
- (3) increased placental transfer of oxygen
- (4) decreased umbilical blood flow

33. A 165-cm (65 in) pregnant woman is given spinal anesthesia for vaginal delivery. She is placed in a sitting position, and a solution containing tetracaine 5 mg and dextrose 50 mg is administered. After five minutes, she is placed in the lithotomy position for delivery and immediately becomes dyspneic and dizzy. True statements concerning this patient include:

- (1) The level of spinal anesthesia is probably higher than T2
- (2) She should immediately receive ephedrine 25 mg intravenously
- (3) She is probably having a toxic reaction to tetracaine
- (4) The uterus should be displaced to the left

34. A 30-year-old primiparous woman delivered a healthy infant by cesarean section during uneventful spinal anesthesia with tetracaine 10 mg in 2 ml of 5% dextrose solution. Twelve hours after delivery she has bilateral loss of pain and temperature sensibility, but not touch, below T8 and paralysis of both legs. The most likely cause of this complication is

- (A) chemical arachnoiditis
- (B) injection of tetracaine into the spinal cord
- (C) demyelination of the posterior tracts
- (D) thrombosis of the anterior spinal artery
- (E) cord transection from spondylolisthesis

35. Which of the following would be most likely to result in neonatal depression when administered to a healthy parturient during an uncomplicated labor and vaginal delivery?

- (A) Nitrous oxide 60% in oxygen supplemented with halothane 0.5% for 10 minutes before delivery
- (B) Ketamine 20 mg intravenously 30 minutes before delivery
- (C) Meperidine 100 mg intramuscularly 2 hours before delivery
- (D) Thiopental 100 mg intravenously 30 minutes before delivery
- (E) Nitrous oxide 60% in oxygen supplemented with enflurane 0.7% for 10 minutes before delivery

36. The concentration of bupivacaine is higher in maternal blood than in fetal blood because

- (A) bupivacaine is metabolized in the placenta
- (B) maternal blood has a higher pH
- (C) maternal blood has greater plasma protein binding
- (D) maternal hemoglobin has a higher affinity for bupivacaine
- (E) placental transfer of bupivacaine is limited

37. In a healthy patient receiving an epidural analgesic infusion postoperatively, clear fluid is noted to drip back freely from the epidural catheter. Which of the following findings correctly identifies the associated fluid?

- (A) Precipitation when mixed with an equal volume of pancuronium = local anesthetic
- (B) pH 7.1 = saline solution
- (C) Glucose 120 mg/dl = CSF
- (D) Sodium 130 mEq/L = CSF
- (E) PCO<sub>2</sub> 51 mmHg = CSF

38. At term which of the following would produce the greatest increase in uterine blood flow?

- (A) Increasing PaO<sub>2</sub> to greater than 100 mmHg
- (B) Administering ritodrine intravenously
- (C) Administering halothane
- (D) Administering magnesium sulfate intravenously
- (E) Increasing PaCO<sub>2</sub> from 35 to 40 mmHg

39. Which of the following statements concerning the management of diabetes mellitus during pregnancy is true?

- (A) Insulin requirements remain essentially unchanged during pregnancy
- (B) Maternal blood glucose concentration of 200 mg/dl is optimal
- (C) Maternal hyperglycemia may cause neonatal acidosis



- (D) Neonatal hyperglycemia is common
- (E) Infants delivered under general anesthesia have lower Apgar scores than those delivered under spinal anesthesia

40. Following delivery with pudendal block, a patient requires anesthesia for removal of a retained placenta. The most appropriate anesthetic is

- (A) epidural block
- (B) ketamine analgesia with midazolam for amnesia
- (C) opioid-based general endotracheal anesthetic
- (D) potent inhaled general endotracheal anesthetic
- (E) subarachnoid block

41. Numbness and tingling on the lateral aspect of the thigh 24 hours after uneventful vaginal delivery is most likely a complication of

- (A) forceps delivery
- (B) lithotomy position
- (C) pudendal nerve block
- (D) lumbar epidural anesthesia
- (E) spinal anesthesia

42. At the time of cesarean delivery, thick dark meconium is noted and the newborn is flaccid, apneic, bradycardic, and cyanotic. The most appropriate initial action is

- (A) atropine administration
- (B) sodium bicarbonate administration
- (C) naloxone administration
- (D) controlled ventilation
- (E) tracheal suctioning

43. A 25-year-old woman is receiving magnesium sulfate for eclampsia at 36 weeks' gestation. Each of the following is a maternal effect of this treatment EXCEPT

- (A) sedation
- (B) sensitization to depolarizing muscle relaxants
- (C) sensitization to nondepolarizing muscle relaxants
- (D) decreased uterine blood flow
- (E) loss of deep tendon reflexes prior to significant cardiac dysfunction

44. Which is unlikely in the fetus circulation before birth:

- (A) the  $PO_2$  is higher in the ductus venosus than in the ductus arteriosus
- (B) blood can go from the right atrium to the aorta without passing through the left atrium and ventricle
- (C) the  $PO_2$  in the aortic arch is higher than in the descending aorta

(D) blood flowing through the foramen ovale comes principally from the superior vena cava

(E) blood passes through the ductus arteriosus because of the high pulmonary vascular resistance

45. After intrathecal administration of morphine

- (1) urinary retention is common
- (2) naloxone can be used to relieve side effects without reversing pain relief
- (3) pruritus commonly accompanies pain relief
- (4) respiratory depression is mediated by opiate receptors located in the spinal cord

46. A pregnant woman in labor at term with the cervix dilated 6 cm receives bupivacaine 10 ml of 0.25% for initiation of an epidural block. Ten minutes later the fetal monitor tracing shown above is observed. This tracing is consistent with

- (1) uteroplacental insufficiency
- (2) fetal depression from local anesthesia
- (3) maternal hypotension
- (4) active fetal vagal reflexes

47. A woman is considering a surgical procedure during the first trimester of pregnancy. True statements include:

- (1) Preoperative sedation is contraindicated
- (2) The incidence of spontaneous abortion is lower with regional anesthesia than with general anesthesia
- (3) The incidence of teratogenicity is approximately 10% with general anesthesia
- (4) Elective surgery is contraindicated

48. Techniques to relieve pain resulting from uterine contractions and cervical dilatation include

- (1) paracervical block
- (2) caudal block to L1
- (3) segmental lumbar epidural block at T10 to L1
- (4) saddle block

49. Administration of a beta-adrenergic agonist during labor results in

- (1) uterine relaxation
- (2) fetal acidosis
- (3) decreased maternal serum potassium concentration
- (4) maternal hypoglycemia

50. Appropriate maneuvers in treating fetal distress during induction of labor include

- (1) left uterine displacement
- (2) decreasing the rate of infusion of oxytocin
- (3) increasing FIO<sub>2</sub> to 0.6
- (4) increasing maternal alveolar ventilation