

Kate C. Arnold
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Obstetrics Essentials

A Question-Based Review

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To Isaac, Jesse, and Lexi for being patient when one or both moms were “doing practice bulletins.” We love you very much. Thank you to the upcoming twins for giving us a timeline to finish this book. We look forward to meeting you.

Preface

Neither of us can remember whose idea it was to write questions based on practice bulletins; obviously, we both claim to be the inventor. Regardless, we both knew it was a great idea. The documents reviewed here are created by ACOG, which is the same organization that writes the CREOG exam and written and oral boards. Given their complexity, the documents are difficult to absorb with just the use of a highlighter. We hope that this book can serve as a resource for residents who are studying independently, for residency programs testing assigned reading, for practicing physicians wanting to test their understanding of the latest guidelines, and as a resource for licensing exams. In this book, the first part includes quizzes covering each obstetric practice bulletin, while the second part contains the same questions in random order to serve as a much broader exam. Thank you for your time, and we hope these questions help you reach your goals, no matter what they may be.

Oklahoma City, USA

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Part I
Quizzes by Topic

Chapter 1

Prevention of Rh D Alloimmunization

Red cell alloimmunization refers to the production of maternal anti-red cell antibodies which can lead to fetal effects ranging from anemia to hydrops. With the use of anti-D immune globulin the incidence of red cell alloimmunization has decreased significantly. There are guidelines regarding prevention and management of pregnancies affected by the disease [1].

Recommended resource—ACOG Practice Bulletin 4: Prevention of Rh D Alloimmunization [2].

- Q1: Prior to the introduction of anti-D immune globulin, hemolytic disease of the fetus and newborn affected _____ pregnancies?
- A. About 10% of pregnancies
 - B. About 20% of pregnancies
 - C. About 35% of pregnancies
 - D. About 45% of pregnancies
- Q2: In Rh-negative women who have not received immune globulin prophylaxis, the most common time to become alloimmunized is:
- A. At the time of delivery
 - B. With third trimester bleeding
 - C. After therapeutic first trimester abortion
 - D. With amniocentesis

- Q3: The amount of fetomaternal hemorrhage at which women can become alloimmunized is approximately:
- A. 0.1 mL
 - B. 1 mL
 - C. 5 mL
 - D. 10 mL
- Q4: Postpartum administration of a single dose of anti-D immune globulin can reduce the alloimmunization rate by 90% if given within:
- A. 12 h of delivery
 - B. 24 h of delivery
 - C. 48 h of delivery
 - D. 72 h of delivery
- Q5: The current standard prophylactic dose of anti-D immune globulin given in the United States is:
- A. 50 μ g
 - B. 100 μ g
 - C. 200 μ g
 - D. 300 μ g
- Q6: One prophylactic dose of anti-D immune globulin can prevent Rh D alloimmunization after exposure of up to ____ mL of Rh D-positive blood or ____ mL of fetal cells.
- A. 30 mL of Rh D-positive blood and 15 mL of fetal cells
 - B. 40 mL of Rh D-positive blood and 25 mL of fetal cells
 - C. 50 mL of Rh D-positive blood and 35 mL of fetal cells
 - D. 60 mL of Rh D-positive blood and 45 mL of fetal cells
- Q7: A Rh-negative pregnant patient presents for her routine OB visit at 28 weeks. The father of the baby is

also Rh negative. As her physician you should advise her to:

- A. Receive the standard prophylactic dose of anti-D immune globulin
- B. Forgo the prophylactic dose of anti-D immune globulin because it is unnecessary
- C. Receive a smaller dose of anti-D immune globulin
- D. Receive the prophylactic dose of anti-D immune globulin only if she has had a history of antepartum bleeding

Q8: A 28-year-old G2P1001 presents for her first prenatal visit at 12 weeks gestational age. A type and screen are performed and the patient is found to be Rh negative with a positive anti-D antibody screen. As her physician, in addition to increased antenatal surveillance, you should:

- A. Administer a prophylactic dose anti-D immune globulin immediately
- B. Obtain a Kleihauer-Betke test immediately and administer a sufficient amount of anti-D immune globulin accordingly
- C. Administer the standard prophylactic dose of anti-D immune globulin at 28 weeks
- D. Not administer anti-D immune globulin during this pregnancy

Q9: A 33-year-old Rh-negative G3P2002 with intrauterine pregnancy at 11 weeks gestational age presents for chorionic villus sampling (CVS). The patient should be given _____ prior to the procedure.

- A. 50 μg anti-D immune globulin
- B. 150 μg anti-D immune globulin
- C. 300 μg anti-D immune globulin
- D. No anti-D immune globulin

- Q10: The same patient in Question #9 goes on to have a miscarriage at 15 weeks gestational age. The patient should now be given ____.
- A. 50 μg anti-D immune globulin
 - B. 150 μg anti-D immune globulin
 - C. 300 μg anti-D immune globulin
 - D. No anti-D immune globulin
- Q11: In a patient who continues to bleed after being administered prophylactic anti-D immune globulin, what test can be used to monitor persistent presence of the immune globulin?
- A. Kleihauer-Betke test
 - B. Repeat type and screen
 - C. Direct Coombs test
 - D. Indirect Coombs test
- Q12: A patient is given a dose of prophylactic anti-D immune globulin at 37 weeks gestational age due to abdominal trauma sustained during a motor vehicle accident. Patient is discharged home after extended monitoring without evidence of abruption. The patient goes on to have an uncomplicated vaginal delivery at 39 $\frac{1}{4}$ weeks gestational age. Does the patient need postpartum anti-D immune globulin?
- A. Yes because this represents a separate event at which time fetomaternal hemorrhage can occur.
 - B. Yes because anti-D immune globulin half-life is only 14 days, and thus a redosing is needed.
 - C. No because the anti-D immune globulin half-life is 24 days, and thus a redosing is not needed.
 - D. No because it was an uncomplicated vaginal delivery without hemorrhage.
- Q13: A G2P1001 Rh-negative patient presents for her initial prenatal visit and reports that she never received

Rh prophylaxis with her previous pregnancy. What are the chances that she is currently alloimmunized?

- A. 0–5%
- B. 15–20%
- C. 30–40%
- D. 50–70%

Q14: Rh positive refers to:

- A. Presence of D antibody
- B. Presence of D antigen
- C. Neither
- D. Both

Q15: A 34-year-old G3P2002 with intrauterine pregnancy at 32 weeks gestational age presents to labor and delivery in preterm labor with a cervical dilation of 3 cm. No vaginal bleeding is noted. She is Rh negative and received anti-D immune globulin prophylaxis at 28 weeks. Upon admission she should receive:

- A. Betamethasone
- B. Betamethasone and 300 μ g anti-D immune globulin
- C. Betamethasone and 50 μ g anti-D immune globulin
- D. Betamethasone and 300 μ g anti-D immune globulin 12 h later

Q16: A 20-year-old known cocaine user presents to triage complaining of loss of fluid without vaginal bleeding at 30 weeks gestation and is found to have ruptured membranes. Documents show that she is Rh negative and received anti-D immune globulin at a previous triage visit at 26 weeks. Despite extensive counseling, she opts to leave the hospital AMA. Given her high risk of abruption, prior to leaving she should receive:

- A. No prophylaxis
- B. 300 μ g anti-D immune globulin
- C. 50 μ g anti-D immune globulin

- Q17: A Rh-negative patient should be considered a candidate for anti-D immune globulin prophylaxis after all the following events, EXCEPT:
- A. External cephalic version
 - B. Evacuation of molar pregnancy
 - C. Threatened abortion
 - D. All of the above should be considered for prophylaxis
- Q18: Which of the following is NOT an absolute indication for anti-D immune globulin in a Rh-negative woman?
- A. First trimester pregnancy loss
 - B. Second or third trimester vaginal bleeding
 - C. Amniocentesis
 - D. Fetal blood sampling
- Q19: A Rh-negative woman is postpartum day #1 after a vaginal delivery and is ready for discharge. Her baby is found to be Rh negative as well. She should receive anti-D immune globulin prior to discharge.
- A. TRUE
 - B. FALSE

Answers

Q1: A, Q2: A, Q3: A, Q4: D, Q5: D, Q6: A, Q7: B, Q8: D, Q9: A, Q10: C, Q11: D, Q12: C, Q13: B, Q14: B, Q15: A, Q16: A, Q17: D, Q18: B, Q19: B.

Resources

1. Gabbe SG, Niebyl JR, Simpson JL, Landon MB, Galan HL, Jauniaux ERM, Driscoll DA. *Obstetrics: normal and problem pregnancies*. 6th ed. Philadelphia, PA: Elsevier; 2012.
2. American College of Obstetricians and Gynecologists. Practice bulletin no. 4: prevention of Rh D alloimmunization. *Obstet Gynecol*. 2016;1099–3630.

Chapter 2

Obstetric Analgesia and Anesthesia

Labor and delivery is associated with significant pain and it is the providers' duty to provide relief upon patient request. Available options include general, neuraxial, local, and par-enteral analgesia. Each method is associated with specific indications, complications, and contraindications [1].

Recommended resource—ACOG Practice Bulletin 36: Obstetric Analgesia and Anesthesia [2].

- Q1: Which of the following is FALSE regarding pain associated with labor and delivery?
- A. Pain experienced with uterine contractions is mediated by T-10 through the L-1 portions of the spinal cord
 - B. Cervical dilation and descent of the fetal head generate somatic pain
 - C. The pudendal nerve is responsible for transmitting the pain felt in the pelvic floor and perineum
 - D. A medical indication is not necessary to provide maternal pain relief
 - E. None of the above

- Q2: A patient presents for a routine prenatal visit at 34 weeks gestational age. She is wondering about the differences between parental and regional anesthesia during labor and delivery. You counsel her:
- A. Regional anesthesia has been shown to be more effective at controlling pain during labor and delivery than parental agents but may have greater risks to the fetus
 - B. Shorter-acting parental agents may decrease some of the neonatal risks associated with longer-acting agents
 - C. Parental anesthesia has been shown to be as effective as regional anesthesia in providing pain relief during labor and delivery but may have greater risks to the fetus
 - D. A and B
 - E. None of the above
- Q3: Which of the following is NOT a medical indication for epidural analgesia during labor and delivery?
- A. History of deep vein thrombosis
 - B. History of malignant hyperthermia
 - C. Concern that the patient will be a difficult intubation
 - D. Prevention of autonomic hyperreflexia in patients with high spinal cord lesions
- Q4: What is the typical duration of anesthesia provided with a spinal?
- A. 30–60 min
 - B. 60–120 min
 - C. 30–180 min
 - D. 30–250 min
- Q5: A patient presents to the obstetrical triage on postpartum day 3 reporting a headache that is worsened when in the sitting or standing position. Upon review of her chart,

you note that she was delivered by cesarean section and had a spinal placed for analgesia. You suspect she has a postdural puncture headache. You counsel her:

- A. A blood patch has minimal effectiveness in treating postdural headaches
- B. A postdural puncture headache only occurs in patients who have had spinal anesthesia
- C. It is reasonable to try conservative measures first including supine positioning, hydration, and analgesics
- D. Having a postdural puncture headache increases her risk of having persistent back pain in the upcoming years

Q6: What is the most common side effect of regional analgesia?

- A. Transient neurological symptoms
- B. Pruritus
- C. Postdural puncture headache
- D. Hypotension

Q7: Maternal fever can be a side effect of epidural analgesia, especially in nulliparous women.

- A. TRUE
- B. FALSE

Q8: Which of the following is TRUE regarding inhaled anesthetic agents used during general anesthesia?

- A. Some have been shown to have minimal passage across the placenta
- B. They have not been associated with neonatal depression
- C. They can be used as uterine relaxants in certain situations if given in high concentrations
- D. Their use increases blood loss during cesarean section
- E. None of the above

- Q9: To decrease the potentially dangerous side effects associated with local anesthetics, it is important to take which precaution when using them?
- A. First aspirate for blood prior to injection
 - B. Prehydrate patient with 500–1000 mL normal saline
 - C. Use a small caliber needle
 - D. Ensure normal electrolyte balance prior to use
- Q10: Which of the following is FALSE regarding maternal morbidity and mortality associated with anesthesia administration during labor and delivery?
- A. Regional anesthesia is preferred due to increased morbidity associated with general anesthesia
 - B. Complications from anesthesia account for approximately 5% of maternal deaths
 - C. The rate of failed intubation is higher in pregnant patients than in nonpregnant patients
 - D. If a patient is thought to be at increased risk for urgent cesarean delivery, it is reasonable to obtain early regional anesthesia during labor
 - E. None of the above
- Q11: Which of the following is NOT an example of an absolute contraindication to regional anesthesia?
- A. Patient with positive blood cultures for *E. coli* that resulted within the past 3 h
 - B. Patient with a history of an Arnold-Chiari malformation with a functioning ventricular shunt in place
 - C. Patient who had her last dose of low-molecular-weight heparin 10 h ago
 - D. Patient with a fibrinogen level of 110 micrograms/liter
- Q12: Your patient presents to triage complaining of a headache at 38 weeks gestation. She is diagnosed with pre-eclampsia and is admitted for induction. Which of the following should be avoided?
- A. Regional anesthesia
 - B. General anesthesia

- C. Butorphanol
 - D. Nalbuphine
 - E. Fentanyl
- Q13: Some of the potential benefits of using parental fentanyl for pain control during labor and delivery include:
- A. Not associated with neonatal neurobehavioral depression
 - B. Has a short half-life
 - C. Associated with less nausea and vomiting
 - D. B and C
 - E. All of the above
- Q14: What is the best way to administer naloxone to a neonate?
- A. Intramuscularly
 - B. Intravenously
 - C. Subcutaneously
 - D. Orally
 - E. A or B
- Q15: The development of chronic back pain is a known adverse outcome to epidural placement during labor and delivery.
- A. TRUE
 - B. FALSE
- Q16: Epidural-related fever is benign.
- A. TRUE
 - B. FALSE
- Q17: Which of the following is KNOWN in regard to the effect of epidural analgesia on labor?
- A. May prolong labor up to 90 min
 - B. It doubles the need for oxytocin administration
 - C. Increases the rate of cesarean section
 - D. A and B
 - E. All of the above

- Q18: A 36-year-old G1P0 presents to her routine prenatal visit at 36 weeks gestation with questions regarding the optimal time to obtain epidural anesthesia during labor. You counsel her:
- A. Due to the increased risk of cesarean section associated with early epidural, the patient should not expect to get an epidural until at least 4–5 cm dilation
 - B. There is no increased risk of cesarean section associated with early epidural so the patient may have the epidural placed upon her request regardless of her cervical dilation
 - C. Due to evidence of early epidural increasing the risk of cesarean section, it is reasonable to try and delay epidural administration until 4–5 cm dilation if possible
 - D. Due to the risks of prolonging labor associated with early epidural, the patient should be encouraged to delay placement until at least 6 cm dilation
 - E. None of the above
- Q19: Which of the following patients is at risk for developing an epidural or spinal hematoma following placement of regional anesthesia?
- A. A patient who received their last dose of prophylactic low-molecular-weight heparin 8 h ago
 - B. A patient on unfractionated heparin with a normal activated partial thromboplastin time
 - C. A patient with a platelet count of 100,000/ μ L
 - D. A patient on low-dose aspirin
- Q20: Depending on the type of anesthesia provided during labor and delivery, initiation of breastfeeding may need to be delayed.
- A. TRUE
 - B. FALSE

- Q21: What is the intended goal of obtaining an anesthesia consultation antepartum?
- A. To help streamline the flow of patients on labor and delivery
 - B. To help reduce the risk of anesthesia complications in certain patients
 - C. To educate patients regarding their anesthesia options during labor and delivery
 - D. All of the above
- Q22: NSAIDS used postpartum have been shown to decrease maternal opioid consumption by what percent?
- A. 30%
 - B. 40%
 - C. 50%
 - D. 60%

Answers

Q1: B, Q2: B, Q3: A, Q4: D, Q5: C, Q6: D, Q7: A, Q8: C, Q9: A, Q10: E, Q11: C, Q12: A, Q13: E, Q14: B, Q15: B, Q16: B, Q17: D, Q18: C, Q19: A, Q20: B, Q21: B, Q22: A.

Resources

1. Gabbe SG, Niebyl JR, Simpson JL, Landon MB, Galan HL, Jauniaux ERM, Driscoll DA. Obstetrics: normal and problem pregnancies. Chapter 17. 6th ed. Philadelphia, PA: Elsevier; 2012.
2. American College of Obstetricians and Gynecologists. Obstetric analgesia and anesthesia. ACOG practice bulletin no. 36. Obstet Gynecol. 2002;100:177–91.

Chapter 3

Shoulder Dystocia

Shoulder dystocia complicates between 0.15 and 1.7% of vaginal deliveries. It is defined in one of two ways: more than 60 s from delivery of the head to the body or the need for additional obstetric maneuvers to deliver the shoulder of the fetus. Maneuvers commonly used include McRoberts, suprapubic pressure, Wood's screw, and delivery of the posterior arm [1].

Recommended resource—ACOG Practice Bulletin 40: Shoulder Dystocia [2].

- Q1: Shoulder dystocia is defined as:
- A. Requiring use of additional maneuvers other than downward traction on the fetal head to deliver the shoulders
 - B. A period of 30 s or more between delivery of the head and the shoulders
 - C. Use of two or more maneuvers to deliver the fetal shoulders
 - D. All of the above are acceptable definitions
- Q2: Shoulder dystocia increases maternal risk for which of the following?
- A. Postpartum hemorrhage
 - B. Fourth-degree laceration
 - C. Postpartum endometritis

- D. A and B
- E. B and C

Q3: Shoulder dystocia results in persistent brachial plexus injury in 15% of deliveries.

- A. True
- B. False

Q4: Which of the following increases the risk for shoulder dystocia?

- A. Epidural
- B. Labor induction
- C. Operative vaginal delivery
- D. Obesity
- E. All of the above

Q5: Most cases of shoulder dystocia can be predicted.

- A. True
- B. False

Q6: Labor induction for suspected macrosomia is an effective strategy for decreasing the risk of shoulder dystocia.

- A. True
- B. False

Q7: Prophylactic cesarean section should be considered for estimated fetal weights greater than 5000 g in women without diabetes.

- A. True
- B. False

Q8: A 28-year-old G2P1001 presents for her first obstetrical visit in the first trimester. In review of her history, you note that her last delivery was complicated by a shoulder dystocia. The patient reports that her newborn suffered no long-term complications from the delivery. She is now asking you what mode of delivery you recommend for her current pregnancy. You counsel her:

- A. Due to the increased risk of recurrence, she should undergo primary cesarean section for delivery
- B. As the true risk of recurrence is unknown, depending on the factors present at her previous delivery and how this pregnancy progresses, it may be reasonable to have vaginal delivery or cesarean section
- C. As the true risk of recurrence is unknown, she should undergo a vaginal delivery
- D. Since there is no increased risk of recurrence, she should undergo a vaginal delivery

Answers

Q1: A, Q2: D, Q3: B, Q4: E, Q5: B, Q6: B, Q7: A, Q8: B.

Resources

1. Gabbe SG, Niebyl JR, Simpson JL, Landon MB, Galan HL, Jauniaux ERM, Driscoll DA. *Obstetrics: normal and problem pregnancies*. Chapter 18. 6th ed. Philadelphia, PA: Elsevier; 2012.
2. American college of obstetricians and gynecologists. ACOG practice bulletin no. 40: shoulder dystocia. *Obstet Gynecol*. 2002;100:1045–50.

Chapter 4

Neural Tube Defects

Neural tube defects include spina bifida and anencephaly. They are associated with maternal diabetes and use of anti-epileptic drugs as well as a history of a previous pregnancy with a neural tube defect. The defects are often due to low levels of folate at the time of neural tube closure, which is why recommended folate supplementation should begin prior to conception [1].

Recommended resource—ACOG Practice Bulletin 44: Neural Tube Defects [2].

- Q1: Which of the following is TRUE in regard to neural tube defects?
- A. Can be isolated or occur as part of a genetic syndrome
 - B. Affect the vertebral column and urogenital diaphragm
 - C. Most common congenital anomaly worldwide
 - D. Neural tube closure is normally complete by the end of the second week after conception (4 weeks after the last period)
 - E. All of the above
- Q2: Most cranial neural tube defects are lethal.
- A. TRUE
 - B. FALSE

- Q3: A 23-year-old G1P0 with intrauterine pregnancy at 22 weeks has just been informed by the maternal fetal medicine specialist that her fetus has spina bifida. She calls the office wanting to know if her baby will have disabilities. In addition to referring her for additional MFM counseling, you tell her:
- A. The extent of disability will depend on the level of the lesion
 - B. 90% of infants born with a sacral lesion will be wheelchair bound
 - C. Her infant will likely have some impairment of bowel and bladder function
 - D. Her infant will likely be severely mentally handicapped
 - E. A and C
- Q4: Intellectual ability of patients with spina bifida is influenced by:
- A. Presence of increased intracranial pressure
 - B. Intraoperative complications of an Arnold-Chiari malformation repair
 - C. Ventricular size regardless of intracranial pressure
 - D. A and B
 - E. All of the above
- Q5: At least one-third of patients with a neural tube defect have a severe allergy to:
- A. Penicillin
 - B. Latex
 - C. Sulfa
 - D. Peanuts
- Q6: What percent of neural tube defects occur in families with a positive family history?
- A. 5%
 - B. 10%
 - C. 30%
 - D. 40%

- Q7: All of the following are factors that are associated with the development of neural tube defects, EXCEPT:
- A. Diet
 - B. Maternal diabetes
 - C. High maternal core temperature
 - D. Ethnicity
 - E. All of the above are associated with the development of neural tube defects
- Q8: Parents of a child affected by a neural tube defect are more likely to be homozygous for the _____ mutation in comparison to the unaffected population.
- A. Protein C
 - B. Factor V Leiden
 - C. MTHFR
 - D. PKU
- Q9: Which of the following is FALSE regarding folic acid supplementation?
- A. It is recommended that all patients of reproductive age take 400 micrograms of folic acid daily
 - B. There is limited risk to taking higher levels of folic acid
 - C. It may interfere with some seizure medications
 - D. If additional folic acid supplementation is needed, it is recommended that a patient increase the dosing of their daily prenatal vitamin
 - E. None of the above
- Q10: Which patient is at an increased risk of having a child with a neural tube defect?
- A. A patient taking 400 micrograms of folic acid supplementation prior to conception and has a fasting blood glucose of 230 mg/dL at her first trimester obstetrical visit
 - B. A patient not taking a folic acid supplementation prior to conception and has a fasting blood glucose of 230 mg/dL at her first obstetrical visit

- C. A new obstetrical patient who reports daily adherence to recommended folic acid supplementation and recent hot tub exposure while on vacation at her first obstetrical visit
 - D. A patient who upon review of her medications takes valproic acid and a daily prenatal vitamin
 - E. All of the above
- Q11: What is considered to be an elevated level of maternal serum alpha-fetoprotein (MSAFP) for a single gestation?
- A. More than 1.5 times the normal median
 - B. More than 2.0 times the normal median
 - C. More than 2.5 times the normal median
 - D. More than 3.0 times the normal median
- Q12: What is considered to be diagnostic for a fetal neural tube defect?
- A. Elevated MSAFP and presence of acetylcholinesterase in amniotic fluid
 - B. Elevated MSAFP and elevated amniotic fluid AFP
 - C. Presence of acetylcholinesterase in amniotic fluid
 - D. Elevated amniotic fluid AFP and presence of acetylcholinesterase in amniotic fluid
- Q13: There is an increased relative risk of poor pregnancy outcomes associated with elevated MSAFP.
- A. TRUE
 - B. FALSE
- Q14: Decreased levels of MSAFP are independently associated with an increased risk of fetal aneuploidy.
- A. TRUE
 - B. FALSE
- Q15: Fetal spina bifida increases the risk for oligohydramnios.
- A. TRUE
 - B. FALSE