

NCC Certified Electronic Fetal Monitoring (C-EFM) Practice Exam Sample Study Guide



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Questions

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- 1. What can happen if the umbilical cord is compressed during labor?**
 - A. Fetal heart rate becomes stable**
 - B. Variable decelerations in fetal heart rate**
 - C. Increased fetal oxygenation**
 - D. Maternal pain decreases**
- 2. During fetal monitoring, what is the significance of amniotic fluid volume (AFV)?**
 - A. Indicates fetal heart rate trends**
 - B. Reflects placental sufficiency**
 - C. Determines maternal hydration status**
 - D. Indicates contraction patterns**
- 3. What can fetal heart rate variability indicate?**
 - A. Fetal well-being and adequate oxygenation**
 - B. Immediate need for a cesarean delivery**
 - C. Possible uterine rupture**
 - D. Mom's hydration status alone**
- 4. What is the typical duration of a non-stress test (NST)?**
 - A. 10 to 20 minutes**
 - B. 30 to 50 minutes**
 - C. 20 to 40 minutes**
 - D. 15 to 30 minutes**
- 5. What acid-base status is indicated by a pH of 6.98, PCO₂ of 49, HCO₃ of 16, and BE of -16?**
 - A. Respiratory acidosis**
 - B. Metabolic acidosis**
 - C. Mixed acidosis**
 - D. Respiratory alkalosis**

- 6. What might a fetal heart rate of 180 bpm indicate?**
- A. Normal fetal activity**
 - B. Potential fetal distress or tachycardia**
 - C. Hypoxia in the fetal environment**
 - D. Maternal anxiety**
- 7. What is the importance of reviewing the fetal heart rate tracing patterns?**
- A. To identify trends that may indicate fetal distress or normal progression**
 - B. To establish the exact time of labor onset**
 - C. To predict the positioning of the fetus**
 - D. To ensure that maternal heart rate is stable**
- 8. What does prolonged deceleration lasting more than 2 minutes indicate?**
- A. Normal fetal response**
 - B. Potential fetal compromise requiring immediate assessment**
 - C. Need for change in maternal position**
 - D. Regular fetal monitoring is sufficient**
- 9. What does a decrease in fetal heart rate variability suggest?**
- A. Improved fetal well-being**
 - B. Possible fetal distress or compromise**
 - C. A sign of adequate oxygenation**
 - D. No clinical significance**
- 10. What is the duration of an acceleration to be classified as significant?**
- A. 5 seconds**
 - B. 10 seconds**
 - C. 15 seconds**
 - D. 20 seconds**

Answers

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1. B
2. B
3. A
4. C
5. B
6. B
7. A
8. B
9. B
10. C

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Explanations

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1. What can happen if the umbilical cord is compressed during labor?

- A. Fetal heart rate becomes stable**
- B. Variable decelerations in fetal heart rate**
- C. Increased fetal oxygenation**
- D. Maternal pain decreases**

When the umbilical cord is compressed during labor, it can lead to variable decelerations in the fetal heart rate. This occurs because the compression of the cord affects blood flow and oxygen delivery to the fetus. The umbilical cord acts as a lifeline between the mother and the baby, providing oxygen-rich blood through the placenta. When there is compression, it can temporarily restrict blood flow, causing fluctuations in the fetal heart rate characterized by sudden decreases in heart rate (decelerations) that are often variable in nature. Variable decelerations indicate that the fetal heart response to the compression of the cord is altering as the baby's position changes during labor. This is a significant observation because it can suggest that the fetus may be experiencing some level of distress due to the interruption in oxygen supply, necessitating further monitoring and potential intervention by healthcare providers. In contrast to the correct answer, if the umbilical cord was compressed, stable fetal heart rate patterns would not be expected, as they indicate an absence of distress. Increased fetal oxygenation would not be a consequence of cord compression; rather, it would likely decrease due to compromised blood flow. Additionally, maternal pain often does not decrease with cord compression as the labor process continues; in fact, it

2. During fetal monitoring, what is the significance of amniotic fluid volume (AFV)?

- A. Indicates fetal heart rate trends**
- B. Reflects placental sufficiency**
- C. Determines maternal hydration status**
- D. Indicates contraction patterns**

The significance of amniotic fluid volume (AFV) during fetal monitoring primarily lies in its reflection of placental sufficiency. The amniotic fluid surrounds the fetus and facilitates crucial functions, including cushioning the fetus, allowing for fetal movement, and enabling lung development. An adequate volume of amniotic fluid indicates that the placenta is functioning properly and can adequately support the growing fetus. When assessing AFV, a low volume may suggest potential placental insufficiency, leading to inadequate nutrient and oxygen delivery to the fetus, which can affect fetal growth and well-being. On the other hand, a normal AFV is often associated with well-being and healthy placental function, which is vital for a favorable pregnancy outcome. The other options, while related to fetal monitoring, do not accurately capture the primary significance of AFV. For instance, fetal heart rate trends are assessed separately and are more directly linked to the baby's immediate health rather than AFV levels. Maternal hydration status, though it may influence AFV, is not its primary focus in monitoring fetal well-being. Similarly, contraction patterns are assessed through other means, typically utilizing external or internal monitors, without direct correlation to AFV. Thus, the correct answer emphasizes the crucial role of AFV in

3. What can fetal heart rate variability indicate?

A. Fetal well-being and adequate oxygenation

B. Immediate need for a cesarean delivery

C. Possible uterine rupture

D. Mom's hydration status alone

Fetal heart rate variability is a crucial parameter in assessing the well-being of a fetus during monitoring. When variability in the fetal heart rate is present, it generally signifies that the fetal central nervous system is functioning well. This reflects adequate oxygenation to the fetus and overall well-being. A healthy fetus typically exhibits a certain degree of variability in heart rate patterns, indicating that it is able to respond to various stimuli and maintain homeostasis. In contrast, a lack of variability might suggest fetal distress or compromised oxygenation, which would raise concerns for the healthcare provider. Therefore, observing variability in fetal heart rate is essential for evaluating the fetus's condition and determining the appropriate course of management during labor. While other options may pertain to different clinical scenarios, they do not directly relate to what fetal heart rate variability measures. Immediate need for a cesarean delivery, indications of uterine rupture, and hydration status may be derived from other clinical indicators and assessments, but they do not specifically correlate with the interpretation of fetal heart rate variability as a mark of well-being.

4. What is the typical duration of a non-stress test (NST)?

A. 10 to 20 minutes

B. 30 to 50 minutes

C. 20 to 40 minutes

D. 15 to 30 minutes

The typical duration of a non-stress test (NST) is generally considered to range from 20 to 40 minutes. An NST is performed to assess fetal well-being by monitoring the fetal heart rate in response to movements. During this time, the healthcare provider evaluates the fetal heart rate pattern for signs of increased variability and accelerations, which indicate a healthy responsive fetus. This duration is appropriate as it allows enough time for the fetus to exhibit movements that can lead to heart rate accelerations, which are reassuring indicators of fetal health. If the test is completed too quickly, there may not be sufficient opportunity to capture these movements and heart rate changes, which could lead to inconclusive or misleading results. Therefore, the timeframe of 20 to 40 minutes strikes a balance between thoroughness and efficiency in assessing fetal condition during the test.

5. What acid-base status is indicated by a pH of 6.98, PCO₂ of 49, HCO₃ of 16, and BE of -16?

A. Respiratory acidosis

B. Metabolic acidosis

C. Mixed acidosis

D. Respiratory alkalosis

The acid-base status indicated by the given values (pH of 6.98, PCO₂ of 49 mmHg, HCO₃ of 16 mEq/L, and BE of -16) points to metabolic acidosis. In this situation, the pH of 6.98 falls below the normal range of 7.35-7.45, indicating acidosis. The HCO₃ level of 16 mEq/L is significantly lower than the normal range of 22-28 mEq/L, which supports the diagnosis of metabolic acidosis because it reflects a primary decrease in bicarbonate. While the PCO₂ of 49 mmHg is elevated, which could indicate respiratory compensation, it is important to note that the primary issue here is a low bicarbonate level. This means the lungs may not be effectively compensating for the metabolic acidosis yet, hence the pH remains low. The base excess (BE) of -16 further confirms that there is a significant deficit in bicarbonate, reinforcing that this is predominantly a metabolic process rather than a respiratory one. The other options are inconsistent with the presented data as they either suggest elevated pH (alkalosis options) or do not align with the

6. What might a fetal heart rate of 180 bpm indicate?

A. Normal fetal activity

B. Potential fetal distress or tachycardia

C. Hypoxia in the fetal environment

D. Maternal anxiety

A fetal heart rate of 180 beats per minute is classified as tachycardia, which can indicate potential fetal distress. In a healthy fetus, the normal heart rate typically ranges from 110 to 160 beats per minute. When the rate exceeds this range, particularly reaching 180 bpm or higher, it raises concerns regarding the well-being of the fetus. Tachycardia can be a sign that the fetus is experiencing stress, which might stem from various factors, including maternal fever, dehydration, hypoxia, or infection. It is essential for healthcare providers to investigate the underlying cause of this elevated heart rate further, as it may necessitate interventions to ensure the safety and health of both the fetus and the laboring individual. This understanding of fetal heart rate is crucial when monitoring fetal well-being during labor and delivery. Other options, like normal fetal activity, hypoxia, or maternal anxiety, may influence fetal heart rate in different contexts, but a sustained heart rate of 180 bpm is most directly aligned with the assessment of potential fetal distress or tachycardia.

7. What is the importance of reviewing the fetal heart rate tracing patterns?

- A. To identify trends that may indicate fetal distress or normal progression**
- B. To establish the exact time of labor onset**
- C. To predict the positioning of the fetus**
- D. To ensure that maternal heart rate is stable**

The importance of reviewing fetal heart rate tracing patterns lies primarily in the ability to identify trends that may indicate fetal distress or normal progression. Monitoring fetal heart rate patterns is a key component of fetal surveillance during labor, as these patterns provide valuable information about the well-being of the fetus. When assessing these tracings, healthcare providers are able to observe variations in the heart rate that may reflect the fetal response to conditions in the intrauterine environment. For instance, changes in the baseline fetal heart rate, presence of accelerations, or decelerations can signal either a normal physiological response to labor or potential compromise, such as hypoxia or other forms of distress. This ongoing assessment allows for timely intervention if an abnormal pattern is detected, ultimately aiming to improve outcomes for both the mother and the baby. While establishing the exact time of labor onset is important in the overall management of labor, it is not the primary reason for reviewing fetal heart rate patterns. Similarly, predicting the positioning of the fetus or ensuring maternal heart rate stability, while important aspects of maternal-fetal assessments, do not directly reflect the significance of the fetal heart rate tracing in monitoring fetal status. Thus, the primary focus remains on evaluating fetal heart rate patterns to determine the well-being of the fetus during labor.

8. What does prolonged deceleration lasting more than 2 minutes indicate?

- A. Normal fetal response**
- B. Potential fetal compromise requiring immediate assessment**
- C. Need for change in maternal position**
- D. Regular fetal monitoring is sufficient**

Prolonged deceleration lasting more than 2 minutes is indicative of potential fetal compromise, necessitating immediate assessment. In the context of fetal monitoring, decelerations refer to temporary drops in the fetal heart rate that can occur during labor or when the fetus is in distress. A prolonged deceleration can be symptomatic of several issues, such as cord compression, uteroplacental insufficiency, or other complications that may threaten the baby's well-being. When such decelerations occur, they can signal that the fetus is not receiving adequate oxygen, making it critical for healthcare providers to assess the situation promptly to determine the appropriate intervention to safeguard both maternal and fetal health. Regular monitoring alone would not suffice in this instance, as the risk of fetal compromise requires more urgent attention to ensure both the mother's and the baby's safety.

9. What does a decrease in fetal heart rate variability suggest?

- A. Improved fetal well-being**
- B. Possible fetal distress or compromise**
- C. A sign of adequate oxygenation**
- D. No clinical significance**

A decrease in fetal heart rate variability is an important indicator in monitoring fetal well-being, as it can suggest possible fetal distress or compromise. Typically, fetal heart rate variability indicates that the fetus's autonomic nervous system is functioning well, allowing for healthy physiological responses to stimuli. When variability decreases, it may signify that the fetus is experiencing stress, possibly due to factors like hypoxia, a lack of adequate oxygen supply, or other complications affecting its well-being. In a clinical context, monitoring fetal heart rate patterns is crucial during labor and delivery. Healthcare providers use variations in fetal heart patterns to assess how well the fetus is transitioning through labor and whether any interventions are necessary. A reduced variability could prompt further evaluation or intervention to prevent poor outcomes for the fetus. On the other hand, improved fetal well-being, adequate oxygenation, and clinical insignificance do not align with the implications of decreased fetal heart rate variability. These conditions typically reflect a stable and healthy fetal status rather than a concern for distress or compromise. Thus, understanding the significance of fetal heart rate variability is essential for ensuring appropriate care and timely interventions in obstetric practice.

10. What is the duration of an acceleration to be classified as significant?

- A. 5 seconds**
- B. 10 seconds**
- C. 15 seconds**
- D. 20 seconds**

An acceleration is classified as significant when it lasts for at least 15 seconds. This duration reflects the time frame in which a fetal heart rate increase—at least 15 beats per minute above the baseline—can be considered meaningful in assessing fetal well-being. The established standard for recognizing significant accelerations is crucial for effective monitoring, as these variations can indicate adequate oxygenation and autonomous nervous system function in the fetus. Shorter durations, such as 5 or 10 seconds, may occur but do not meet the criteria for classification as significant accelerations in fetal monitoring. A duration of 20 seconds, although indicating a longer acceleration, surpasses the minimum threshold of 15 seconds and thus aligns with the classification criteria for assessment without needing to be defined as significant.