

## FHR Case Presentation #4 An Unexpected Outcome

Expires Monday, July 31, 2023

Nursing

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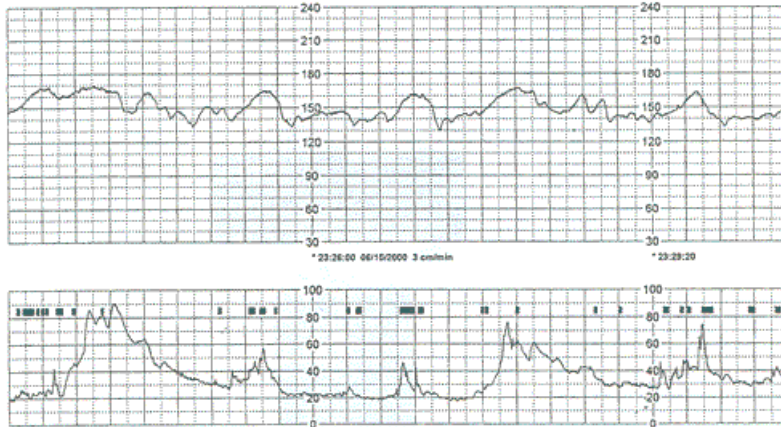
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### Examination

- The audible heart beat sound that comes from an external fetal heart-monitoring device is
  - a prerecorded heart beat that is generated based on the established fetal heart rate baseline
  - a microphone recording of the actual beating heart
  - generated from the maternal heart beat but the rate is based on the fetal heart rate baseline
  - electronically created by the machine based on ultrasound frequency changes generated by the moving heart
  - generated by the actual inutero heart beat sound
- External fetal heart-monitoring devices have or do all of the following EXCEPT
  - send ultrasound signals
  - microphones
  - built in logic
  - receive ultrasound signals
  - built in filters
- Regarding an electrocardiogram readout, the ventricular contraction of the heart coincides with the \_\_\_\_ wave.
  - P
  - Q
  - R
  - S
  - T
- Second-generation fetal heart-monitoring devices employ a system called \_\_\_\_ that creates 200 to 300 digitized points along a wave curve.
  - autocorrelation
  - noise reduction
  - 'R' wave analysis
  - artifact reduction
  - auto-wave analysis
- External fetal heart-monitoring devices can do all of the following EXCEPT
  - double a slow heart rate
  - artificially increase variability
  - halve a fast heart rate
  - produce a non-readable strip due to pen lift
  - artificially decrease variability
- Factors that may lead to signal loss on an external fetal heart-monitor tracing include all of the following EXCEPT
  - increased maternal abdominal wall adipose tissue
  - fetal position in relation to the transducer
  - scarring of the maternal abdominal wall from prior surgeries

- d. maternal movement
- e. a lack of fetal movement

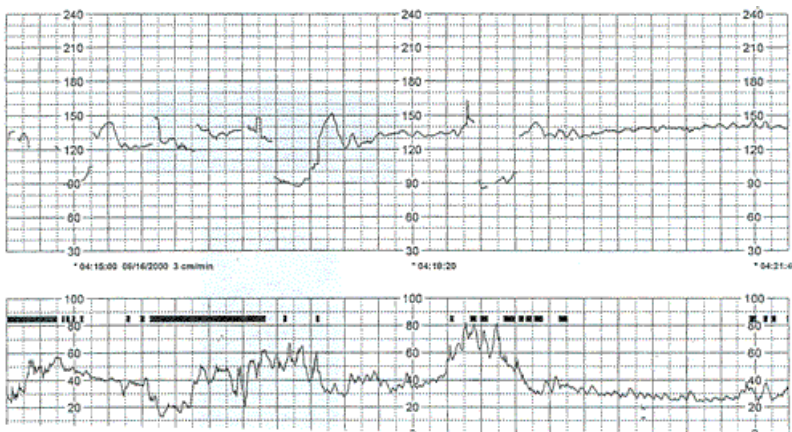
7.



The overall variability in strip #1 above is

- a. absent
  - b. minimal
  - c. moderate
  - d. marked
  - e. reactive
8. Which statement is true regarding maternal heart rates that are recorded using an external fetal heart-monitoring device (especially when the mother is tachycardic)?
- a. The monitor won't record a maternal baseline rate above 100 BPM.
  - b. Variability is a function that is only seen with fetal heart rate recordings.
  - c. The tracings will not record anything that looks like accelerations.
  - d. A strip with moderate variability and accelerations can be generated.
  - e. The hallmark of a maternal heart rate recording is windows of pen lift and signal loss.
9. From surveys of medical malpractice claims in the United States in obstetrics \_\_\_\_ of the cases that involve a poor neonatal outcome and the fetal heart monitor tracing, implicate the monitoring of the mother's heart rate instead of the fetus.
- a. 5% to 13%
  - b. 15% to 23%
  - c. 25% to 33%
  - d. 40% to 53%
  - e. 50% to 67%

10.

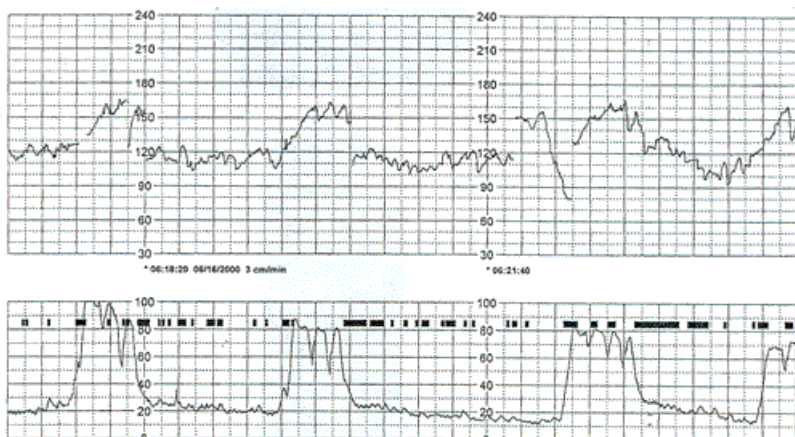


The variable decelerations seen in Strip #3 above would be described as

- a. mild

- b. moderate
  - c. severe
  - d. starting at a baseline in the 130's, with a nadir of about 90, lasting for 20 to 30 seconds
  - e. non-reassuring because of their recurrent nature
11. All of the following statements regarding an internal fetal heart-monitoring device (fetal scalp electrode) are true EXCEPT
- a. It is considered to be invasive.
  - b. It is a unipolar electrode that involves a stainless steel spiral conductor that is attached to the fetus
  - c. It actually measures the true time interval between 'R' waves of the fetal heart ECG.
  - d. It supplies true beat-to-beat variability
  - e. It can only be used once the membranes are ruptured, and if applied with intact membranes will cause the membranes to become ruptured.
12. The risk of infection following the use of a fetal scalp electrode in most studies is
- a. < 1%
  - b. 1% to 3%
  - c. 3% to 5%
  - d. 5% to 8%
  - e. 8% to 11%
13. The use of a fetal scalp electrode is not recommended in which of the following maternal infection situations?
- a. Group B Streptococcus screen positive
  - b. Hepatitis B surface antigen positive
  - c. HIV carrier
  - d. Hepatitis C carrier
  - e. Genital herpes with no active lesions
14. Regarding patients that are hepatitis C carriers
- a. The use of a fetal scalp electrode is not recommended.
  - b. The perinatal transmission rate is higher than that of Hepatitis B.
  - c. The use of the hepatitis C vaccine makes the risk of perinatal transmission minimal.
  - d. The perinatal transmission is minimal because the spiral electrode is a solid bore needle
  - e. This topic has not been fully analyzed and thus management will be based on the preferences of the individual healthcare providers.

15.



The variability seen in Strip #6 above is

- a. not interpretable because it is maternal
- b. absent
- c. minimal

- d. moderate
  - e. marked
16. In the case presented, all of the following issues can go into the analysis process of fetal versus maternal monitoring EXCEPT
- a. A heart rate baseline change from the 140's down to the 110's in an hour's time without any change in treatment or maternal temperature
  - b. The presence of moderate variability on the recorded tracing
  - c. The presence of heart rate accelerations that coincide with every maternal pushing effort
  - d. The recorded values occurring in the same range as the maternal heart rate
  - e. The use of an external fetal heart-monitoring device
17. An umbilical artery cord blood gas base deficit value that is indicative of an acute intrapartum hypoxic event severe enough to cause cerebral palsy is
- a.  $< 7$
  - b.  $\geq 6$
  - c.  $< 10$
  - d.  $\geq 10$
  - e.  $\geq 12$
18. To say that an acute intrapartum hypoxic event occurred that led to a child's cerebral palsy, four essential criteria are needed and these include all of the following EXCEPT
- a. Apgar scores of 0 to 3 beyond 5 minutes
  - b. Cerebral palsy of the spastic quadriplegic or dyskinetic type
  - c. Exclusion of other identifiable etiologies (such as trauma, coagulation disorders, infectious conditions, genetic disorders, or pre-existing)
  - d. Evidence of a metabolic acidosis in the fetal umbilical artery (cord blood gas) obtained at delivery ( $\text{pH} < 7.0$  with a base deficit  $\geq 12$  mmol/L)
  - e. Early onset of severe or moderate neonatal encephalopathy in infants  $\geq 34$  weeks of gestation
19. Beat-to-beat variability is
- a. short-term variability
  - b. the same as reactivity
  - c. long-term variability
  - d. the presence of accelerations
  - e. all variability visually ascertained as one entity
20. Variability that is detectable but  $\leq 5$  beats per minute is
- a. absent
  - b. minimal
  - c. moderate
  - d. marked
  - e. normal



