

## Advanced Fetal Monitoring

### Post-test

1. At 32 weeks and beyond, an acceleration is defined as an increase in fetal heart rate that must be at least
  - a. 5 beats/min above the baseline and must last at least 10 seconds
  - b. 10 beats/min above the baseline and must last at least 10 seconds
  - c. 15 beats/min above the baseline and must last at least 10 seconds
  - d. 15 beats/min above the baseline and must last at least 15 seconds
  - e. 20 beats/min above the baseline and must last at least 15 seconds
  
2. Fetal heart rate variability cannot be interpreted with an external monitor.
  - a. True
  - b. False
  
3. Use of the terms “beat-to-beat” variability and “long-term” variability is not recommended by the NICHD because in actual practice, they are visually determined as a unit.
  - a. True
  - b. False
  
4. Variable deceleration of the fetal heart rate is defined as a visually apparent abrupt decrease in FHR. The time from the onset of the deceleration to the nadir (lowest point) is less than:
  - a. 15 seconds
  - b. 20 seconds
  - c. 30 seconds
  - d. 60 seconds
  - e. 2 minutes
  
5. According to NICHD definitions of FHR variability, which of the following is accurate?
  - a. Range 1-2 beats/min = absent variability
  - b. Range visually detectable but  $\leq 5$  beats/min = reduced variability
  - c. Range 6-25 beats/min = average variability
  - d. Range  $> 25$  beats/min = excessive variability
  - e. Range visually detectable but  $\leq 5$  beats/min = minimal variability
  
6. Before 32 weeks of gestation, accelerations are defined as having a peak at least 15 beats/min above baseline and a duration of at least 15 seconds.
  - a. True
  - b. False

7. According to standardized NICHD terminology, the normal FHR baseline range is:
- 120-160 beats per minute regardless of gestational age
  - 110-160 beats per minute before 32 weeks of gestation
  - 110-160 beats per minute after 32 weeks of gestation
  - 110-160 beats per minute regardless of gestational age
8. According to the 2008 NICHD consensus report and ACOG Practice Bulletin 106 (July, 2009), moderate FHR variability reliably predicts the absence of fetal
- Metabolic acidemia
  - Respiratory acidemia
  - Hypoxemia
  - Hemolytic anemia
9. Late deceleration of the fetal heart rate is a reflex fetal response to
- Transient fetal tissue hypoxia during a uterine contraction
  - Transient fetal tissue metabolic acidosis during a uterine contraction
  - Transient fetal hypoxemia during a uterine contraction
  - Transient fetal hypotension during a uterine contraction
  - Transient fetal cerebral ischemia during a uterine contraction
10. According to the 2008 NICHD consensus report and ACOG Practice Bulletin 106 (July, 2009) fetal heart rate accelerations reliably predict the absence of:
- Transient fetal hypoxemia
  - Fetal metabolic acidemia
  - Fetal tissue metabolic acidosis
  - Fetal tissue hypoxia
11. A fetal heart rate rise of at least 10 beats/min lasting at least 10 seconds and less than 2 minutes is defined as an acceleration at a gestational age of
- < 32 weeks
  - ≤ 32 weeks
  - < 33 weeks
  - ≤ 33 weeks
12. Assessment of FHR variability
- Requires a fetal scalp electrode
  - Includes quantitation of beat-to-beat changes
  - Includes a thorough description of long-term variability
  - Can be performed using an external monitor with autocorrelation technique

13. According to standardized NICHD nomenclature, decelerations that occur with at least 50% of uterine contractions in a 20 minute window are defined as:

- a. Repetitive
- b. Ominous
- c. Non-reassuring
- d. Recurrent
- e. Persistent

14. An intrapartum FHR tracing demonstrates a baseline rate of 125 beats per minute, moderate variability, accelerations and intermittent late and variable decelerations. Which of the following statements is most accurate?

- a. Moderate variability and accelerations reliably predict the absence of metabolic acidemia
- b. Late decelerations reflect transient fetal metabolic acidemia during uterine contractions
- c. Variable decelerations are caused by respiratory acidosis during cord compression
- d. Variable decelerations are caused by fetal hypoxia during cord compression
- e. None of the above

15. Minimal or absent fetal heart rate variability alone reliably predicts the presence of fetal metabolic acidemia.

- a. True
- b. False

16. The absence of fetal heart rate accelerations reliably predicts fetal metabolic acidemia and hypoxia at the time it is observed.

- a. True
- b. False

17. According to the 2008 NICHD consensus report, a Category I FHR tracing requires which of the following?

- a. Baseline rate 110-160 beats/min
- b. Moderate variability
- c. Accelerations
- d. No late, variable or early decelerations
- e. a and b

18. A prolonged FHR deceleration lasts  $\geq 2$  and  $< 10$  minutes.

- a. True
- b. False

19. According to the 2008 NICHD consensus report, decelerations that occur with < 50% of uterine contractions in a 20 minute window are defined as:

- a. Occasional
- b. Sporadic
- c. Intermittent
- d. Transient
- e. Insignificant

20. According to the 2008 NICHD consensus report, the normal frequency of uterine contractions is

- a.  $\leq 5$  contractions in 10 minutes averaged over twenty minutes
- b.  $< 5$  contractions in 10 minutes averaged over twenty minutes
- c.  $< 6$  contractions in 10 minutes averaged over thirty minutes
- d.  $< 5$  contractions in 10 minutes averaged over thirty minutes
- e.  $\leq 5$  contractions in 10 minutes averaged over thirty minutes

21. According to the 2008 NICHD consensus report, uterine contraction frequency in excess of normal is defined as:

- a. Hyperstimulation
- b. Hypercontractility
- c. Hypertonus
- d. Tachysystole
- e. Hyperstimulation when uterine stimulants are used

22. The term tachysystole applies to either spontaneous or stimulated labor.

- a. True
- b. False

23. A persistent sinusoidal pattern would be classified as:

- a. Category I
- b. Category II
- c. Category III

24. According to the 2008 NICHD consensus report, Category II FHR tracings reliably predict abnormal fetal acid-base status at the time they are observed

- a. True
- b. False

25. Fetal heart rate variability is defined as fluctuations in the baseline that are regular in amplitude and frequency

- a. True
- b. False

26. According to the 2008 NICHD consensus report, the “overshoot” FHR pattern is highly predictive of

- a. Fetal asphyxia
- b. Fetal hypoxia
- c. Fetal cerebral ischemia
- d. Preexisting fetal neurologic injury
- e. None of the above

27. According to the 2008 NICHD consensus report, a fetal heart rate deceleration demonstrating slow return to baseline requires further research investigation to determine clinical significance.

- a. True
- b. False

28. A sinusoidal fetal heart rate pattern is a visually apparent, smooth, sine wave-like undulating pattern in FHR baseline with a cycle frequency of 3-5/min that persists for at least

- a. 10 minutes
- b. 20 minutes
- c. 30 minutes
- d. 40 minutes

29. A fetal heart rate acceleration following fetal vibroacoustic stimulation has the same clinical significance as a spontaneous acceleration

- a. True
- b. False

30. According to the 2008 NICHD consensus report, fetal heart rate tracing patterns can reliably predict the development of cerebral palsy.

- a. True
- b. False

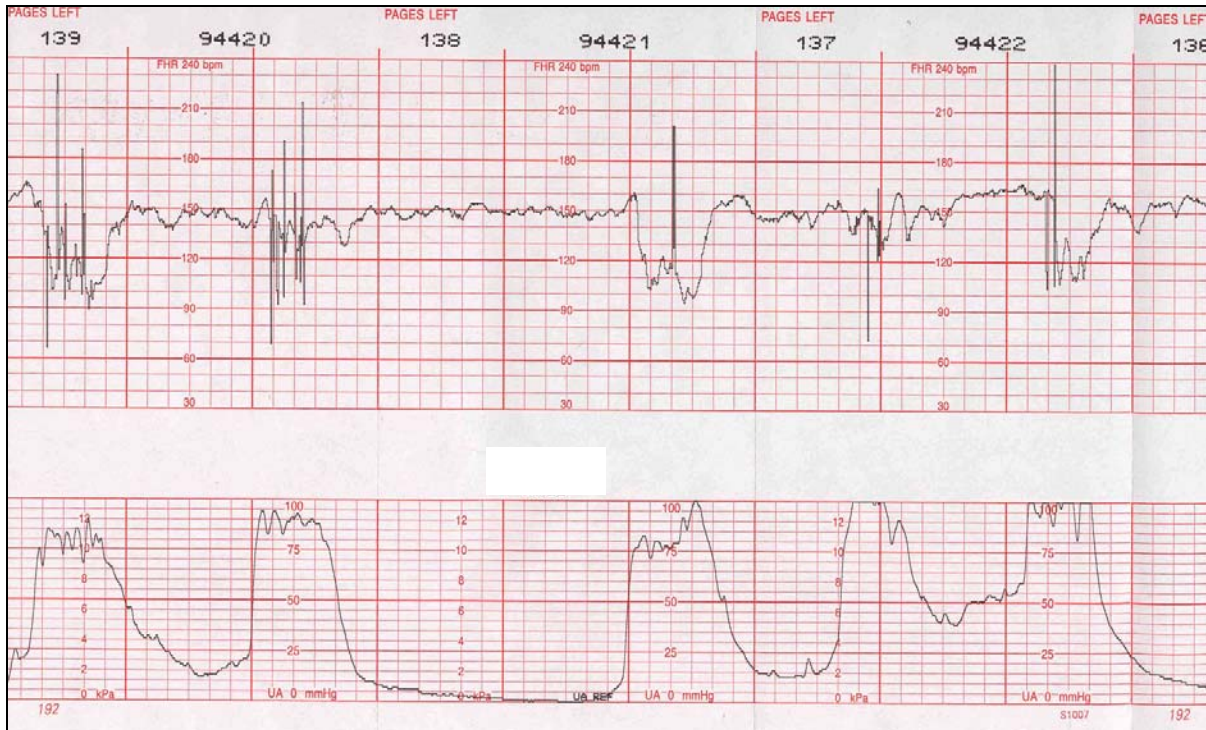
31. Which of the following is accurate regarding the FHR tracing below?

- a. Sinusoidal FHR pattern
- b. Late decelerations with each contraction
- c. Transient tissue hypoxia during uterine contractions
- d. Category III FHR tracing
- e. Highly predictive of abnormal fetal acid-base status



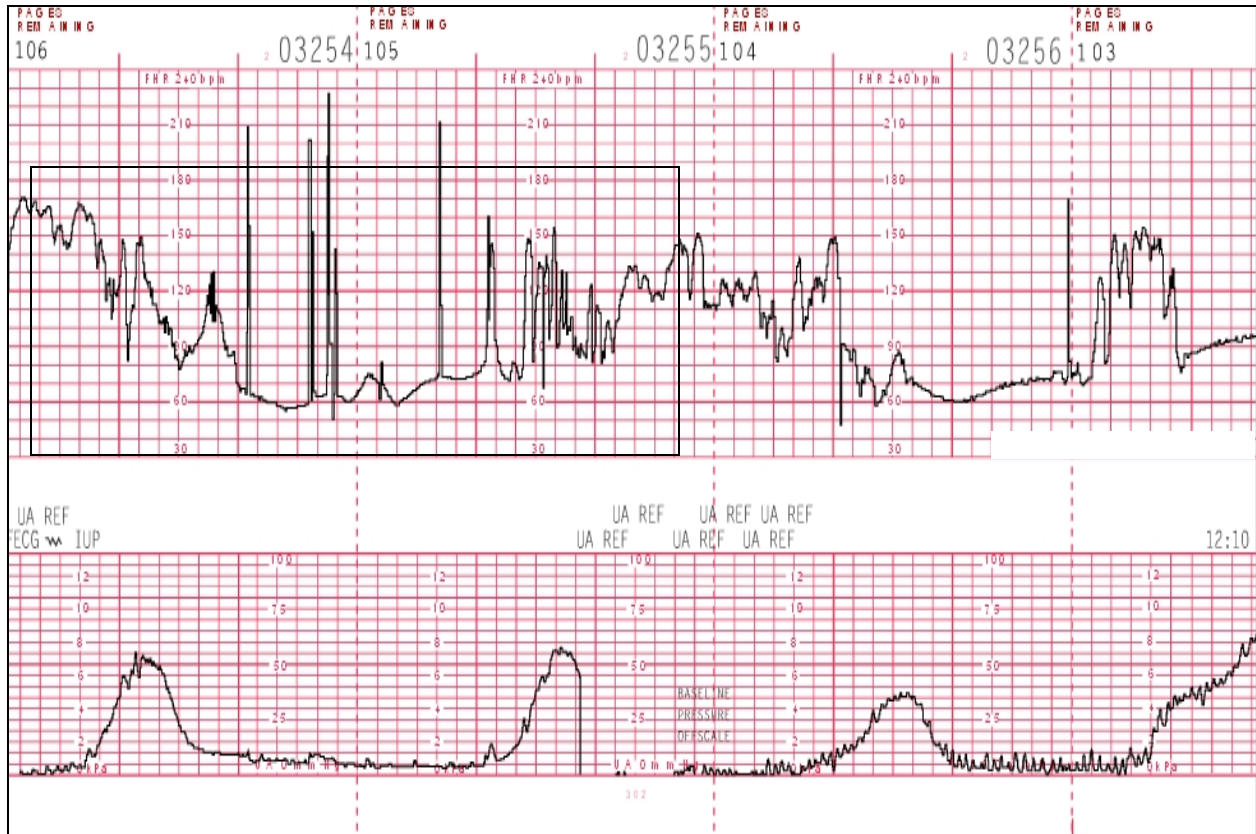
32. Which of the following is most accurate regarding the FHR tracing below?

- a. Variable decelerations can be caused by umbilical cord compression
- b. Variable decelerations reflect interruption of oxygen transfer from the environment to the fetus at one or more points
- c. Variability is absent
- d. a and b



33. What type of deceleration is depicted in the box below

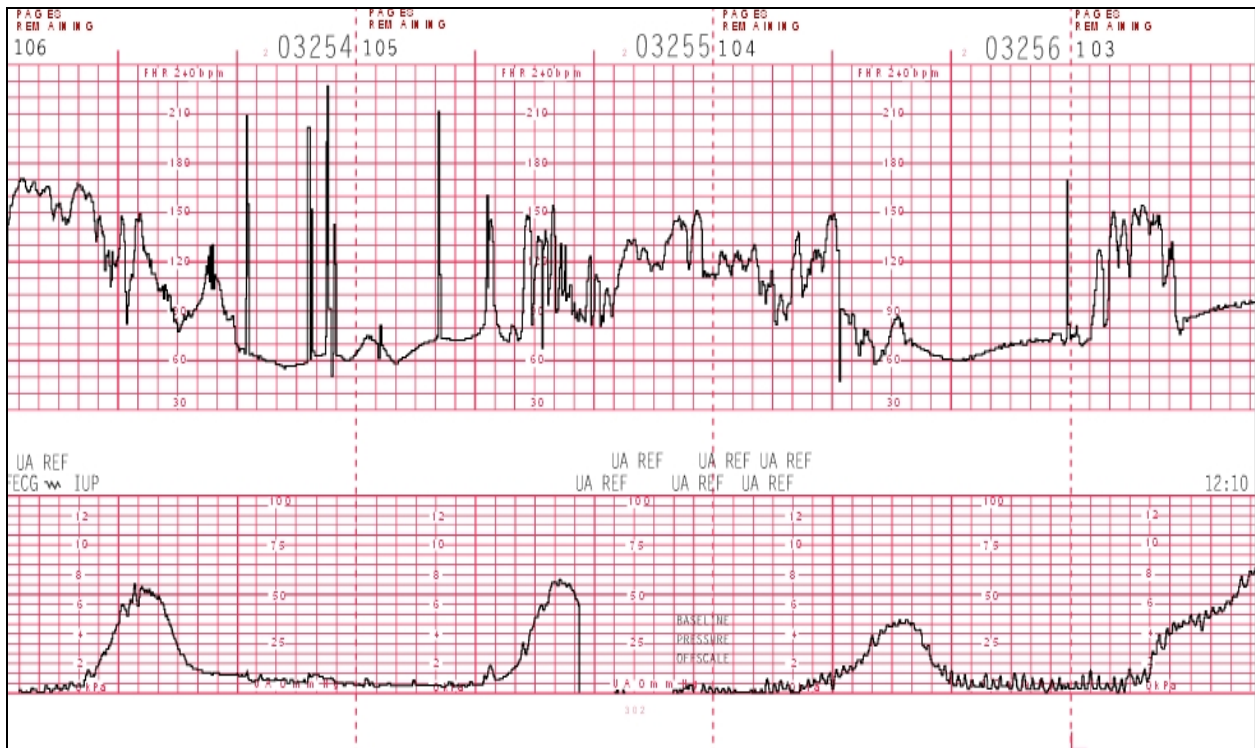
- a. Variable
- b. Early
- c. Late
- d. Prolonged





34. Appropriate management of the FHR pattern identified below may include any of the following except

- a. Supplemental oxygenation
- b. Confirm maternal heart rate and blood pressure
- c. Maternal position changes
- d. Correct maternal hypotension if present
- e. Fetal scalp stimulation



35. Which of the following is the most accurate interpretation of the fetal heart rate tracing below?

- a. Baseline FHR 150 beats/min
- b. Highly predictive of fetal metabolic acidemia
- c. Highly predictive of abnormal neurologic outcome
- d. Cannot exclude fetal metabolic acidemia at this time
- e. Non-reassuring



36. Minimal or absent FHR variability alone reliably predict the presence of fetal hypoxemia at the time of observation.

- a. True
- b. False

37. The absence of FHR accelerations is highly predictive of fetal hypoxia.

- a. True
- b. False

38. According to the 2008 NICHD fetal heart rate definitions, the time from onset to nadir of a late deceleration is

- a.  $\geq 15$  seconds
- b.  $\geq 30$  seconds
- c.  $> 20$  seconds
- d.  $> 30$  seconds

39. Category III includes which of the following:

- a. Absent variability with recurrent late decelerations
- b. Absent variability with recurrent variable decelerations
- c. Absent variability with bradycardia
- d. Sinusoidal pattern
- e. Any of the above

40. According to the 2008 NICHD Consensus report, a Category II fetal heart rate tracing

- a. Predicts abnormal fetal acid-base status
- b. Excludes abnormal fetal acid-base status
- c. Is not predictive of abnormal fetal acid-base status
- d. Is always predictive of normal fetal acid-base status
- e. None of the above

41. Fetal bradycardia is defined as a baseline rate

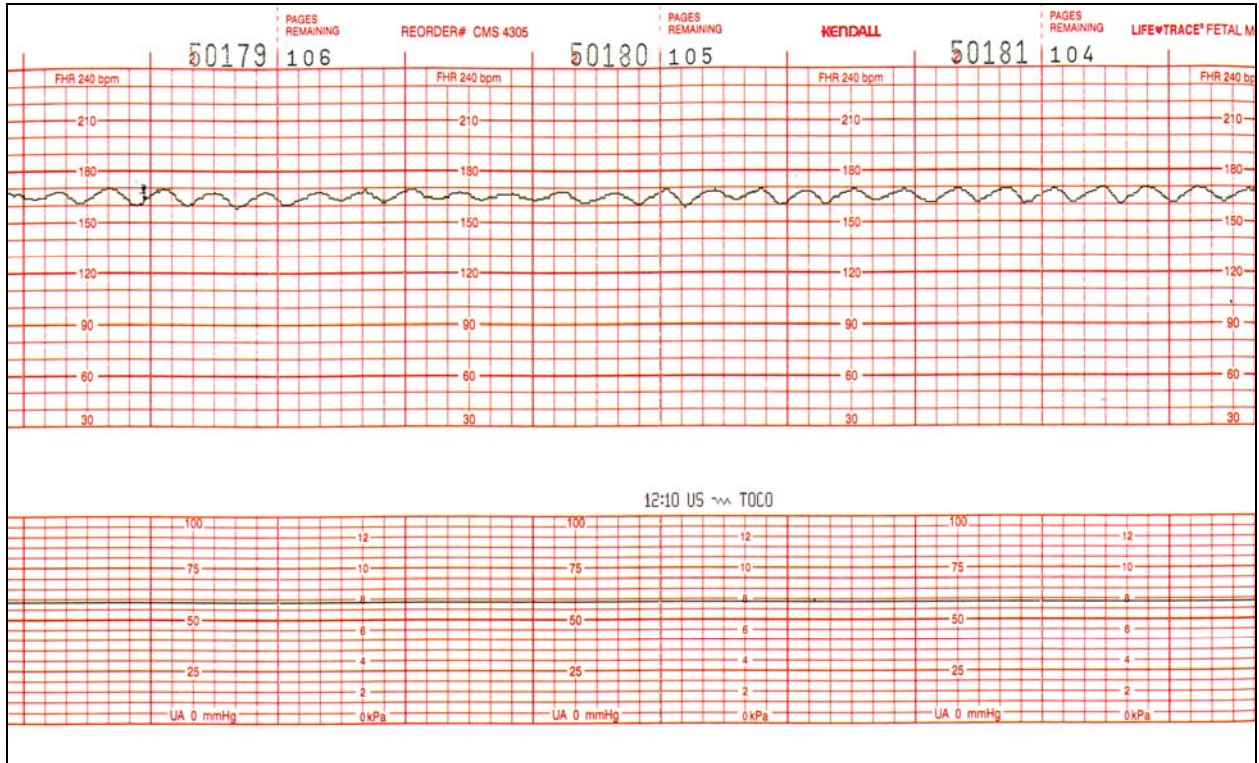
- a.  $< 120$  beats/min
- b.  $\leq 120$  beats/min
- c.  $< 110$  beats/min
- d.  $\leq 110$  beats/min
- e. None of the above

42. A variable deceleration is defined as an abrupt decrease in the fetal heart rate from the baseline that

- a. Is at least 15 beats/min below baseline and lasts  $\geq 15$  seconds but less than 2 minutes
- b. Is at least 30 beats/min below baseline and lasts  $\geq 15$  seconds but less than 2 minutes
- c. Is at least 30 beats/min below baseline and lasts  $\geq 15$  seconds but less than 2 minutes
- d. Is at least 15 beats/min below baseline and lasts  $\geq 30$  seconds but less than 2 minutes
- e. None of the above

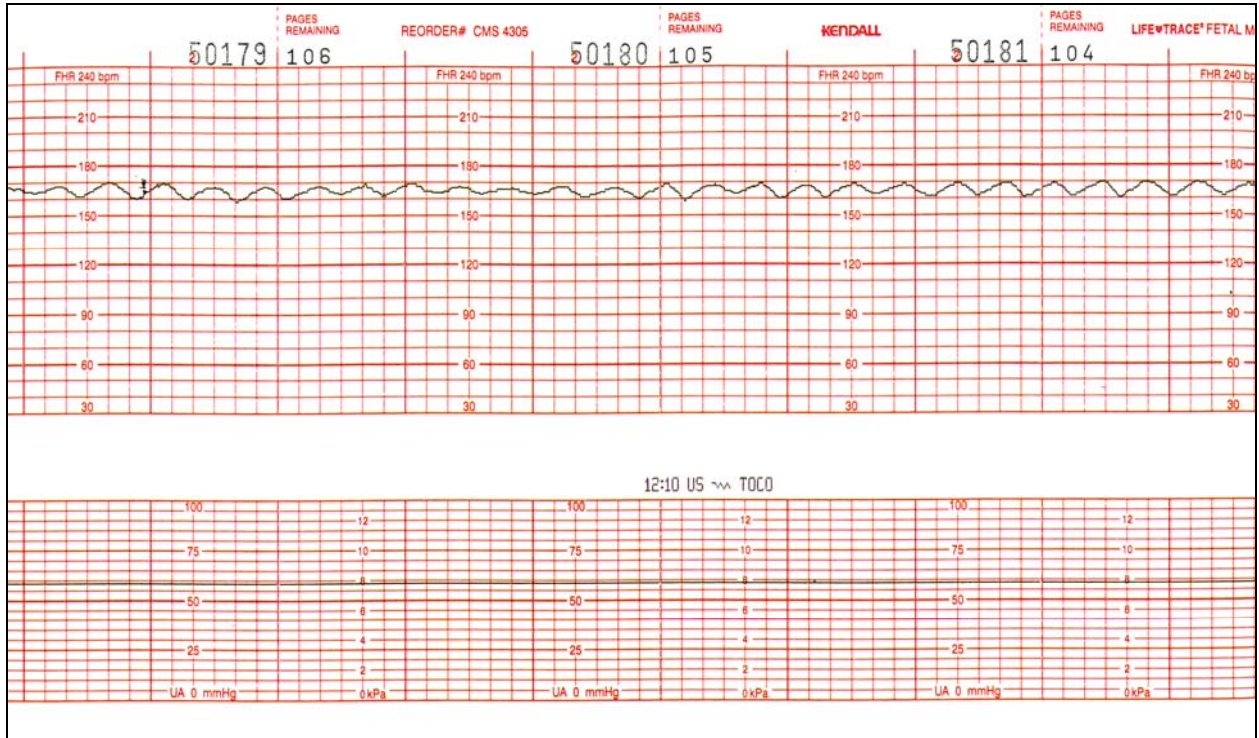
43. The tracing below demonstrates

- a. Moderate variability
- b. Accelerations
- c. Sinusoidal pattern
- d. Normal baseline rate
- e. None of the above



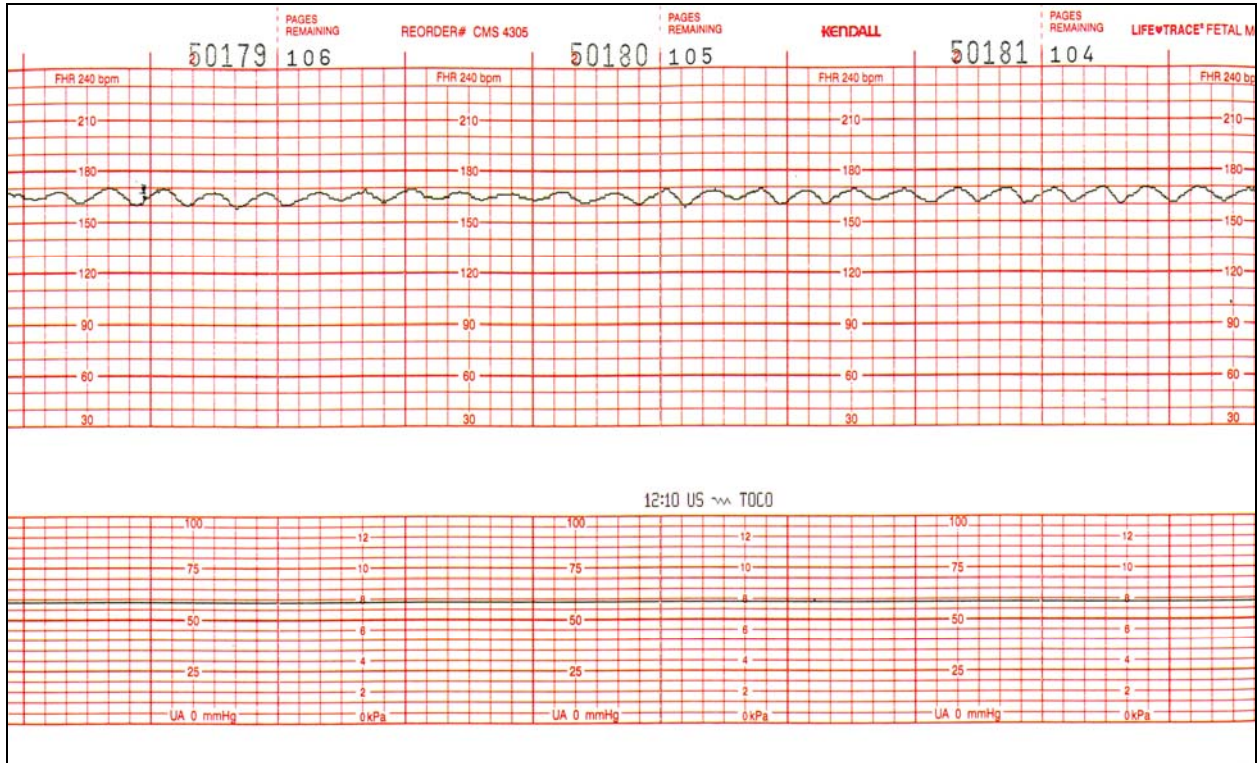
44. Variations of this pattern have been described in association with

- a. Fetal anemia
- b. Narcotic medications
- c. Chorioamnionitis
- d. All of the above
- e. None of the above



45. Management of this pattern requires

- a. Prompt evaluation
- b. Rapid search for possible etiology
- c. Prompt clinical decisions regarding intervention, delivery timing and delivery route
- d. All of the above
- e. None of the above



46. Moderate variability is defined by an amplitude range of

- a. 5-15 beats/min
- b. 6-15 beats/min
- c. 5-25 beats/min
- d. >10 beats/min
- e. 6-25 beats/min

47. Variability is quantitated in beats per minute and is measured from

- a. The peak to the trough of the fetal heart rate fluctuations
- b. The baseline to the peak of the fetal heart rate fluctuations
- c. The baseline to the trough of the fetal heart rate fluctuations
- d. None of the above

48. Marked variability is defined as

- a. > 10 beats/min
- b. > 15 beats/min
- c. > 20 beats/min
- d. > 25 beats/min
- e. None of the above

49. A variable deceleration is a fetal reflex response to transient compression of the fetal head during a contraction

- a. True
- b. False

50. Fetal scalp stimulation is used to

- a. Provoke FHR accelerations
- b. Correct prolonged decelerations
- c. Stimulate variability during a prolonged deceleration
- d. All of the above