

ALSO® Intrapartum Fetal Surveillance Workshop Cases

REVISED JUNE, 2011

Case #1

AIM: **Tachysystole** - To emphasize the importance of looking at the contraction pattern in addition to FHR pattern. Tachysystole is under-diagnosed, especially when running oxytocin. **DR:** Primigravida in spontaneous labor at term. Slow progress in the first stage of labor. Augmented with oxytocin three hours earlier when at 5 cm dilated. Currently have on external monitor.

Ask participant to define risk: **low risk**, but use of oxytocin noted.
Discuss active management of labor and whether use of oxytocin constitutes high risk – may depend on FHR pattern as defined in ACOG guidelines. May want to mention AWHONN standards that once on oxytocin, assessment of labor moves to every 15 minutes from every 30 minutes

C: Get participant to count – five in 10 minutes, or approximately every two minutes occasional coupling – seen in last two contractions on this strip; get participant to define **tachysystole** (*>five contractions in 10 minutes averaged over 30 minutes*)

B Rate: 140

V: Minimal (moderate at times)

A: present

D: Perhaps some early vs. variable decelerations. Distinguish shoulders from accelerations. Do not count shoulders as accelerations, however shoulders are not a worrisome finding as long as in context of true accelerations and moderate variability

O: **Category I** if the decelerations are determined to be early.
Category II if variable deceleration
Contraction frequency is tachysystole.

Including

Plan :

The presence or absence of FHR abnormalities are important in the management of tachysystole – ACOG Figure 2

- Check for complete dilation
- If CAT I – reduce or stop Pitocin to see if coupling stops and contraction frequency lessens
- If CAT II/III – reduce or stop Pitocin and perform intrauterine resuscitation. Simultaneous multiple measures may improve fetal oxygenation – Figure 1 and Table 2 ACOG.

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Case #2

- AIM:** To demonstrate a **CATEGORY I** monitor strip
- DR:** Gravida 3, Para 2, previous normal deliveries, spontaneous labor at term. Normal progress – 3 cm dilated. Clear fluid with spontaneous membrane rupture.
- Ask participant to define risk: Low risk
- C:** Get learner to count – three in 10 minutes, or every three minutes. Define normal labor vs. tachysystole (it is important to repeat this here after prior case). Tachysystole is > five contractions in 10 minutes averaged over 30 minutes.
- B Rate:** 125
- V:** Moderate
- A:** Present– four to five accelerations noted
- D:** None
- O:** **Category I**

Including Plan:

- Consider move to intermittent auscultation or no change in monitoring method.
- Define intermittent auscultation and timing.
- Ask what institutional protocols exist for fetal monitoring and what would be the preferred monitoring method.
- Discuss intermittent electronic monitoring (pros/cons)

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Case #3 – *note: two tracings accompany this case

- AIM:** To demonstrate a **LOW BASELINE and Category I**
- DR:** Gravida 2, Para 1, previous spontaneous vaginal delivery without complications, spontaneous labor at 41 weeks. Four cm dilated. This is admission tracing for first 15 minutes. It then continues after patient was given Nubain for analgesia.
- Ask participant to define risk: low risk, but somewhat reduced variability noted after Nubain.
- C:** Get participant to count – Three in 10 minutes, or every three to four minutes
- B Rate:** 110 on Part I, 110 on Part II
- V:** Moderate Part I, moderate on Part II
- A:** Present in Part I, but not in Part II
- D:** Possible early at end of Part II – still CAT I
- O:** **Category I** in Part I, normal tracing for mature baby / postdates
Category I in Part II, no accelerations probably due to analgesic administration

Including Plan:

- Continued observation– Accelerations should return in a term fetus within 20 to 40 minutes following administration of analgesic. Some would consider scalp or acoustic stimulation if accelerations do not re-appear after that period of time although given moderate variability this is not required.
- Routine management.

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Case #4

- AIM: To demonstrate **EARLY DECELERATIONS**
- DR: Gravida 4, Para 2, Ab 1, previous spontaneous vaginal deliveries without complications. Spontaneous labor at 38 weeks. Slow progress from 5 cm – augmented four hours earlier.
- Get learner to define risk: **low risk**, but oxytocin use noted. Same discussion about active management of labor and FHR abnormalities if present.
- C: Five in 10 minutes or every two minutes (not quite tachysystole)
- B Rate: 150
- V: Minimal
- A: No
- D: shallow early decelerations: symmetric, mirror contractions
- O: **Category II** – minimal variability
- Including Plan:
- Check cervix – anticipate full dilatation
Monitor contraction pattern
Perform intrauterine resuscitation per FIGURE 1 and Table 2 – ACOG
- For CAT II, intervention depends on variability and presence or absence of accelerations.
 - For minimal variability and absent accelerations, perform intrauterine resuscitative measures and if not improved or FHR tracing progresses to Category III, consider delivery

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Case #5

- AIM:** To demonstrate **RECURRENT VARIABLE DECELERATIONS**
- DR:** Primigravida at term in spontaneous labor. Six cm dilated and making good progress. Clear fluid. Accelerations noted in earlier tracings.
- Ask participant to define risk: **low risk**
- C:** Three in 10 minutes, or every three to four minutes
- B Rate:** 140 initially, rising to 150
- V:** Moderate in first half of strip. Minimal in last half of strip.
- A:** None
- D:** **Variable decelerations** – variable down to 90 to 110 – moderate variability within decelerations ; **recurrent** (75 percent) of contractions.
- Intermittent variable decelerations – defined as < 50 percent of contractions.
 - Recurrent variable decelerations – defined as ≥ 50 percent of contractions in a 20 minute window and includes frequency, depth and duration, uterine contraction pattern and other FHR characteristics such as variability (ACOG)
- O:** **Category II**
- Including Plan:**
- *Intermittent variable decelerations:* Most often do not require any intervention and are associated with normal perinatal outcomes (ACOG)
 - **Recurrent variable decelerations:**
 - When associated with moderate variability or spontaneous or induced accelerations, suggest the fetus is not acidemic.
 - Relieve umbilical cord compression – amnioinfusion (be sure to discuss with patient); change maternal position (Table 2)
 - **Category II** – For minimal variability and absent accelerations, perform intrauterine resuscitative measures and if not improved or FHR tracing progresses to Category III, consider delivery
 - Figure 1 (ACOG)

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Case # 6

- AIM:** To demonstrate the development of **RECURRENT VARIABLE DECELERATIONS**.
- DR:** Same patient as in example # five (Primigravida at term in spontaneous labor. Six cm dilated and making good progress with clear fluid.), but NOW three hours later: 8 cm dilated, vertex in LOP (left occiput posterior) position
- Ask participant to define risk: Still low risk – progress reasonably good
- C:** Ask participant to count: Three in 10 minutes every three minutes. As compared to earlier tracing on same patient, she now appears to have an internal pressure catheter (may want to have participants discuss contraction strength on this tracing). Even though IUPC has been placed, emphasize the importance of verifying this tracing with palpation and not solely relying on the tracing. Is the IUPC simply not working and she is having adequate uterine activity? Or is this tracing a true reflection of inadequate uterine activity. A discussion of calculation of Montevideo units might be helpful.
- B Rate:** 150
- V:** Moderate
- A:** None - The accelerations that are on this fetal monitoring strip are “shoulders” occurring after variable decelerations
- D:** **Recurrent variable decelerations:**
- ≥ 50 percent of the contractions
 - Deep and of longer duration (return to baseline)
 -
- O:** **Category II**
- Including Plan:**
- Check cervix. This patient might be complete and this tracing reflects that.
 - **Recurrent variable decelerations:** When associated with moderate variability or spontaneous or induced accelerations, suggest the fetus is not acidemic. Discuss the use of scalp stimulation or acoustic stimulation.
 - Relieve umbilical cord compression – amnioinfusion (be sure to discuss with patient); change maternal position (Table 2)
 - Position change – for both improving tracing and rotation of OP
 - **Category II** – For minimal variability and absent accelerations, perform intrauterine resuscitative measures and if not improved or FHR tracing progresses to Category III, consider delivery
 - Figure 1 (ACOG)

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Case # 7

- AIM:** To demonstrate **PROLONGED DECELERATION** with progression to **CATEGORY III**.
- DR:** Same patient as in Example six. Decelerations are now lasting longer than two minutes and deepening. Now one hour later, complete and plus 2 station. Still OP (occiput posterior) position
- Ask participant to define risk: **High risk**
- C:** Ask participant to count: Five in 10 minutes, or every two minutes, not quite tachysystole
- B Rate:** This baseline is indeterminate. NICHD defines indeterminate baseline as one in which in a 10 minute segment there are NOT at a minimum of two minutes of baseline. The 180 or the 160 rate are of two minutes in duration to qualify as actually being baseline.
- V:** Minimal to absent
- A:** Absent
- D:** **Prolonged decelerations:** FHR decreases at least 15 bpm below baseline that lasts for two minutes but less than 10 minutes. There is no definition or distinction prolonged late vs. prolonged variable decelerations.
- O:** **Category II** - variability is minimal and prolonged decelerations
- Including Plan:**
- **Category II –**
 - Should be directed at the underlying cause (ACOG Table 2) Intrauterine resuscitation – ACOG Table 2 Continue oxygen and position change.
 - Have patient stop pushing to allow fetal recovery if delivery not imminent.
 - IV fluid bolus.
 - Confer with and counsel parents regarding need for intervention. If baseline variability is minimal or absent or prolonged decelerations do not improve with intervention, prompt delivery is recommended (ACOG Figure 1).

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Case # 8

- AIM:** To demonstrate RECURRENT VARIABLE DECELERATIONS in the presence of other FHR changes
- DR:** Primigravida with pre-labor rupture of membranes at term 12 hours ago. Augmented and found to be 6 cm two hours ago.
- Get participant to define risk: low risk (but oxytocin and length of ROM noted). Discuss as a group.
- C:** Get learner to count: Three in 10 minutes, or every three to four minutes. Consider readjusting toco or if patient has an IUPC it needs to be recalibrated. Palpate to verify contraction frequency, duration and quality.
- B Rate:** 170 at beginning of tracing, up to 180 by the end of tracing
- V:** minimal / absent
- A:** None
- D:** **Recurrent variable decelerations.** According to NICHD, variables can be either a periodic pattern (associated with uterine activity) or episodic pattern (not associated with uterine activity). Need to re-adjust toco or IUPC to verify contraction pattern.
- O:**
- **Category II** - with minimal variability, elevated FHR baseline, and recurrent variable decelerations.
 - **Category III** – absent variability and recurrent variable decelerations

Including Plan:

- **Category II** –
 - Should be directed at the underlying cause (ACOG Table 2)
 - Intrauterine resuscitation – ACOG Table 2
 - If baseline variability is minimal or absent or prolonged decelerations do not improve with intervention, prompt delivery is recommended (ACOG Figure 1).
- **Category III** – ACOG Figure 1
 - Increased risk for fetal acidemia
 - Intrauterine resuscitation (ACOG Table 2)
 - If unresolved requires prompt delivery – plan accordingly
- Check cervix for cord prolapse
- Consider antibiotics? – ROM 12 hours ago, fetal tachycardia
- Discuss situation with parents

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Case # 9

- AIM:** To demonstrate **Recurrent LATE DECELERATIONS**
- DR:** Same patient as in example #8 (Primigravida with pre-labor rupture of membranes at term 12 hours ago. Augmented and found to be 6 cm two hours ago.) Last scalp sample was normal (7.32). This is the tracing one hour later. Cervix now 7 cm / vertex at 0 station
- Ask participant to define risk: **High risk** – 14 hrs. after ROM, Category II and III FHR tracing previously
- C:** Get candidate to count: Three in 10 minutes, or every three to four minutes
- B Rate:** 145 (has come down from earlier tachycardia)
- V:** Minimal / moderate
- A:** None
- D:** Yes, subtle **recurrent late decelerations** (> 50 percent of the contractions)
- O:** **Category II**
- Including Plan:** Participants may minimize this tracing because of the shallow depth of the decelerations – but, this is NOT a reassuring finding!
- Reflects transient or chronic uteroplacental insufficiency
 - Intrauterine resuscitation – ACOG Table 2
 - Given the low predictive value of late decelerations for acidemia and their known false-positive rate for fetal neurologic injury, evaluation for the presence of accelerations or moderate FHR variability or both may be useful to assess the risk of fetal acidemia
 - Consider repeat fetal scalp blood sampling (If participants say “deliver” or “section” - point out that this may not be required if able to assess with fetal scalp sample although this is rarely available in the United States.)
 - Where fetal scalp monitoring not available, attempt to elicit FHR acceleration. In infants ≥ 32 weeks accelerations of 15 BPM > 15 seconds rules out acidemia at the time it is observed (NICHD).
 - Consider operative intervention – primigravida with unproven pelvis, slow labor progress, minimal to moderate variability, recurrent subtle late decelerations.

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Case # 10

- AIM:** To demonstrate a **Category III** progressively OMINOUS TRACING
- DR:** Gravida 3, Para 2 in spontaneous labor at term with cervix 6 cm dilated. Previous variable decelerations requiring fetal scalp sampling two hours before (normal = 7.29). Decelerations were felt improve – review the tracing now.
- Ask the participant to define risk: Despite tracing, this is still a low risk patient profile, but previous scalp sampling noted
- C:** Get participant to count: Two in 10 minutes, or every four to six minutes
- B Rate:** 140
- V:** absent
- A:** None
- D:** Recurrent Late decelerations
- O:** Category III

Including Plan:

- **Category III** – ACOG Figure 1
 - Increased risk for fetal acidemia
 - Intrauterine resuscitation (ACOG Table 2)
 - If unresolved requires prompt delivery – plan accordingly
- Amnioinfusion not likely to help this type of deceleration
 - ACOG states that amnioinfusion is ONLY for recurrent variable decelerations. Physiologic rationale for amnioinfusion is to relieve cord compression. This pattern represents late decelerations and uteroplacental insufficiency, not cord compression. Therefore amnioinfusion would not be the appropriate treatment
- Category III – call nursery personnel

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Case # 11

- AIM:** To demonstrate a Category III progressively OMINOUS TRACING
- DR:** Same patient (Gravida 3, Para 2 in spontaneous labor at term. Previous variable decelerations requiring fetal scalp sampling two hours before, which was normal @ 7.29. Variability reduced to absent, subtle late seen at end of tracing, oxygen, position change. Fetal scalp sampling not available due to machine malfunction.) This is 15 minutes later. Cervix is 7 to 8 cm, vertex at 0 / +1 station.
- Ask the participant to define risk: Increased risk
- C:** Get participant to count: Three in 10 minutes, or every three minutes
- B Rate:** indeterminate baseline as defined by the NICHD that in any 10 minute segment you must have at least two minutes of baseline to determine baseline. Does "160" rate persists for two minutes?
- V:** Absent
- A:** None
- D:** Prolonged deceleration as defined by NICHD (lasting for > two2 minutes). The first deceleration at beginning of contraction cannot be classified because one cannot determine the beginning.
- O:** **Category III**

**Including
Plan:**

- **Category III - ACOG Figure 1**
 - Increased risk for fetal acidemia
 - Intrauterine resuscitation (ACOG Table 2)
 - If unresolved requires prompt delivery – plan accordingly
Continue O2, repositioning, consider tocolysis to stop contractions
 - Call for operative team for emergent cesarean delivery
 - Call nursery care providers to attend delivery
 - Confer with parents and counsel them regarding need for operative intervention