



Appendix A

Intermittent Auscultation in Tocolysis

This is a condensed version. Please refer to full protocol for details.

Procedure

1. Place the Doppler over the area of maximum intensity of fetal heart sounds.
2. Place a finger of the mother's radial pulse to differentiate maternal from fetal heart rate.
3. Palpate uterine contractions during auscultation to clarify the relationship between the FHR and the contractions.
4. Auscultate immediately after a contraction for at least one full minute.

Timing

1. Assess FH every 15-30 minutes before administration of nifedipine.
2. Assess FH every 15 minutes for 3 hours after initial dose of nifedipine.
3. If there are no contractions 3 hours after first dose of nifedipine, decrease assessment to every 1 hour.
4. If maintenance doses of nifedipine are given, assess FH every 15 minutes x 1 hour after each maintenance dose of nifedipine.
5. Assess FH before and after
 - a) Administration of medications
6. Assess FH after
 - a) Spontaneous rupture of membranes
 - b) Vaginal examinations
 - c) Change in uterine activity, eg. increased contractions
 - d) Any abnormal event during labor, eg. maternal hypotension

Fetal Heart Rate Assessment

When assessing the fetal heart rate pattern, please note the following:

1. Baseline fetal heart rate between contractions (normal: 110 to 160 bpm)
2. Rhythm (regular or irregular)
3. Accelerations

4. Decelerations (abrupt or gradual)
5. Tachycardia (sustained fetal heart rate >160 bpm)
6. Bradycardia (sustained fetal heart rate <110 bpm)



Protocol for Intermittent Auscultation (IA) in Labor

Indications

1. Normal labor occurring after 37 weeks.
2. Abnormal labor occurring after 37 weeks, where continuous electronic fetal monitoring is not available.
3. Labor or contractions occurring prior to 37 weeks, where continuous electronic fetal monitoring is not available.
4. As an adjunct to tocolysis, where continuous electronic fetal monitoring is not available.

Procedure

5. Palpate the maternal abdomen to identify the fetal lie, presentation and position.
6. Place the Doppler over the area of maximum intensity of fetal heart sounds (usually over the fetal back).
7. Place a finger of the mother's radial pulse to differentiate maternal from fetal heart rate.
8. Palpate uterine contractions during auscultation to clarify the relationship between the FHR and the contractions.
9. Auscultate immediately after a contraction for at least one full minute. Depending on consultation with a physician, auscultation may also be done during the contraction (not supported by empirical evidence).
10. To clarify the fetal heart rate, the fetal heart rate may be counted during 6 second intervals and multiplied by 10.

Timing

1. Normal Labor in Low-Risk Patient
 - a. Early latent phase
 - i. There is no good data on which to base a recommendation for fetal heart monitoring during the latent phase of labor. This should be decided individually based on the consultation with the treating physician.
 - b. Established labor (regular uterine contractions accompanied by cervical changes)
 - ii. Assess the FH every 15-30 minutes.

- c. Active second stage
 - iii. Assess the FH every 5 minutes once the patient has begun pushing. Auscultation may be done with every contraction, depending on consultation with the physician (there is no research evidence supporting this practice).

2. Abnormal or Pre-term Labor

Assess FH as per protocol for normal labor, with special attention to “Additional indications for auscultation” (below). Consult the treating physician for further instructions.

3. FH Assessment during Tocolysis with Nifedipine (Adalat)

- a. Assess FH every 15-30 minutes before administration of nifedipine.
- b. Assess FH every 15 minutes for 3 hours after initial dose of nifedipine.
- c. If there are no contractions 3 hours after first dose of nifedipine, decrease assessment to every 1 hour.
- d. If maintenance doses of nifedipine are given, assess FH every 15 minutes x 1 hour after each maintenance dose of nifedipine.

4. Induction or Augmentation with Oxytocin

IA may not be the monitoring method of choice during induction or augmentation of labor with oxytocin. Please consult the treating physician.

5. Additional Indications for Auscultation

- a. Assess FH before
 - a. Initiation of labor-enhancing procedures, eg. amniotomy (rupture of membranes)
 - b. Administration of medications
 - c. Administration or initiation of analgesia/anesthesia
 - d. Transfer or discharge of patient
- b. Assess FH after
 - a. Admission of patient
 - b. Artificial or spontaneous rupture of membranes
 - c. Vaginal examinations

- d. Abnormal uterine activity patterns, eg. increased basal tone or increased frequency of contractions
- e. Any abnormal event during labor, eg. maternal hypotension
- f. Initiation of epidural anesthesia (frequency of monitoring should be increased, to be determined by treating physician)

Fetal Heart Rate Assessment

1. Elements of FH assessment

- a. Baseline fetal heart rate (counted for one minute between contractions, in beats per minute)
- b. Rhythm (regular vs. irregular)
Note: Baseline variability cannot be reliably assessed using intermittent auscultation.
- c. Accelerations
- d. Decelerations (abrupt vs. gradual)
Note: There is no research to indicate that a practitioner can determine the type of deceleration by using IA (eg. early, late). Therefore, decelerations cannot be further classified using intermittent auscultation.

2. Interpretation

- a. Reassuring
 - i. Normal baseline FHR (110 to 160 bpm)
 - ii. Presence of accelerations (transient increase in fetal heart rate)
- b. Non-reassuring
 - i. Abnormal baseline FHR
 - ii. Tachycardia (FHR > 160 bpm)
 - iii. Bradycardia (FHR <110 bpm)
 - iv. Changing FHR – if an increasing or decreasing FHR is detected over time, one may investigate before the absolute values of bradycardia or tachycardia are reached.
 - v. Presence of decelerations (transient decrease in fetal heart rate)

Management

The data from intermittent auscultation should always be interpreted in conjunction with the total clinical picture. Interpretation of the findings is

dependent on the stage of labor, the maternal clinical condition, and fetal findings prior to labor or treatment.

a. Reassuring

- i. Continue to assess as per protocol

b. Non-reassuring

- i. Perform further assessments to confirm findings and determine potential causes (auscultate FH again; check maternal pulse, BP and temperature; perform vaginal exam).
- ii. Interpret the non-reassuring findings in context of the total clinical picture.
- iii. Intervene in an attempt to eliminate or reduce the effects of the cause, and to promote four physiological goals (improve uterine blood flow, improve umbilical blood flow, improve fetal oxygenation, and decrease uterine activity).
- iv. Consider the use of additional fetal health surveillance measures, if available (electronic fetal monitoring, fetal scalp sampling).
- v. Notify the treating physician.

Documentation

Proper documentation should include the following components:

1. Fetal heart rate data, including
 - a. Baseline rate, in bpm
 - b. Rhythm (regular or irregular)
 - c. Presence and description of heart rate changes
2. Uterine activity characteristics, obtained by palpation
 - a. Frequency
 - b. Duration
 - c. Intensity
 - d. Relaxation between contractions
3. Documentation of the interpretation as reassuring or non-reassuring and of specific actions taken.
4. Other maternal observations and assessments.
5. Maternal and fetal responses to interventions.
6. Subsequent return to normal findings.

Adapted from the following sources:

1. “Fetal Health Surveillance in Labor”, SOGC Clinical Practice Guidelines, SOGC, 2002.
2. “Intermittent Auscultation in Labor”, Obstetric Guideline 6A, British Columbia Reproductive Care Program, March 2005.

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