Fetal Health Surveillance in Labour

Approved: March 2002, January 2007, February 2013 **For Review: February 2015**

Acknowledgements

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Preamble

Guidelines outline recommendations, informed by both the best available evidence and by midwifery philosophy, to guide midwives in specific practice situations and to support their process of informed decision-making with clients. The midwifery philosophy recognizes the client as the primary decision maker in all aspects of her care and respects the autonomy of the client (1).

The best evidence is helpful in assisting thoughtful management decisions and may be balanced by experiential knowledge and clinical judgment. It is not intended to demand unquestioning adherence to its doctrine as even the best evidence may be vulnerable to critique and interpretation.

The purpose of practice guidelines is to enhance clinical assessment and decision-making in a way that supports practitioners in offering a high standard of care. This is supported within a model of well-informed, shared decision making with clients in order to achieve optimal clinical outcomes.

Background and Relevance

Intermittent auscultation (IA) of the fetal heart is the preferred method of fetal surveillance in low-risk women provided there is an appropriately trained professional in attendance. This approach has been outlined in the College of Midwives of British Columbia document: Guideline for Fetal Health Surveillance in Labour (2), as confirmed by the Society of Obstetricians and Gynecologists of Canada in their guideline issued in 2007 (3), by the Perinatal Services of British Columbia (PSBC) in their 2005 guideline (4), and in Care in Normal Birth by the World Health Organization (5).

Meta-analysis of randomized clinical trials shows that abnormal EFM tracings have poor predictive value (3,6,7). When outcomes for EFM versus IA for healthy women are compared, maternal morbidity is increased in the EFM group while there is no improvement in perinatal morbidity (3,6,7).

However, in spite of widespread consensus, EFM continues to be widely used. Recent data from a Canadian Perinatal Health Report, British Columbia, reports EFM used in over 72% of laboring women during 2005-2006, down from 84.2% in 2000/2001 (3)

Definition

Fetal health surveillance refers to antenatal or intrapartum monitoring of the fetal heart rate. This monitoring can be done in one of two ways: intermittent auscultation (IA) or continuous electronic fetal monitoring (EFM), which can be done either externally or internally. The goal of fetal surveillance is to detect potential fetal hypoxia, and thus prevent, by timely intervention, damage or death.

Contraindications

- Fetal anomalies incompatible with life
- Prematurity earlier than 23 weeks gestation

Intermittent Auscultation (IA)

TECHNIQUE

1. Perform Leopold's Maneuvers prior to first auscultation (after initial palpation, extensive palpation is not necessary prior to each auscultation when monitoring at 15 minute or more frequent intervals, unless there are indications of a change in fetal positioning).
2. Place doppler or fetoscope over fetal back or thorax.
3. Palpate maternal pulse to differentiate maternal and fetal heart on first auscultation and on any subsequent auscultations where the putative fetal heart rate (FHR) is in the range of the maternal heart rate.
4. Palpate uterine contraction.
5. Note FHR after the contraction for at least 60 seconds. In active labour, 30 seconds of auscultation may be more feasible.

DOCUMENTATION

FHR Data

- Baseline rate (e.g. FHR 140).
- Change in rate (acceleration or deceleration) – (e.g. acceleration heard to 160 lasting approx. 30 seconds).
- Nature of change (gradual or abrupt deceleration) – (e.g. abrupt deceleration heard to 90 lasting 10 seconds with quick recovery to baseline FHR of 140).
- Rhythm – regular or irregular.

Other

- Uterine activity characteristics.
- Other maternal observations and assessments.
- Specific actions taken when findings are abnormal.
- Maternal and fetal responses to interventions.
- Subsequent return to normal findings.

BASIC REQUIREMENTS

- The woman is assessed to be low-risk at the onset of labour (>36 weeks and <42 completed weeks gestation).
- The midwife is skilled in the procedure.
- The midwife uses this guideline or an equivalent evidence-based practice protocol addressing technique, frequency of auscultation, documentation standards and clinical management when abnormal findings are present

FREQUENCY

First Stage

- Latent phase [i]: every 60 minutes (if care provider is present).
- Active phase [ii]: every 15 to 30 minutes.

Second Stage

- Latent phase [iii]: every 15 minutes.
- Active phase [iv]: after each contraction or every 5 minutes.

Other

Before

- An intervention such as an amniotomy;
- Administration of medications or analgesia;
- Leaving the client after an assessment in the latent phase of labour;
- Transfer of the client to another care provider.

After

- Arrival at the woman's home or on admission to hospital;
- Spontaneous rupture of the membranes or amniotomy;
- Vaginal exam;
- Abnormal uterine activity, e.g. tachysystole.

NORMAL FINDINGS

- Baseline FHR 110-160 beats per minute (BPM)[v].
- Accelerations.

ABNORMAL FINDINGS

- Baseline FHR <110 or >160 beats per minute;
- Changing baseline – increasing or decreasing FHR over time;
- Presence of decelerations (especially with slow recovery after a contraction).

Continuous Electronic Fetal Monitoring (EFM)

The EFM tracing becomes a part of the record of care and relevant events and interventions are noted on the tracing.

Current evidence does not support the use of a baseline fetal heart tracing on admission in women with uncomplicated pregnancies.

[i] *First stage, latent phase is defined by regular mild to moderate contractions causing discomfort to the woman and resulting in a progressive change in the effacement and/or dilation of the cervix prior to 4 cm dilation. The CMBC acknowledges that in the latent phase of labour the midwife may visit the woman at home for periodic assessments. If all assessments are normal and the woman is resting and coping well, it is not necessary for the midwife to remain and provide ongoing monitoring and support until the labour becomes more active.*

[ii] *First stage, active phase is defined by regular, painful (moderate to strong) contractions with progressive cervical effacement and progressive dilation of 4 cm or more.*

[iii] *Second stage, latent phase is defined as the period of time after a woman is fully dilated when she experiences contractions that are usually less strong and frequent than those of the active phase of first stage and when she has no urge to push. Some women do not have a latent phase in second stage, while others may experience this phase lasting up to an hour.*

[iv] *Second stage, active phase is defined as the period after full dilation of the cervix, until the birth of the baby, where the woman experiences regular contractions with an expulsive urge and/or is actively pushing.*

[v] *Normal fetal heart range for the term fetus (37-42 weeks gestation).*

INDICATIONS FOR EFM

- Inaudible or abnormal findings on intermittent auscultation - physician consultation may be recommended when abnormal findings are encountered. Where labour is being monitored in the home setting, this is an indication for transport to hospital.
- Assessment of increased risk for perinatal morbidity or mortality.
- When oxytocin is being used for induction or augmentation of labour.

NORMAL FINDINGS

- See Appendix 1.

Variations of EFM

FETAL SCALP ELECTRODE (FSE OR SCALP CLIP)

FSE provides continuous, accurate assessment of FHR baseline, variability, accelerations and decelerations, and can detect fetal arrhythmias.

FSE should be applied only to the fetal scalp or buttock, and attached to the connector. It must not be applied to the face, fontanelles, suture lines, genitals, or to an undiagnosed presenting part.

Indications

- Abnormal finding on external tracing;
- When external tracing is inadequate for accurate interpretation;
- When unable to assess the FHR with any other method.

Contraindications

- Placenta previa;
- Face presentation;
- Unknown presentation;
- HIV or hepatitis seropositive;
- Active genital herpes or any other vaginal or intrauterine infection;
- Fetal thrombocytopenia or hemorrhagic complications.

Risks (rare and minimized by proper insertion, removal and aseptic technique)

- Scalp abscess;
- Fetal trauma;
- Infection.

Responsibilities Associated with Electronic Fetal Monitoring

- Understanding the benefits and limitations of EFM and being qualified and able to assess the tracing every 15 minutes while it is being carried out.
- Explaining the reasons, benefits and limitations for EFM use to the woman so she can make an informed choice about its use in her labour.
- Obtaining an interpretable EFM tracing including both the fetal heart rate pattern and contraction pattern.
- Interpreting the EFM strip and consulting with an obstetrician when an atypical or abnormal pattern is present. Consider asking consultant for fetal blood sampling to avoid false positives associated with apparent abnormal EFM findings.
- Having pediatrics present at the time of birth if EFM tracing remains abnormal.
- Ensuring that EFM data is documented on the client's chart.
- Intrauterine resuscitation with indication.
- Expediting delivery if appropriate.
- Consider doing fetal scalp stimulation during a vaginal exam and observing presence or absence of accelerations. Presence of accelerations indicates a strong probability of a pH of >7.2.

REFERENCES

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(4) Perinatal Services of British Columbia. Intermittent Auscultation in Labour. Obstetric Guideline 6A. 2005. *http://www.perinatalservicesbc.ca/NR/rdonlyres/1CD0990F-04DE-4856-B341-7F4F912A78A4/0/OBGuidelinesFHSConsensus6.pdf.*

(5) World Health Organization, Department of Reproductive Health and Research. Care in Normal Birth: a practical guide. 1996.

(6) American College of Obstetricians and Gynecologists. Utility of umbilical cord blood acid-base assessment. Committee Opinion Number 348. November 2006 (reaffirmed 2010).

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