HEALTH HOLDING
HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

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|---|---|---|---|
| **Department:** | Obstetrics and Gynecology | | |
| **Document:** | Multidisciplinary Policy and Procedure | | |
| **Title:** | Cardiotocography (CTG) and Fetal Monitoring | | |
| **Applies To:** | All Obstetrics and Gynecology Staff | | |
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## 1. PURPOSE:

1.1 To set guidelines for the use and interpretation of CTG: Cardiotocography.

## 2. DEFINITIONS:

2.1 **Cardiotocography**–is a record of the fetal heart rate (FHR) either measured from the transducer on the abdomen or a probe on the fetal scalp. In addition to the fetal heart rate another transducer measures the uterine contractions over the fundus.

## 3. POLICY:

3.1 Obstetrician on call will carry out clinical assessment of the pregnancy to identify high risk pregnancy.
3.2 Intermittent monitoring is sufficient if the labour is low risk.
3.3 The decision to use intermittent auscultation versus CEFM should be made jointly by the patient and her provider.
3.4 Indication for continuous CTG monitoring in labour include:
- 3.4.1 Abnormal FHR detected by intermittent auscultation (less than 110 beats per minute; greater than 160 bpm, any decelerations after a contraction).
- 3.4.2 Meconium stained liquor.
- 3.4.3 Patient on Oxytocin.
- 3.4.4 High risk pregnancy.
- 3.4.5 The woman's request.

3.5 Fetal scalp electrode (FSE) will be used when there is:
- 3.5.1 Diminished FHR variability.
- 3.5.2 The quality of external transducer tracing is not good (repeated loss of contact).
- 3.5.3 (FSE) should be avoided in cases with HIV, Hepatitis B&C, and check antenatal virology).
- 3.5.4 CTG must be duplicated for legal purposes, preferably scanned (to avoid manipulations).

## 4. PROCEDURE:

4.1 On patient admission the assigned nurse will fix the CTG on the patient's abdomen.
- 4.1.1 CTG paper speed must be adjusted to run at a minute, rate of 1 cm/minute, TOCO must not reach 0 mmhg.

4.2 The trace should be seen immediately by the resident on duty (ROD), dated, time, signed and stamped and hospital number to be written.
4.3 The tocographic transducer should be tightly applied to the uterine fundus in order to pick up uterine contractions.
4.4 If the quality of tracing is not good, the assigned nurse should stop oxytocin, change patient's position to relieve aortocaval compression and inform the ROD immediately.

4.5 Fetal Heart rate and any deceleration should be recorder in the partogram by the assigned nurse and any FHR abnormality should be passed immediately to the ROD.

4.6 Any abnormality in the CTG tracing (non-reassuring or pathological) should be notified to the SOD by the ROD and dealt with according to policy of "Intrapartumfetal distress in labor).

4.7 Relevant events (e.g. V.E epidural etc) to be marked on CTG.

4.8 Fetal scalp electrode (FSE) will be used when there is:

4.8.1 Diminished FHR variability.

4.8.2 The quality of external transducer tracing is not good (repeated loss of contact).

4.8.3 (FSE) should be avoided in cases HIV, Hepatitis B & C antenatal virology).

4.9 **Table Classification of FHR trace features:**

| Accelerations | Deceleration | Variability (bpm) | Baseline (bpm) | Feature |
|---|---|---|---|---|
| Present | None | ≥ 5 | 110–160 | Reassuring |
| The absence of accelerations with otherwise normal trace is on uncertain significance | Typical variable decelerations with over 50% of contractions, occurring for over 90 minutes Single prolonged deceleration for up to 3 minutes | < for 40–90 minutes | 100–109<br>161–180 | Non- Reassuring |
| | Either atypical variable decelerations with over 50% of contractions or late decelerations, both for over 30 minutes Single prolonged deceleration for more than 3 minutes | <5 for 90 minutes | <100<br>>180<br>Sinusoidal pattern<br>≥ 10 minutes | Abnormal |

4.9.1 Consider effect of recent vaginal examination.

4.9.2 Consider effect of recent bed pan use.

4.9.3 Consider effect of recent vomiting or vasovagal episodes.

4.9.4 Consider effect of recent sitting or topping-up of epidural analgesia infusion.

4.9.5 Check BP and if low give 500 ml infusion of crystalloid if no contraindications to this.

4.9.6 Where trace continues to be suspicious despite these interventions then observe for other suspicious FHR features, consider whole clinical context and take appropriately obstetric advice on how to proceed.

4.10 For a Pathological CTG:

4.10.1 If fetal blood sampling is indicated/ feasible:

4.10.1.1 Encourage mother to use left lateral position and check BP, giving 500 ml crystalloid if appropriate.

4.10.1.2 Proceed to fetal blood sampling with maternal consent.

4.10.1.2.1 Decide further course on basis of fetal blood sampling results (See table below).

4.10.1.2.2 All scalp pH estimations should be interpreted taking into account the previous pH measurement, the rate of progress in labor and the clinical features of the mother and fetal.

4.10.2 If fetal blood sampling is not indicated or not feasible:

4.10.2.1 Use left lateral position and BP check with crystalloids infusion as above.

4.10.2.2 Expedite delivery according to anesthetic, pediatric and experienced obstetrician opinion.

4.10.2.3 Speed of delivery should take into account the severity of FHR abnormalities and relevant maternal factors.

4.10.2.4 Following delivery, paired umbilical cord samples should be taken and 1–5 minutes APGAR scores calculated and all results recorded in the mother's and newborn's notes.

4.10.3 If abnormal CTG, reassessment by ROD needed:

4.10.3.1 Abdominal examination for tenderness.

4.10.3.2 Consider VE (for head on perineum, intrapartum cord prolaps, detection full dilatation, intrapartumhemorrhage, meconium).

4.10.3.3 Encourage patient to adopt left lateral position.

4.10.3.4 If there is evidence of epidural hypotension, 500ml of crystalloid solution should be rapidly infused, (unless the woman is known have cardiac disease or severe pre-eclampsia) and the anesthetist called.

4.10.3.5 If suspicious due to:

4.10.3.5.1 If the CTG trace is of inadequate quality:

4.10.3.5.1.1 Check the following:

4.10.3.5.1.1.1 Contact and connections of external transducer.

4.10.3.5.1.1.2 Contact and connections of fetal scalp electrodes (FSE) if being used.

4.10.3.5.1.1.3 Maternal pulse and ensure not recording this is error.

4.10.3.5.1.2 Consider use of FSE if not currently being used.

4.10.3.5.2 If there is evidence of uterine hyper contractility:

4.10.3.5.2.1 Consider discontinuation of oxytocin if being used.

4.10.3.5.2.2 Check whether vaginal prostaglandins have been utilized.

4.10.3.5.2.2.1 Consider use of terbutaline or other tocolytic agents.

4.10.3.5.3 If there is maternal tachycardia/ pyrexia.

4.10.3.5.3.1 Consider the following:

4.10.3.5.3.1.2 Screening investigations and empirical treatment for infection.

4.10.3.5.3.1.3 Treatment of maternal dehydration.

4.10.3.5.3.1.4 Consider the effect of tocolytics and discontinuation them if this may be causing the tachycardia.

4.10.3.5.3.1.5 Check maternal BP and consider 500ml infusion of crystalloid if indicated.

4.10.3.5.4 If there are other relevant maternal adverse factors:

4.10.3.5.4.1 Check maternal position and if supine then move into left lateral position.

| **Fetal scalp pH results and appropriate courses of action** | |
|---|---|
| Fetal blood sample (FBS) result/pH | Subsequent Action |
| ≥ 7.25 | Repeat FBS if fetal HR abnormalities persist |
| 7.21 – 7.24 | Repeat FBS within 30 minutes or consider Delivery if rapid falls in PH since last sample. |
| ≤ 7.20 | Delivery indicated. |

4.10.4 Remember other diagnoses when CTG is abnormal.

4.10.4.1 Sepsis.

4.10.4.2 Abruption/ Vasa Previa.

4.10.4.3 Dehiscence/ Scar rupture.
4.10.4.4 Fetal Asphyxia/ Meconium aspiration.
4.10.4.5 Cord Prolapse.
4.10.4.6 Physiological.
4.10.4.7 Medication.
4.10.4.8 Chromosomal/ Congenital.
4.10.4.9 Cerebral Haemorrhage.

4.10.5 Contraction Monitoring (by midwife in charge).
4.10.5.1 Manual palpation with intermittent auscultation.
4.10.5.2 External tocograph (+ manual palpation) with continous CTG monitoring.

## 5. MATERIAL AND EQUIPMENT:

N/A

## 6. RESPONSIBILITIES:

6.1 Physician
6.2 Nurse
6.3 Midwife

## 7. APPENDICES:

7.1 Partogram

## 8. REFERENCES:


8.1 Electronic Fetal Monitoring Algorithm Derived from NICE 2007 NICE Guidelines.
8.2 Electronic Fetal Monitoring Algorithm Derived from NICE/RCOG Guidelines Useful Algorithmic summary of the 2001 NICE/RCOG Guidelines.
8.3 Fetal monitoring in Practice 2nd Ed. London. Butterworth Heinemann. Baskett TF, Arulkumaran S, 2002, Intrapartum Care for the MRCOG and Beyond RCOG Press Lancet 2001,; 358:534:538.
8.4 Thecker S. Group D Continuouse electronic fetal heart monitoring during labour 9The Cochrane review) Oxford: The Cochrane library issue 2, 200. Level 1.
8.5 MOH, Guidelines for Obstetrics and Gynecology, Clinical Policies and Procedures.
8.6 CBAHI Standard 3rd Edition 2016.

## 9. APPROVALS:

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# PARTOGRAM

Date & time of admission:

Consultant:

E.D.D:

Parity:

Special instructions:

FETAL HEART RATE

190 180 170 160 150 140 130 120 110 100 90 80 70 60

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Duration of rupture of membranes (Hrs)

Liquor

Moulding

CERVIX DESCENT

10 9 8 7 6 5 4 3 2 1

Duration of labor

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

OXYTOXIN
DROPS/ MINUTE
0 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Contractions 4 5
Per 3
Minutes 2
1
Drugs And I.V Fluids
200
190
180
170
160
Blood 150
Pressure 140
and 130
pulse 120
110
100
90
80
70
60
URINE
PROTEIN
ACETONE
GLUCOSE
TEMPERATURE
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22