

## Appendix 5

### **Scalp Lactate Fetal Blood Sampling**

Scalp Lactate Fetal Blood Sampling (FBS) assesses fetal wellbeing and can prevent unnecessary intervention, by the analysis of intrapartum fetal blood values, when the fetal heart rate is considered abnormal and further evaluation is required.

#### **Definitions**

**Scalp Lactate - Fetal Blood Sampling (FBS)** is a technique developed to measure fetal metabolic acidosis by measurement of lactate in whole blood.

**Lactate** is a measurement of the circulating lactic acid. In abnormal conditions or poor perfusion and hypoxia, pyruvate is converted into a small amount of ATP, as well as lactic acid and hydrogen ions. Ongoing hypoxia and the subsequent slow clearance of these cause accumulation and results in metabolic acidosis and subsequent anaerobic metabolism which is high inefficient and its by-products potentially damaging.

#### **Indications for FBS**

Fetal Blood Sampling is used to confirm the suspicion of fetal compromise and determine management, or to provide the reassurance necessary to allow labour to continue.

#### **Contraindications for FBS**

- Clear evidence of serious fetal compromise (e.g. complete absence of reassuring features) - urgent preparation to expedite birth should be made.
- Prolonged deceleration.
- Mobile presenting part.
- Unknown presentation
- Face presentation.
- Un-dilated cervix.
- Active second stage of labour
- Hereditary bleeding disorders (e.g. suspected fetal thrombocytopenia, haemophilia).
- **Maternal infection (e.g. HIV, hepatitis, herpes simplex virus, suspected intrauterine sepsis).**
- Prematurity (gestation < 34 weeks): as delayed birth due to the procedure may be associated with an increase in adverse outcomes because the small "at risk" fetus will have a lower threshold than a term infant for fetal compromise.

**The on-call consultant obstetrician must be notified of all attempts at FBS.**

**Management is determined by the following results:**

| Lactate | Interpretation/Result  |
|---------|--|
| <4.1    | <ul style="list-style-type: none"><li>• Normal fetal range</li><li>• If the CTG returns to normal there is no need to repeat the fetal scalp lactate</li><li>• If abnormalities continue the fetal scalp lactate should be repeated in an hour</li><li>• If abnormalities worsen repeat sooner, then an hour</li></ul> |
| 4.2-4.8 | <b>Pre – Acidotic range</b> <ul style="list-style-type: none"><li>• Repeat within 30 minutes to establish a trend in results or deliver if there is significant deterioration from the previous result</li></ul>   |
| >4.8    | <b>Acidotic range</b> <ul style="list-style-type: none"><li>• The fetus should be delivered immediately either by instrumental delivery or urgent caesarean section</li><li>• Administer tocolytic where appropriate</li></ul>   |

**Equipment Required**

- Light source
- Equipment trolley
- Sterile fetal blood sampling tray which contains the equipment for the procedure
- Lactate machine
- Lactate Pro Test Strips

**Preparation**

- Medical officer is to explain the procedure to the woman and obtain maternal consent.
- The procedure must be undertaken or supervised by medical staff who have been trained in the procedure.
- Ensure the lactate machine or blood gas analyser is ready to receive the sample, calibrated and functioning.
- Position the woman in the left lateral or lithotomy position.

**Procedure**

1. Perform a vaginal examination to assess cervical dilatation, presentation and station of the presenting part. The membranes must be ruptured and the cervix at least 3cm dilated for the procedure to be attempted.
2. Pass the lubricated amniscope into the vagina and position against the presenting part,
3. the amniscope should be positioned away from the fontanelles and caput
4. Clean the scalp with dry cotton wool swabs
5. Apply a thin smear of wax over the scalp. Assists in droplet formation.
6. Hold the fetal scalp blade (lancet) firmly between the fingers and apply firm pressure to the fetal scalp to make a small incision (2mm).
7. Obtain the sample during a contraction if the head floats away when pressure is applied with the blade.
8. Allow droplet to form on the scalp, apply the capillary tube. The blood collected in the capillary tube should be 20-25 mm.
9. Fill the sample without bubbles and ensure the blood falls to the lower end of the tube.
10. Apply blood to test strip. Following insertion of the test strip.
11. The lactate machine will flash between the bar code and last reading for 2 minutes.

12. Blood can be applied to the test strip when the machine is flashing.



### **Trouble Shooting**

If unable to get blood out of the capillary tube. Apply gentle pressure with the blood pressure pump.

### **Post Procedure**

- Apply pressure over the puncture site for 3-5 minutes with a dry swab. Observe the site until all bleeding has ceased. If bleeding significant the baby should be delivered.
- Ensure a full explanation of findings and ongoing management is given to the woman.
- Ensure woman comfortable and discard sharps.
- Document results and management plan in medical record.
- Post birth ensure paired arterial and venous cord samples are collected and sent for blood gas analysis.
- If delivery is not imminent after **one hour** the senior obstetrician must be notified.
- Postnatal examination of the baby should include examination of the sampling site.
- Complications are rare, but include haemorrhage, infection and breakage

### **References**

[https://ranzcoq.edu.au/RANZCOG\\_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/IFS-Guideline-4thEdition-2019.pdf?ext=.pdf](https://ranzcoq.edu.au/RANZCOG_SITE/media/RANZCOG-MEDIA/Women%27s%20Health/Statement%20and%20guidelines/Clinical-Obstetrics/IFS-Guideline-4thEdition-2019.pdf?ext=.pdf)

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