Fetal Monitoring During Labour

Important in high risk situations where EFM is required:
- Preterm infants < 37/52 in suspected SGA
- Multiple pregnancies
- Breech presentation
- Women with epidural analgesia
- With Sytocinon augmentation
- Post induction
- Hypertension
- Women with major medical Hx
- Meconium staining of amniotic fluid
- Trial of uterine scar

Risk is associated to the risk of fetal hypoxia/asphyxia

EFM is used to screen for babies who are developing metabolic acidosis. If suspected then this should lead to FBS as a diagnostic test

Sample is acquired from fetal scalp

Fetal Blood Sample (FBS):
- FBS is a diagnostic test for fetal acidosis
  - During uterine contraction maternal blood flow to intervillous space reduced. Passage of oxygen from mother to foetus reduced. Thus foetus may become hypoxic.
  - Foetus withstands hypoxia by employing anaerobic metabolism by mobilizing glycogen from the liver leading to increased lactic acid and arterial CO2. Between contractions CO2 & lactic returned to mother who excretes them.
  - If glycogen stores low (SGA & preterm) other forms of energy used leading to increased lactic & CO2. This leads metabolic acidosis.
  - Frequent or sustained contractions lead to impaired blood flow resulting in metabolic acidosis

If foetus has pH < 7.20 and a base deficit of > 8.0 mEq/l it should be considered for delivery by the most appropriate route

Passage of meconium:
- Stimulation of vagus causes fetal gut contraction
  - With normal Fetal HR trace, foetus unlikely to be hypoxic, but if HR trace abnormal the perform FBS

Baseline tachycardia (HR > 170 bpm):
- Causes:
  - Maternal tachycardia due to pain, pyrexia, anxiety
  - Fetal Hypoxia

Baseline Bradycardia:
- Rare
- Often due to congenital heart block

Baseline variability:
- Normal BV - 5-15 bpm either side of baseline
- Loss of BV - administration drugs to mother (e.g. pethidine), fetal sleep (early labour), fetal hypoxia
- Increased BV (sinusoidal rhythm) - fetal asphyxia, fetal anaemia (e.g. Rh incompatibility)

Accelerations:
- Intermittent periods of raised fetal HR > 15 for > 15 seconds
- More than two acceleration in 20 mins is a sign of fetal health

Decelerations:
- Early decelerations - due to vagal stimulation following head compression during contractions. Usually have no significance
- Late decelerations - differ from early in that they are U shaped. Start > 30 sec after contraction & continue after contraction stopped. Metabolic in nature and always warrant FBS
- Variable decelerations - important feature to note is that decelerations vary in both shape and relation to contractions. Most common cause is cord compression. Usually don't warrant FBS unless associated with meconium staining.

What to look for:
- Baseline
- Baseline Variability
- Accelerations
- Decelerations

Continuous EFM

Frequent or sustained contractions lead to impaired blood flow resulting in metabolic acidosis