

PERINATAL EDUCATION PROGRAMME

THE FIRST STAGE OF LABOUR: THE CONDITION OF THE MOTHER

UNIT 6

OBJECTIVES

When you have completed this unit you should be able to:

1. Monitor the condition of the mother during the first stage of labour.
2. Record the clinical observations on the partogram.
3. Explain the clinical significance of the observations.
4. Manage any abnormalities which are detected.

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6-1 WHAT IS THE FIRST STAGE OF LABOUR?

The first stage of labour starts with the onset of regular uterine contractions and ends when the cervix is fully dilated.

6-2 WHAT MUST BE MONITORED IN THE FIRST STAGE OF LABOUR?

1. The condition of the mother.
2. The condition of the fetus.
3. The progress of labour.

6-3 WHAT FOUR QUESTIONS SHOULD BE ASKED ABOUT EACH OF THESE OBSERVATIONS?

1. How often must the observations be done?
2. How are the findings recorded?
3. What is the clinical significance of the findings?
4. What should be done if an observation is abnormal?

6-4 WHAT IS THE PARTOGRAM?

The partogram is a chart which shows the progress of labour over time. It also displays observations reflecting the maternal and fetal condition. The observations of EVERY patient in the first stage of labour must be charted on a partogram.

THE OBSERVATIONS OF EVERY PATIENT IN THE FIRST STAGE OF LABOUR MUST BE RECORDED ON A PARTOGRAM

6-5 WHAT MATERNAL OBSERVATIONS ARE RECORDED ON THE PARTOGRAM?

Notes on the general condition of the patient, as well as observations of the temperature, pulse rate, blood pressure, urine volume and chemistry, are recorded on the partogram.

The observations of the fetal condition and the progress of labour are also recorded on the partogram as described in units 7 and 8 of this PEP manual.

6-6 HOW SHOULD EACH OBSERVATION BE ASSESSED?

At the completion of any set of observations, you must ask yourself the following questions:

1. IS EVERYTHING NORMAL? If the answer is NO, then you must ask:
2. WHAT is not normal and WHY is it not normal?
3. Finally you must ask the question: "What must I do about the problem?".

6-7 HOW IS THE CONDITION OF THE MOTHER MONITORED?

By regular observations of the following:

1. The general condition of the patient.
2. Temperature.
3. Pulse rate.
4. Blood pressure .
5. Urine output and urinalysis for protein and ketones.

GENERAL CONDITION OF THE PATIENT

6-8 WHY IS IT IMPORTANT TO OBSERVE THE GENERAL CONDITION OF THE PATIENT DURING THE FIRST STAGE OF LABOUR?

If the general condition of the patient is not normal, there will usually be further abnormal findings when the other observations are made.

6-9 WHEN CAN THE GENERAL CONDITION OF THE PATIENT BE REGARDED AS NORMAL?

A patient in the first stage of labour will normally appear calm and relaxed between contractions and does not look pale. During contractions, her respiratory rate will increase and she will experience pain. However, she should not have pain between contractions. When a patient's cervix is fully dilated, or almost fully dilated, she becomes restless, may vomit, and has an uncontrollable urge to bear down with contractions.

6-10 HOW OFTEN SHOULD THE GENERAL CONDITION OF THE PATIENT BE OBSERVED?

The general condition of the patient should be observed continuously, but noted specially when other observations are made.

6-11 WHEN IS THE GENERAL CONDITION OF THE PATIENT ABNORMAL?

When any of the following are present:

1. Excessive anxiety.
2. Severe, continuous pain.
3. Severe exhaustion.
4. Dehydration.
5. Marked pallor of the face and mucous membranes.

6-12 WHAT CAUSES SEVERE ANXIETY?

Anxiety is usually seen in primigravidas who:

1. Are not prepared for the process of labour and the labour ward.
2. Are not accompanied by a friend or family member in the labour ward.
3. Cannot communicate due to language differences.

6-13 WHAT SHOULD YOU DO IF THE PATIENT IS VERY ANXIOUS AND IS EXPERIENCING VERY PAINFUL CONTRACTIONS?

1. The patient must be comforted and reassured. If possible, someone she knows should stay with her.
2. The patient must be offered appropriate pain relief.

6-14 WHAT CAUSES SEVERE, CONTINUOUS PAIN IN THE FIRST STAGE OF LABOUR?

Severe, continuous pain always indicates that a complication is present, such as:

1. Abruptio placentae.
2. Rupture of the uterus.
3. An infection, such as acute pyelonephritis, chorioamnionitis or acute appendicitis.

6-15 WHEN MAY SEVERE EXHAUSTION OR DEHYDRATION OCCUR?

With a prolonged labour, e.g. with cephalopelvic disproportion.

6-16 WHAT MAY CAUSE A PALE FACE AND MUCOUS MEMBRANES?

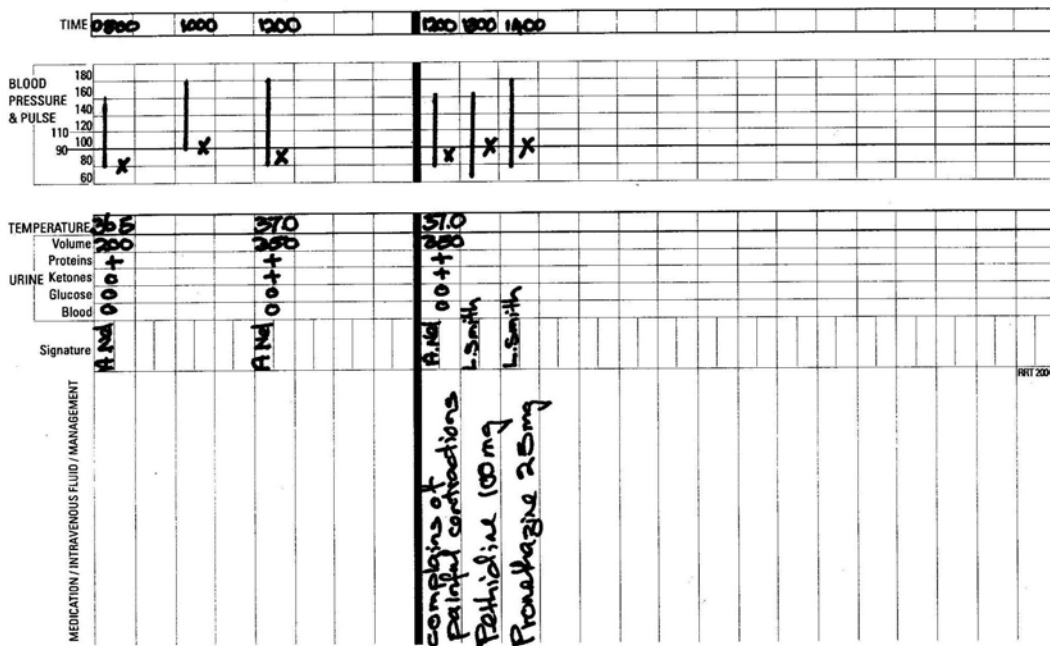
This is usually due to either of the following:

1. Chronic anaemia, e.g. iron deficiency, malaria, etc.
2. Blood loss, e.g. placenta praevia, abruption placentae or rupture of the uterus.

6-17 WHERE MUST ABNORMALITIES IN THE PATIENT'S GENERAL CONDITION BE RECORDED?

If the general condition of the patient becomes abnormal, this must be noted in the appropriate space at the bottom of the partogram as shown in figure 6-1.

Figure 6-1. Recording maternal observations on the partogram.



TEMPERATURE

6-18 WHAT IS A NORMAL TEMPERATURE?

The normal range of oral temperature is 36,0 to 37,0°C. Therefore, a temperature higher than 37,0°C is abnormal and is regarded as pyrexia.

6-19 HOW OFTEN SHOULD YOU MONITOR THE TEMPERATURE?

Four hourly, unless there is a particular reason to do so more frequently.

6-20 HOW IS THE TEMPERATURE RECORDED?

The temperature is recorded in the appropriate space on the partogram as shown in figure 6-1.

6-21 WHAT ARE THE CAUSES OF PYREXIA DURING LABOUR?

There are two main causes of a high maternal temperature:

1. **INFECTION:** This will most probably be in the urogenital tract, e.g. acute pyelonephritis or chorioamnionitis. However, it must be remembered that any other infection may be present during labour.
2. **MATERNAL EXHAUSTION:** Dehydration causes pyrexia.

6-22 HOW SHOULD YOU MANAGE A PATIENT WITH PYREXIA?

1. The cause of the high temperature must be found and treated. It is particularly important to look for acute pyelonephritis, chorioamnionitis, and evidence of maternal exhaustion. A high temperature may also be due to an infection unrelated to the pregnancy, e.g. pneumonia, viral infections, malaria, etc.
2. The temperature may be brought down with paracetamol (e.g. Panado).

6-23 WHAT ARE THE DANGERS OF PYREXIA?

1. **TO THE MOTHER:** The temperature, on its own, does not constitute a risk. However, if the pyrexia is caused by an infection, the infection may be dangerous to the mother. Fever may cause a patient to go into labour.
2. **TO THE FETUS:** A high temperature can cause fetal tachycardia. Preterm delivery with complications of immaturity in the newborn infant may also result. If the pyrexia is due to chorioamnionitis, the fetus is at high risk of becoming infected and may present with pneumonia or

PULSE RATE**6-24 WHAT IS THE NORMAL MATERNAL PULSE RATE?**

The normal range of the maternal pulse rate is 80 to 100 beats per minute.

6-25 HOW OFTEN SHOULD YOU MONITOR THE PULSE RATE?

The pulse rate is monitored 2 hourly during the latent phase of labour, and hourly during the active phase of the first stage of labour.

6-26 HOW IS THE PULSE RATE RECORDED?

The pulse rate is recorded in the appropriate space on the partogram as shown in figure 6-1.

6-27 WHAT ARE THE CAUSES OF A RAPID PULSE RATE?

The commonest causes of a rapid pulse rate (tachycardia) are:

1. Anxiety.
2. Pain
3. Pyrexia.
4. Exhaustion.
5. Shock.

6-28 WHAT ACTION SHOULD BE TAKEN IF THE PATIENT HAS TACHYCARDIA?

The cause of the tachycardia should be determined and treated.

BLOOD PRESSURE

6-29 WHAT IS A NORMAL BLOOD PRESSURE?

The normal range of blood pressure during the first stage of labour is 100/60 mm Hg or above, but less than 140/90 mm Hg.

6-30 HOW OFTEN SHOULD YOU MONITOR THE BLOOD PRESSURE?

Blood pressure is monitored 2 hourly during the latent phase of labour and hourly during the active phase of labour.

6-31 HOW IS THE BLOOD PRESSURE RECORDED?

The blood pressure is recorded in the appropriate space on the partogram as shown in figure 6-1.

6-32 WHAT ARE THE CAUSES OF HYPERTENSION (HIGH BLOOD PRESSURE)?

1. Anxiety.
2. Pain.
3. Anyone of the hypertensive disorders of pregnancy.

6-33 WHAT ARE THE CAUSES OF HYPOTENSION (LOW BLOOD PRESSURE)?

1. Some patients may normally have a low blood pressure. Therefore, the blood pressure during labour must be compared with that recorded during the antenatal visits.
2. Pressure of the uterus on the inferior vena cava when the patient lies on her back may decrease the venous return to the heart and, thereby, cause the blood pressure to fall. This is called supine hypotension.
3. Shock. This is usually due to blood loss.

6-34 WHAT ARE THE RISKS OF HYPOTENSION?

1. TO THE MOTHER: If hypotension is due to shock, the mother may suffer kidney damage. Severe and uncorrected hypotension may result in maternal death.
2. TO THE FETUS: A fall in blood pressure results in decreased blood flow to the placenta, reducing the supply of oxygen to the fetus. This may cause fetal distress.

6-35 WHAT SHOULD YOU DO FOR A PATIENT WITH HYPOTENSION?

1. Establish the cause of the hypotension.
2. If the hypotension is due to the patient lying on her back, she should be turned onto her side. The blood pressure usually returns to normal within 1 to 2 minutes. The fetal heart rate should then be checked again.
3. If the hypotension is due to haemorrhage, the patient must be resuscitated urgently and be managed according to the cause of the bleeding.

6-36 HOW DO YOU RECOGNISE SHOCK?

Shock presents with one or more of the following features:

1. Tachycardia.
2. Hypotension.
3. The skin feels cold and sweaty.

6-37 WHAT ARE THE COMMON CAUSES OF SHOCK IN THE FIRST STAGE OF LABOUR?

1. Shock during the first stage of labour is almost always due to haemorrhage, for example:
 - (i) Abruptio placentae.
 - (ii) Placenta praevia.
 - (iii) A ruptured uterus.
2. Infection as a cause of shock must always be considered.

URINE**6-38 WHAT URINE TESTS SHOULD BE DONE DURING LABOUR?**

1. Volume.
2. Protein.
3. Ketones.

The presence and degree of proteinuria and ketonuria is measured and graded with a reagent strip, e.g. Dipstix.

6-39 HOW OFTEN SHOULD YOU TEST THE URINE?

1. Every 4 hours during the latent phase of labour.
2. Every 2 hours during the active phase of labour.
3. Each time the patient passes urine, if more frequently than above.

6-40 HOW ARE THE URINARY OBSERVATIONS RECORDED?

The observations are recorded on the partogram:

1. Volume in ml.
2. Protein and ketones are recorded as 0 if absent and 1+ to 4+ if present.

The urinary observations should be recorded on the partogram as shown in figure 6-1.

6-41 WHAT VOLUME OF URINE PASSED INDICATES OLIGURIA (DECREASED URINE OUTPUT)?

An amount of less than 20 ml per hour.

6-42 WHAT ARE THE CAUSES OF OLIGURIA?

1. Dehydration.
2. Severe pre-eclampsia.
3. Shock.

Patients suffering from any of these conditions must have their urinary output accurately monitored. An indwelling urinary catheter must, therefore, be passed.

*** *The antidiuretic effect of oxytocin may also cause oliguria.*

The cause of the oliguria must be diagnosed and treated.

6-43 HOW CAN NORMAL HYDRATION DURING LABOUR BE ENSURED?

1. If a vaginal delivery is expected, the patient should be encouraged to eat and drink during the latent phase of the first stage of labour.
2. If a caesarean section is expected, the patient must be kept nil per mouth while in labour in preparation for surgery.
3. Low risk patients must continue taking fluids, while patients with risk factors should be kept nil per mouth, during the active phase of the first stage of labour. Intravenous fluids must be given to patients with risk factors as well as to patients with long labours.

ALWAYS ENSURE THAT A PATIENT IN LABOUR HAS AN ADEQUATE FLUID INTAKE. FLUIDS SHOULD BE GIVEN INTRAVENOUSLY IF NECESSARY

6-44 WHAT IS THE SIGNIFICANCE OF PROTEINURIA?

Proteinuria of more than a trace is never normal. It is an important sign of:

1. Pre-eclampsia.
2. Urinary tract infection.
3. Renal disease.

When there is proteinuria, the urine must always be examined for evidence of infection. However, infection alone will not cause more than 1+ proteinuria. Proteinuria of 2+ or more should always be regarded as indicating pre-eclampsia or chronic renal disease.

6-45 WHAT IS THE MANAGEMENT OF A PATIENT WITH PROTEINURIA?

The cause of the proteinuria must be determined, and the appropriate management given.

The management of pre-eclampsia is discussed in unit 3 while the management of a urinary tract infection is discussed in unit 13 of this PEP manual.

6-46 WHAT IS THE CLINICAL SIGNIFICANCE OF KETONURIA?

Ketonuria is common in labour and may be normal. However, if a patient has ketonuria, it is important to look for signs of maternal exhaustion.

MATERNAL EXHAUSTION

Maternal exhaustion is a term used to describe a clinical condition, consisting of dehydration and exhaustion during prolonged labour. It should not be confused with pain, anxiety or shock.

6-47 HOW DO YOU RECOGNISE MATERNAL EXHAUSTION?

The following physical signs may be present:

1. Tachycardia.
2. Pyrexia.
3. A dry mouth.
4. Oliguria.
5. Ketonuria.

6-48 WHAT CAUSES MATERNAL EXHAUSTION?

A long labour with an insufficient supply of fluid and energy to the patient.

6-49 WHAT ARE THE EFFECTS OF MATERNAL EXHAUSTION?

1. ON THE MOTHER: Inadequate progress of labour due to poor uterine action in the first stage, and poor maternal effort in bearing down during the second stage of labour.
2. ON THE FETUS: Fetal distress due to hypoxia. This often results from incorrectly managed cephalopelvic disproportion.

6-50 HOW CAN YOU PREVENT MATERNAL EXHAUSTION?

1. Make sure that the patient gets an adequate intake of fluid and energy during labour. It may be necessary to give fluid intravenously. Ringer's lactate with 5% dextrose will also ensure an adequate energy supply to the patient.
2. Ensure that the patient gets adequate analgesia during labour.
3. Ensure that labour does not become prolonged.

6-51 HOW DO YOU TREAT A PATIENT WITH MATERNAL EXHAUSTION?

If a patient has signs of maternal exhaustion then she should receive:

1. An intravenous infusion, giving 2 litres of Ringer's lactate with 5% dextrose. The first litre must be given quickly and the second litre given over 2 hours. It is contra-indicated to give a patient 50 ml of 50% dextrose intravenously as this may be harmful to the fetus.
2. Adequate analgesia.

MATERNAL EXHAUSTION MAY RESULT IN POOR PROGRESS OF LABOUR, WHILE POOR PROGRESS OF LABOUR MAY RESULT IN MATERNAL EXHAUSTION

6-52 IS IT NECESSARY FOR EVERY PATIENT TO RECEIVE INTRAVENOUS FLUID DURING LABOUR?

No. Low risk patients who are progressing well in labour do not need intravenous fluid, even if 1+ or 2+ ketonuria is present. If there are no contra-indications, patients should be encouraged to take oral fluids during labour.

CASE PROBLEMS**CASE 1**

A patient is admitted at 32 weeks gestation. She complains of lower abdominal pain and fever. On general examination her temperature is 38^{0C}.

1. Does this patient have a normal temperature?

No. She is pyrexial as her temperature is higher than 37^{0C}.

2. Where should her temperature be recorded?

In the appropriate space on the partogram.

3. What are the most likely causes of her pyrexia?

An acute pyelonephritis or chorioamnionitis as she has pyrexia with lower abdominal pain.

4. How should you manage this patient's pyrexia?

Diagnose and treat the cause of the high temperature. The temperature should be brought down with paracetamol.

5. What are the dangers of maternal pyrexia to the fetus?

Pyrexia may cause preterm labour, resulting in the delivery of a preterm infant with all the complications of immaturity. If the pyrexia is due to chorioamnionitis a preterm infant will be born with a high risk of congenital pneumonia.

CASE 2

A patient is admitted to hospital with a history of labour for 24 hours. On admission she appears anxious, has a dry mouth and a pulse rate of 120 beats per minute. She is able to pass only 30 ml of urine which is dark in colour. She had not passed any urine for the previous few hours.

1. What is the probable diagnosis?

Maternal exhaustion due to a long labour with an inadequate fluid and energy intake. The diagnosis is confirmed by the presence of maternal tachycardia and a dry mouth.

2. What other findings would help confirm this diagnosis?

Pyrexia and ketonuria.

3. Does this patient have oliguria?

Yes, as she obviously has passed less than 20 ml per hour during the past number of hours.

4. Is ketonuria always abnormal?

No, ketonuria on its own may be normal.

5. How could maternal exhaustion be avoided?

By making sure that every patient receives an adequate intake of fluid and energy during labour. If a vaginal delivery is expected and no high risk factors are present, a patient should continue to take fluids orally during the active phase of the first stage of labour. Any patient with prolonged labour should receive fluids intravenously.

6. How should the patient's exhaustion be treated?

She should be given 2 litres of Ringer's lactate with 5% dextrose intravenously. The first litre must be given quickly and the second litre over 2 hours. In addition, adequate analgesia should be given if needed.