Obstetrics & Gynecology
TEAM

Preterm Labour & Premature Rupture Of Membrane

Leader: Sara Alhaddab

Done By: Hayfa Alabdulkarim

◆very important ◆mentioned by doctor ◆team notes ◆not important

◆ **Extra notes from Essentials of obstetrics and gynecology 5th edition**

PRETERM LABOUR

❖ Definition:

- Labor that occurs after **24** weeks but before **37** completed weeks,
- Although it has an incidence of 10%, its contribution to neonatal morbidity and mortality is high ranges from 50 – 70%.
- Any delivery before 24* weeks is a miscarriage not a preterm labor
- *In some countries or centers preterm labor is any labor that occurs after 20 weeks and before 37 weeks, so it depends on the health care system status
- Preterm birth is defined as that occurring after **20 weeks and before 37** completed weeks of gestation. Labor that occurs between these gestational ages is defined as preterm labor. Internationally, the lower boundary defining preterm birth varies between **20 and 40** weeks.

I. Etiology and Risk factors

A] Idiopathic: is the commonest one.

- Low socioeconomic class.
- Previous preterm labor. With one PTL "preterm labor" the relative risk in the next pregnancy is 3.9, it increases to 6.5 with two.
- Repeated spontaneous abortions.

B] Obstetrics causes:

1- Multiple pregnancy "twins". As long as the incidence of multiple pregnancy is rising the incidence of PTL will rise as well
2- Premature preterm rupture of membrane.
3- Genital tract infection as bacteria vaginosis and **B streptococcus "MCQ"**.
4- Cervical incompetence. a medical condition in which a pregnant woman's cervix begins to dilate (widen) and efface (thin) before her pregnancy has reached term
5- Uterine anomalies.

C] Iatrogenic causes

- Induction of labor or CS. for obstetrics causes as PET "Pre-eclamptic toxaemia", placenta Previa and Abruptio and antepartum hemorrhage.

II. DIAGNOSIS

- Documented uterine contractions "4 contractions per 20 minutes". By history, physical examination & CTG.
- Documented cervical changes as cervical effacement "thinning" of 80%, or cervical dilatation of **2** cm or more. Note the progression of the changes

MANAGEMENT

- Put the patient on CTG to confirm uterine activity
- Assess cervical status, progress of labour and presenting part "cephalic ,breech..etc".
- Vaginal swab for bacteria vaginosis and B streptococcus and give antibiotic
- Hydrate the patient Maternal dehydration may trigger the secretion of ADH by the posterior pituitary. It is thought that oxytocin may also be released at the same time, bringing about uterine contraction before the optimum time. These uterine contractions, or uterine "irritability" (low intensity, high frequency contractions) of preterm labor are often treated with maternal hydration. Women at risk for preterm labor are encouraged to drink copious amounts of water throughout the day. And, if hospitalized for contractions, hydration with a bolus of IV fluid is often effective to "quiet" the uterus.

TOCOLYTIC THERAPY

❖ B-Adrenergic agonist (B-sympathomimetic agent):

- **Mechanism:**

  Convert ATP into cAMP in the cell causing decrease of the free calcium ion. Required close monitoring

- **Side effects:**
  - Mainly cardiovascular as increased heart rate and hypotension
  - Chest pain in 1-2% from myocardial ischemia.
  - Rarely pulmonary edema particularly with concurrent corticosteroid therapy.
  - Increased liver and muscle glycogenolysis causing hyperglycaemia. 2nd increase in insulin cause hypokalaemia.
- **Most commonly used drug in this group is Ritodrin hydrochloride (Yutopar)**

❖ Magnesium sulphate:

- **Mechanism:**

  Compete with calcium for entry into the cell at the time of depolarization so there is decrease of intracellular calcium. Easily reaches the toxic level so, you have to monitor the patient closely

- **Side effects:** more serious than Ritodrin's
  - Warm and flushing
  - Respiratory arrest
  - Fetal hypotonia due to decrease calcium

❖ Prostaglandin synthetase inhibitors:

- **Side effects:**
  - Decrease fetal renal blood flow and cause oligohydraminose.
  - Premature closure of ductus arteriosus, which lead to pulmonary Hypertension.
  - Necrotizing enterocolitis.
  - Fetal intracranial hemorrhage.
- **Indomethacin is the most commonly used.**

❖ Calcium channel blockers:

- **Nifedipine:**

  Inhibits the inward current of calcium iron during the 2nd phase of the action potential of uterine muscle.
- **Side effects:**
  - Headache
  - Hypotension
  - Flushing
  - Tachycardia

❖ Oxytocin Antagonist: very effective

- **Side effects:**
  - Nausea, dizziness, headache, and flushing.
  - Expensive drug.
- **Most commonly used drug in this group is Atosipan (tractocil)**

❖ CONTRAINDICATIONS TO TOCOLYTIC THERAPY:

1- Severe PET "Pre-eclamptic toxaemia"
2- IUGR "Intrauterine Growth Restriction"
3- Severe APH "Antepartum Hemorrhage"
4- Fetal anomalies "major anomalies"
5- Chorioamnionitis "inflammation of the fetal membrane" you have to stabilize the mother then deliver her.
6- Maternal heart disease "some times it is contraindicated to give tocolytic but you can try to give another drugs"

CORTICOSTEROID THERAPY

- Reduces fetal mortality, incidence of RDS "respiratory distress syndrome", and intracranial hemorrhage.
- Stimulate fetal pnemocyte 2 cell to produce surfactant
- Statistically sig.effect up to 34 weeks.
- Betamithasone IM 12 mg given twice 24 h. Apart.
- Optimal benefit is from 24h – 7 days. "Wait or try to delay the labor for At least 24 hours after receiving the drug to get benefit"

LABOUR AND DELIVERY

- Should be in a well equipped center with good SCBU "NICU"
- Continuous fetal monitoring
- Forceps and episiotomy for cephalic presentation
- C.S. for breeches if weight is less than 1500 gms.

Premature Rupture of Membrane

- **Definition:**
  - Rupture of the membrane before the onset of labor at any stage of gestation.
  - It is defined as amniorrhexis (spontaneous rupture of membranes as opposed to amniotomy) before to the onset of labor at any stage of gestation.

- **CAUSES:**
  - In majority of cases no clear cause can be found.
  - Vaginal infection, bacteria vaginosis and group B streptococcus.
  - Cervical incompetence.
  - Abnormal membrane.

- **DIAGNOSIS:**
  - History of fluid loss per vagina.
  - Visualization of amniotic fluid in the vagina by sterile speculum.
  - +Ve NITRAZIN test. Alkaline amniotic fluid turns yellow nitrazin reagent to blue colour. Blood, cervical mucus and alkaline urine give false +ve results.
  - +ve fern test. Required slide and microscope so, it is Not used any more.
  - USS "ultrasound": Marked decrease or absent liquor.
  - USS "ultrasound": Confirm gestation age and exclude fetal anomalies.

- **COMPLICATIONS:**

1- **Premature labor**: Amniotic fluid contains prostaglandins.

2- **Chorioamnionitis** :The amniotic fluid has bacteriostatic properties and acts as a mechanical barrier against infection.

3- **Fetal sepsis**.

4- **Lung hypoplasia** if occurs before 24 weeks.

- **MANAGEMENT:**
  - The management depends mainly on the gestation age:

A] 36 weeks or more → IOL "Induction of labour".

B] < 36 weeks → expectant management, unless there evidence of chorioamnionitis.

- **EXPECTANT MANAGEMENT**
  - Rest in hospital.
  - Early detection of Chorioamnionitis (immediate delivery) by checking WBCs and C reactive protein twice weekly.
  - High vaginal swab for culture.
  - Prophylactic antibiotics for 10 days.

- **Rule of tocolytics:** it is not advisable

1-Allow time for corticosteroids to work.

2-Contraindicated in the presence of infection.

- **Rule of corticosteroids:**

1-Significant value for pregnancy less than 34weeks.

- **Chorioamnionitis Symptoms:**

1- Maternal pyrexia >38 C.

2- Tender irritable uterus.

3- Foul smelling vginal discharge.

4- Fetal tachycardia.

SURFACTANT

- Produced by pnemocyte type 2 cells.
- Consists mainly of phospholipids, neutral lipids, proteins and carbohydrates.
- Measured as a ratio (lecithin / sphyngomyelin) mature lung >2.
- Decreases alveolar surface tension, maintains alveoli open at a low internal alveolar diameter and decrease intra alveolar fluid.

Good luck