☆ Pre-Term Labor (PTL):

Done by : Tasneem Alzaghal

* occurrence of Regular Uterine Contractions associated with Cervical changes, before 37 weeks of gestation
* هدفنا ⟿ prevent preterm Labor (delay Labor)
* متى بنولد ⟿ اذا فيه خطر على الأم مثل ⟿ pre-eclampsia
* Subdivided ⟿
  - 24 – 28 weeks → Extreme
  - 28 – 30 weeks → Early
  - 31 – 33 weeks → Moderate
  - 34 – 36 weeks → Mild, Late

☆ Threatened Preterm Labor:

occurrence of Regular Uterine Contractions Without Cervical changes, before 37 weeks of gestation

☆ Braxton-Hicks Contractions:

normal presentation of abdominal pain at 28 weeks Without Cervical changes

* Complications: ① Neonatal death ② 2nd cause of Childhood death <5 years of age
  ③ ↑ risk of short term complications due to immaturity of multiple organ systems
  ④ Neurodevelopmental disorders ⑤ Disability-adjusted life years
* Risk Factors: ① Previous PTL ⟿ Previous 1 (15% recurrence), Previous 2 (30%), Previous 3 (45%)
  ② Polyhydramnios ③ Multiple Gestation ④ Cervical Incompetence
  ⑤ Ascending Genital Tract Infections ⑥ UTI
  ⑦ ↓ in Progesterone action ⑧ Stress ⑨ Vascular Disorders
* Diagnosis:

A. History:
- Previous history of PTL.
- Sure date (LMP & Quickening) and confirmation by early 1st trimester records.
- Number of gestations.

Crown Rump Length (CRL)

B. Examination:

1. Vital signs:
   - Temperature (Fever).
   - Hypotension with Abruption.
2. Abdominal examination:
   - Tenderness.
   - True labor contractions or Braxton hicks. (طلق كاذب) → contraction without cervical dilatation
   - Presentation.
   - Engagement.
3. Vaginal examination:
   - Cervical changes.
4. Speculum examination:
   - Vaginal swab for GBS.
   - Offensive Discharge and Possible pooling liquor.

C. Fetal investigations:
- CTG (also to confirm preterm labor contractions).
- Ultrasound (Lie & Presentation, Fetal weight).

* Screening :

- Predictors : ① History of PTL in a prior pregnancy

② Sonographic Short Cervix in the mid trimester

- Methods : ① Cervical Length → (normal 3-4 cm) → Short cervix ↑ risk of PTL (18-22 weeks)

② Cervico-Vaginal Fetal Fibronectin → Negative 99% delivery whithin 7 days (24-34 weeks)

③ Cell - Free Fetal DNA → (22 weeks) ↑ cff DNA ↑ risk of PTL

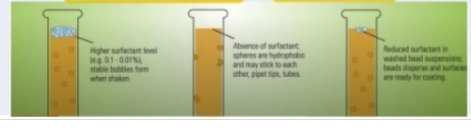
(8-10 weeks) detecting chromosomal anomalies

* Management :

- Goals : ① Delay delivary ② Identification of Etiology

③ administration of Steriods ④ administration of Gram B Streptococcus Prophylaxis

- Test for Fetal Lung Maturity :

Invasive tests		Non-invasive tests (Ultrasound Role)
Direct Tests	**Indirect tests**	
1. **Lecithin/Sphingomyelin Ratio** • L/S ratio of 2.0 or greater indicates maturity 2. **Phosphatidylglycerol (PG)** • Presence indicates a more advanced state of fetal pulmonary maturity	1. **Lamellar Body Count** • **< 8000**: immature • **9000-32000**: transitional zone; perform L/S & PG • **>32000**: mature 2. **Foam Stability** (shaking test) 	• Ultrasound can evaluate the development of fetal pulmonary parenchyma by measuring the diameter and area of fetal lungs • Color Doppler can show the distribution of fetal pulmonary vessels, helping to understand the development of fetal pulmonary circulation, as well as the fetal pulmonary maturity

- for Previous PTL : ① Vaginal Progesterone every night from 20 to 34 weeks

② Measurement of Cervical Lenght every 2 weeks between 14-24 weeks

③ Cervical Cerclage if the cervix become < 25 mm

- for Positive Secreening Test (No Previous PTL) :

① Vaginal Progesterone every night from 20 to 34 weeks

② Cervical Cerclage if the cervix become < 25 mm at 20-24 weeks

- for women with Asymptomatic Bacteruria :

① Antibiotic reduces the risk of Pyelonephritis (Not reduce the risk of PTR)

- for Threatend PTL : ① Hospitalization ② Tocolytics ③ Steroids

- After 34 weeks of gestation : ① Admit & Delivery ② Antibiotics if needed

- Before 34 weeks of gestation : ① Induction of Fetal Lung Maturity (Beta-Methasone) ② Tocolytic drugs to delay labor

③ Antibiotics if needed ④ Fetal Neuroprotection via administration of Magnesium Sulfate

* Tocolysis:

❖ **Patients with following complications are not candidate for tocolysis**

- APH, Infections, advanced labor active phase, PROM

Tocolytic drugs

β-agonists	Nifedipine (CCBs)	Indomethacin (NSAID)	Magnesium sulfate	Atosiban (tractocile)
• Ritodrine and salbutamol • **MOA**: relax smooth muscle (uterus) • **Highly side effects**: tremor, nausea, hyperglycemia, pulmonary edema Salbutamol ( ) Ritodrine ←	• Effective (reduce PTD within 7 days and decrease RDS) • Fewer side effects comparing β-agonists • Inexpensive and easy to use • **Side effects**: hypotension, flushing, diarrhea, constipation, headaches.	• Prostaglandin inhibitor (PGf2a) • 50-100 mg orally • **Side effects**: oligohydramnios, constriction of the ducts arteriosus, renal effect ➢ Given only at 28-32 weeks! ➢ Mainly used in Polyhydramnios (not usually for Tocolysis)!	**Uses** 1. Managing preeclampsia, eclampsia 2. As tocolytics agent 3. As fetal-neonatal neuroprotective agent Use 4 g, the smallest effective dose, with or without a 1 g/hour maintenance dose.	• **MOA**: Oxytocin-vasopressin antagonist • Fewer side effects • The most common side effect with Tractocile is nausea • Reported cases of fetal demise • Expensive ➢ Given in extreme preterms (< 28 weeks).

☆ Pre-Term Pre-Labor Rupture of Membrane (PPROM):

* Rupture of the membrane Without Uterine Contractions, Before 37 weeks of gestation

☆ Pre-Labor Rupture of Membrane (PROM):

* Rupture of the membrane Without Uterine Contractions, At Term (>37 weeks of gestation)

* Etiological Theories: ① Inflammation ② Micro-Fractures ③ Fetal Membrane Aging
* Complications: ① Prolonged maternal hospitalization ② Eary onset neonatal sepsis
  ③ ↑ neonatal morbidity & mortality
  ④ Fetal pulmonary hypoplasia (depending on gestational age)
  ⑤ Inflammation related adverse Neurodevelopmental outcomes
  ⑥ Infection (Chorioamnioitis)
  ⑦ Retained Placenta ⑧ Placental Abruption
* Risk Factors: ① Previous PTL or PPROM ② Bleeding in any trimester ③ Stress
  ④ Genital Tract Infections ⑤ Collagen disease ⑥ Tobacco exposure
* Differential Diagnosis: ① Urinary Incontinence ② Normal Vaginal Secretions
  ③ ↑ Cervical Discharge ④ ↑ Sweat or Moisture around the Perineum
  ⑤ Semen ⑥ Douching

* Diagnosis :

❖ **History (OSCE):**

- Sudden Gush of fluid.
- Onset & Duration.
- Amount.
- Soaking clothes.
- Dampness of underwear.
- Mistaken urinary incontinence.
- Odor and color (should be Clear & Odorless).
- Abdominal pain.
- Contractions.
- Mild pyrexia , feeling unwell ,abnormal vaginal discharge.
- Vaginal bleeding.
- Dysuria.
- Cord prolapse.

❖ **Examination:**

1. Vital signs: Temperature and PR.
2. Abdominal exam: Tender if there is chorioamnionitis.
3. Fetal movement: cannot be felt as there is ROM which limits Fetal mobility.
4. Sterile speculum: Cough or pooling signs (Gush of fluid through cervix or accumulation in the posterior vaginal fornix) = Definitive diagnosis.
   - Don't do PV!

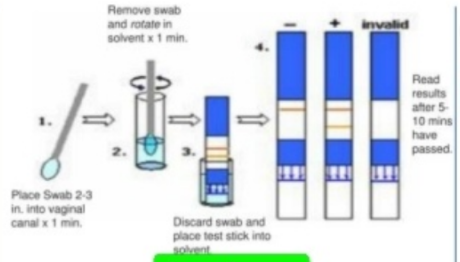
○ **Ultrasound**: oligohydramnios may be present

* لوكانت History Suggestive وتأكدنا ب Speculum مافيه داعي نكمل باقي الفحوصات ⬇⬇

Detection of amniotic fluid

Litmus test or nitrazine test: test strips turn blue

Positive fern test: fern pattern on glass slide



Amnisure

Sensitivity 94-99%

Specificity 87-100%

Detection of PAMG-1 (Placental Alpha Micro Globulin 1)

ROM Plus

Sensitivity 99%

specificity 91%

Detect IGFBP-1 and AFP

Actim-PPROM

Sensitivity 95-99%

Specificity 93-98%

Detect IGFBP-1 and AFP

Rapid test that reliably detects PROM, even before any visible signs can be detected

* Investigations : (Markers of Infection)

① CBC (WBC) ② Urinanalysis ③ High Vaginal Swab

④ CRP ⑤ US

* Management:

- Un-Stable patient (Infection) or Fetal compromise: Delivery
- Stable patient with Extreme, Early & Moderate Pre-Term >34 weeks of gestation: Hospitalize & Follow up
- Stable patient with Late Pre-Term 34-37 weeks of gestation: Delivery

* نستخدم Tocolytics لأنه Pre-Labor وبالأصل ماعنده Contractions

① Admission

② Screening for Infections

③ Antenatal Corticosteroids
- doses
  - 2 doses: 12 mg every 12 hours
  - 4 doses: 6 mg every 6 hours
- side effects: ↓placental weight, ↓fetal weight & hight, ↓Head circumference

④ Prophylactic "Latency" Antibiotics → Penicillin + Macrolide (Azithromycin)

⑤ Fetal Monitoring → NST, AFV, Fetal Growth ⑥ Maternal Monitoring

⑦ Timing of delivery dependent on NICU capability

⑧ For Fetal Neuroprotection → $MgSO_4$

⑨ Surgical treatment → Amniograft, Amniotic Patch

☆ Chorioamnionitis:

* Infection of Amniotic Fluid, Fetal Membranes & Placenta

* Etiology: Ascending Cervico-Vaginal Bacteria → Ureaplasma Urealyticum (most common), Gradnerella Vaginalis, Mycoplasma Hominis, Streptococcus Agalactiae, Lactobacillus species, Bacteroides species

* Risk Factors: ① Prolonged Labor or PROM ② Genital Tract Infections ③ Iatrogenic → multiple digital vaginal exams, invasive procedures

* Diagnosis: Presence of Maternal Fever (≥37.8°C) + 2 or more of:-
  ① Fetal Tachycardia (HR >160 beats/min)
  ② Maternal Tachycardia (HR >100 beats/min)
  ③ Uterine Tenderness
  ④ Purulent or Foul-smelling Amniotic Fluid or Vaginal Discharge
  ⑤ Maternal Leukocytosis (WBC >15000/mm^3)

* Management: Maternal Antibiotic therapy + Delivery

Vaginal → Ampicillin + Gentamicin/CS → Ampicillin + Gentamicin + Clindamycin or Metronidazole