Preterm Labor

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Goals and Objectives

- Define Preterm Labor
- Identify common causes and risk factors that could be associated with PTL
- Discuss current meds for management of PTL
- Review nursing care for the prevention of PTL/PTB

March of Dimes

Our mission is to lead the fight for the health of all moms and babies. Our goals are to end the preventable maternal health risks and deaths, end preventable preterm birth and infant death, and close the health equity gap.

Incidence

- Preterm birth is the leading cause of neonatal mortality.

- Preterm birth accounts for
  - 70% of neonatal deaths (birth to 1 month)
  - 36 % of infant deaths (1 month –1 year)
  - 25-50% of long-term neurological impairment in children

- 15 million infants are born premature worldwide
- 1 million infants die each year from PTB worldwide

Preterm Birth(PTB) and Preterm Labor(PTL)

- **Preterm Birth** (PTB) is birth occurring before 37 completed weeks of gestation

- The diagnosis of **Preterm Labor** (PTL) generally is based on clinical criteria of regular uterine contractions accompanied by a change in cervical dilation, effacement, or both.

OR…

- Initial presentation with regular contractions and cervical dilation of at least 2 cm

Risk Factors for Preterm Birth

- History of a preterm birth- Single greatest risk factor
- Maternal history of being born preterm
- Current multifetal pregnancy
- Uterine/cervical abnormalities- short cervix, prior cervical procedures such as LEEP, D&C
- Use of assisted reproductive technology
- Infection
- Medical risks in current pregnancy

- Chronic Health Problems
  - Hypertension
  - Diabetes Mellitus
  - Obesity
- Behavioral and Environmental Risks
  - Late or no prenatal care
  - Smoking
  - Domestic Violence
  - Stress
- Demographic Risks
  - Non-Hispanic Black race
  - Age < 17 years or > 35 years
  - Low Socioeconomic status

What are some of the most common complaints from pregnant women?

Signs/Symptoms of Preterm Labor

- Uterine contractions every 10 minutes or more often
- Menstrual-like cramps
- Low, dull backache
- Pelvic pressure
- Abdominal cramping
- Diarrhea
- Change in amount or color of vaginal discharge
- Vaginal bleeding
- General feeling that “something is not right”

What can we do- Nurses Role in Preventing PTB

- Providing Education and Support
- Early recognition and identification of women at risk
- Initiating and maintaining medical management
- Providing family centered care/ TeamBirth
- Initiating interventions that are shown to improve neonatal outcomes

Identify Preterm Labor as quickly as possible and notify provider

Nursing Assessment for PTL

- Assess medical hx, prenatal hx, & review prenatal record for pregnancy course and labs
- Perform a physical exam focusing on symptoms and complaints
- Identify Gestational age
- Obtain objective data
  - Monitor FHT's and UC's
  - Obtain routine labs: CBC and UA
  - Obtain VS
  - Obtain fFN
  - Assess for ROM
  - Assess Cervical status

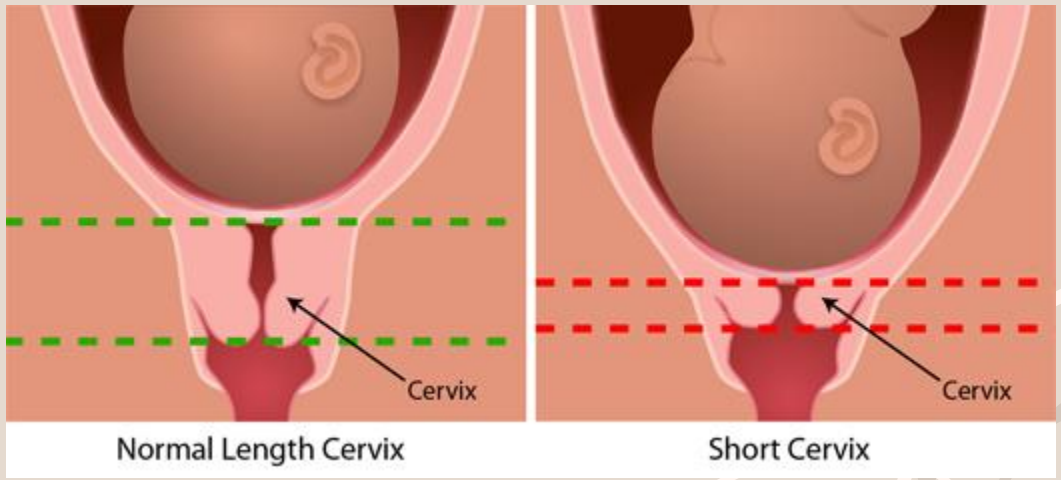
Early Recognition

- Early recognition of women with high risk factors allows for increased education and awareness.
- Arming our patients with education related to their risks can result in *decreasing* their risks.
- Early recognition of women in the early stages of PTL allows for the administration of antenatal corticosteroids and transfer to a hospital with a NICU if indicated
  - Both of which have been proven to be effective in improving neonatal outcomes.

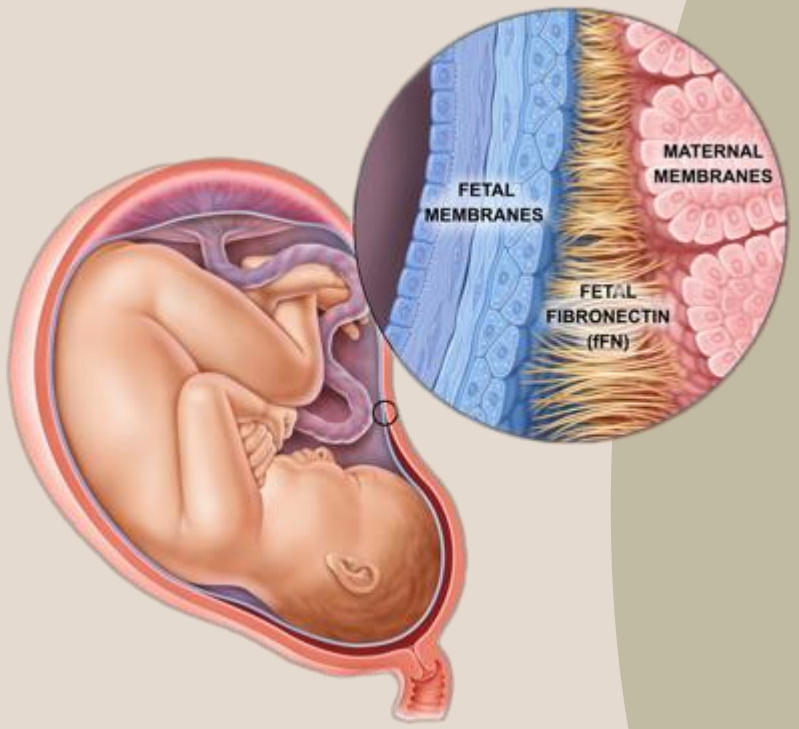
Medical Diagnostic Exams

- Biochemical Markers- Fetal Fibronectin (fFN)
  - Swab is collected from the external cervical os via a speculum exam

- Transvaginal Ultrasound- normal cervical length in the midtrimester of pregnancy varies from 10-50 mm. The shorter the cervix, the higher the risk of preterm birth.



Fetal Fibronectin (fFN)



- What is "fetal fibronectin"?
  - It is the adhesive glycoprotein that attaches the fetal membranes to the endometrium.
  - PTL breaks the bonds between the placenta and the amniotic membranes, causing a release of FFN into the vaginal secretions
- Normally found in secretions before 20 weeks and again after 34 weeks
- Approved by the FDA for use as an aid in assessing the risk of preterm birth
  - Symptomatic patients 24-34 weeks
  - Asymptomatic patients 22-30 weeks

Contraindications to fFN

- Vaginal examination within the past 24 hours
- Cervical dilation greater than 3 cm
- BBOW or Ruptured membranes
- Cerclage in place
- Moderate to gross vaginal bleeding
- Suspected or known placenta previa or abruption

Can test if sexual intercourse within the past 24 hours

- Semen will not cause a false negative. Can cause a false positive and patient would need to be retested at 24 hours.

Management of Preterm Labor

- Continued evaluation and surveillance
- Administer antenatal corticosteroids
- Administer tocolytics if indicated
- Consider magnesium sulfate
- GBS Prophylaxis if indicated
- Educate patient and family about what to expect

Antenatal Corticosteroids

- Betamethasone most common
- This is the single most effective intervention to improve fetal outcomes
- Does NOT prevent preterm birth but does prevent major complications in the neonate

Tocolytics

- Tocolytics are administered for up to 48 hours to delay birth to allow time for steroids to achieve maximum effect
- Given for dx of PTL in gestations over 22 weeks but less than 34 weeks
- Terbutaline and Nifedipine are the most commonly used for PTL
- Contraindications include preeclampsia, abruption, intrauterine infection, cardiac disease, acute fetal distress (unless using for resuscitation), fetal demise, and advanced cervical dilation

Terbutaline (Brethine)

- Beta2 adrenergic agonist
- Agonists bind to receptors in the smooth muscle of the uterus and reduce calcium levels
- Reduced calcium levels cause smooth muscle contraction to be less effective

- Typical dose is 0.25 mg subcutaneously
- PO dosing is available but no longer recommended
- Most common side effects:
  - Maternal/fetal tachycardia
  - Hypotension
  - Tremor/paliptations
  - Nervousness
  - Headache

Terbutaline considerations

- Hold if maternal pulse > 120 or fetal HR > 180
- Monitor vitals for tachycardia or hypotension
- Auscultate breathe sounds

Nifedipine (Procardia)

- Calcium Channel Blocker- relaxes smooth muscle of the uterus to reduce contractions
- Use cautiously in conjunction with magnesium: may cause severe hypotension and neuromuscular blockade
- Contraindications:
  - Maternal liver disease
  - Patient on magnesium sulfate

- Given PO
- Can cause hypotension, headache palpitations, nausea
- Closely monitor VS

Magnesium Sulfate for PTL

- Indicated in gestations less than 32 weeks
- Given for neuroprotection
- Magnesium sulfate has protective effects for the fetus against cerebral palsy and other types of severe motor dysfunction in preterm deliveries
- Typical dose is 4-6 gram loading dose given over 20 min followed by 1-3 grams per hour
- Potential Side Effects:
  - Flushing, warmth
  - Nausea/vomiting
  - Lethargy
  - Pulmonary Edema

Magnesium Sulfate is a HIGH ALERT medication due to potention for toxicity

Signs of toxicity include:

Respiratory Depression

Change in LOC

Absent DTRs

Magnesium Toxicity

1. What assessment do we do routinely on patients receiving magnesium?

Antidote to Magnesium is Calcium Gluconate

Administer One gram (10 ml of 10% solution) IVP over 3-5 minutes

GBS Prophylaxis

Antibiotics given for GBS prophylaxis in patients who have PTL unless patient has recent negative GBS culture

Penicillin G is most effective

May also use ampicillin, cephalosporins and vancomycin

Other medications/treatments for PTL

- Progesterone- research doesn't support use
- Bedrest- does not improve outcomes and imposes risk of thromboembolic events
- Indomethacin
  - COX inhibitor
  - Can cause constriction of the ductus arteriosis in fetus
  - Can cause oligohydramnios

Managing Patient Stress and Depression

- Enhance intimate social support
- Allow her to maintain some control
- Listen to your patient
- Find out what is most stressful to the patient

- Provide consults:
  - Social service
  - NICU
  - Nutrition
  - Recreational therapy

Goals of PTL Management

- Early recognition of those at the greatest risk
  - allow for optimal patient education
  - provide for more frequent observation and assessment
- Patient education is a critical component of prevention and managing PTL
- Delay delivery by stopping or slowing contractions to allow for the administration of antenatal corticosteroids and/or allow for the transfer to a tertiary care facility
- Optimizing fetal status prior to delivery

Admit/Transfer/Discharge?

- Scenario 1:
- G3P2
- 30 weeks gestation c/o cramping and increased discharge.
- Pt has a history of 1 previous preterm birth.
- SVE:1cm/50%/-2 (no change in 4 hours)
- Negative Ffn.

- Scenario 2:
- G2P1
- 28 weeks gestation c/o backache and pelvic pressure.
- Pt has an unremarkable health history.
- Cervix has changed from finger tip to 2cm/70%/-2 in 3 hours. Cervical length is measured at 20 mm.

Admit/Transfer/Discharge?

Scenario 3

- G2P1
- 27 weeks Gestation with c/o low dull back ache, Pelvic Pressure, and Vaginal bleeding.
- Pt conceived by IVF.
- Pt is having contractions q 15-20 minutes. SVE: 1+/70%/-3 with no change in 2 hours.
- Ffn is negative

2024 REPORT CARD GRADE
US

Preterm birth grade

D+

Preterm birth rate

10.4%

Black babies are 1.5 times more likely to be preterm than all other babies.

2024 REPORT CARD GRADE
OKLAHOMA

Preterm birth grade

D

Preterm birth rate

11%

Black babies are 1.5 times more likely to be preterm than all other babies.

15.0%

Smoking
(6.4% of all births)

20.8%

Hypertension
(3.4% of all births)

12.4%

Unhealthy weight
(38.8% of all births)

29.9%

Diabetes
(1.2% of all births)

References

www.hologic.com https://ffntest.com/professional-resources

Marchofdimes.org

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