PRETERM LABOR

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Goals & 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

Fight for Preemies

Marchofdimes.org/pretermlabor

Incidence

- Preterm birth is the leading cause of neonatal mortality and the most common reason for antenatal hospitalizations.
- In the United States 9.85% of all births occur before term. Oklahoma's PTB rate is 11.9%. (March of Dimes 2021)
- 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

Incidence

- 1.9% of preterm births in the U.S. are less than 32 weeks gestation
- 71% of PTB occur between the gestations of 34-36 weeks
- Preterm births account for 85% of all perinatal morbidity and mortality
- Preterm babies avg 16.8 days in the hospital, term baby avgs 2.3 days

So what is PTB? PTL???

- **Preterm Birth** (PTB) is birth occurring before 37 completed weeks of gestation. In 2018, preterm birth affected 1 out of every 10 infants born in the United States.
- 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
- Current multifetal pregnancy
- Uterine/cervical abnormalities

POSSIBLE RISK FACTORS

- Chronic Health Problems
  - Hypertension
  - Diabetes Mellitus
  - Obesity
- Behavioral and Environmental Risks
  - Late or no prenatal care
  - Smoking
  - Domestic Violence
  - Stress

POSSIBLE RISK FACTORS

- Demographic Risks
  - Non-Hispanic black race
  - < Age 17
  - > Age 35
  - Low socioeconomic status
- Genetics
- Assisted Reproductive Technologies
- Medical Risks in Current Pregnancy

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"

Now What?

Your role in the prevention and management of PTL includes:

- Providing Education and Support
- Early recognition and identification of women at risk
- Initiating and maintaining medical management
- Providing family centered care
- Initiating interventions that are shown to improve neonatal outcomes
- Advocate for protocols that allow standardization of care and promote early recognition

Identify preterm labor as quickly as possible and notify the provider

Nursing Assessment of the PTL Patient

- 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.

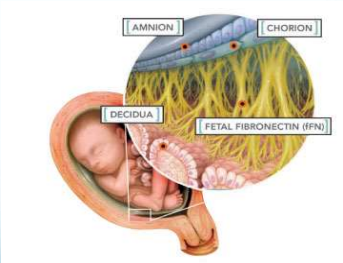
Medical Diagnostic Exams

- 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

- Only biochemical marker that has an excellent predictive value for preterm birth
- What is "fetal fibronectin"?
  - It is the adhesive glycoprotein that attaches the fetal membranes to the endometrium.
- 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 in women from 22-35 weeks.

Maternal-Fetal Interface



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CONTRAINDICATIONS

- 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
- Sexual intercourse within the past 24 hours

What to do once PTL is identified?

Is Patient Moderate or High Risk??

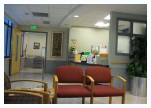
Moderate Risk of PTB

Disposition: Home

- Nursing Interventions
  - Teach home care instructions
  - Educate patient on signs and symptoms of PTL
  - Discuss risk factors and provide education
  - Stress importance of follow-up care
  - Possible administration of antenatal corticosteroids
- Education is Key!!!!

High Risk/PTL Identified

Disposition: Admit/ transfer



- Nursing Interventions
  - Continued evaluation and surveillance
  - Administer antenatal corticosteroids
  - Initiate and manage tocolytic therapy
  - Educate patient and family about what to expect

Indications for Tocolytic Medication Therapy

- Diagnosis of Preterm Labor
- Gestation is beyond 22 weeks but less than 34 weeks
- Live fetus without signs of severe distress, congenital anomalies incompatible with life, or maternal contraindications

Contraindications for TOCOLYTIC THERAPY

- *Preeclampsia or eclampsia*
- *Placental abruption or acute hemorrhage*
- *Intrauterine infection*
- *Acute fetal distress (except intrauterine resuscitation)*
- *Maternal hemodynamic instability or complications*
- *Fetal demise (singleton)*
- *Advanced cervical dilatation*

CURRENT MEDICATIONS FOR MANAGEMENT OF PTL

- Beta-Adrenergic Receptor Agonist
  - Terbutaline/Brethine
- Calcium Channel Blocker
  - Nifedipine/Procardia
- NSAIDS
  - Indomethacin/Indocin
- CNS Depressant
  - MAGNESIUM SULFATE

TERBUTALINE

- Receptors are found in the heart, liver, kidney, small intestine, smooth muscle of the uterus, blood vessels, diaphragm and bronchioles.
- Agonists bind to the receptor sites and reduce levels of calcium.
- Decreased calcium levels cause smooth muscle contraction to be less effective·uterine contractions may cease.
- Continued exposure to medication can lead to desensitization.

Side Effects

- MATERNAL
  - Tachycardia
  - Hypotension
  - Tremor & palpitations
  - Nervousness
  - Headache
  - Hyperglycemia
  - Cardiomyopathy
  - Pulmonary Edema
- FETAL/NEONATAL
  - Tachycardia
  - hyperinsulinemia

Assessments

- Vital Signs
  - Hold if maternal pulse > 120 bpm
  - Monitor and Record BP; Pulse; and Pulse Oximetry as follows:
    - Baseline data, then every 15 minutes X 2, then in 30 minutes
- Auscultate Breath Sounds prior to each dose and prn throughout therapy.
- Fetal Heart Rate
  - Hold if FHR > 180 bpm

Nifedipine (Procardia)

- Action: Calcium channel blocker, relaxes smooth muscle of the uterus
- **Use cautiously when administered concurrently with Magnesium**
  - **May cause severe hypotension and neuromuscular blockade**
- **Contraindications**:
  - Patient with maternal liver disease, HTN, Diabetes
  - Multiple gestation, intrauterine infection
  - Patient currently on Magnesium Sulfate

Indomethacin (Indocin)

- Action: blocks prostaglandin synthesis
- Use cautiously in patients with infections due to the anti-inflammatory properties.

ISMP HIGH ALERT MED

MAGNESIUM SULFATE IS an *ISMP (Institute for Safe Medication Practices) HIGH-ALERT MEDICATION* because of the potential for toxicity that could result in causing significant harm to the patient.

LOOK FOR THE SIGNS OF TOXICITY!

MAGNESIUM SULFATE

- Magnesium interferes with calcium uptake in the cells of the myometrium
- Myometrial cells need calcium to contract
- Magnesium sulfate relaxes smooth muscle throughout the body

Contraindications

- Patient on Procardia (Calcium Channel Blocker)
- Muscular Dystrophy
- Myasthenia Gravis
- Absent DTRs
- History of MI
- Respirations < 12/ min
- Urine output < 30 ml/hr (Renal Failure)

Potential Side Effects

- MATERNAL
  - Flushing, warmth
  - N/V
  - Lethargy
  - Pulmonary edema
- S/S of Toxicity:
  - Absent DTRs
  - Respiratory Depression
  - Slurred speech
  - Hypocalcemia
  - Cardiac conduction
- FETAL/NEONATAL
  - Decreased variability
  - Decreased fetal breathing movements
  - Neonatal drowsiness
  - Hypocalcemia
  - Neuromuscular depression

Magnesium Toxicity Antidote-Calcium Gluconate

- Calcium gluconate is an electrolyte replacement solution that is administered intravenously to reverse magnesium toxicity in pregnant or postpartum patients.
- **Administer** One gram (10 ml of 10% solution) IVP over 3-5 minutes

Other Meds Used in PTL Management

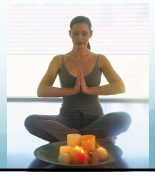
- Antibiotics
  - Contraindicated for intrauterine infections
- Progesterone
  - Limited research related to long term safety

Corticosteroids

- *Single most effective intervention to improve fetal well being*
  - Betamethasone or Dexamethasone
- Antenatal corticosteroids do not prevent PTB but do prevent major complications in the neonate.

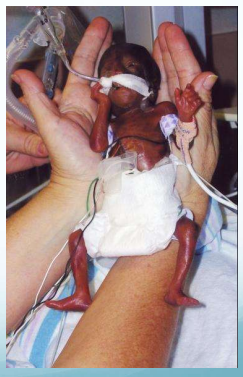
Interventions for Managing Potential Patient Stress & Depression

- 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



PTB

- Short term problems:
  - Respiratory distress syndrome
  - Intraventricular hemorrhage
  - Necrotizing enterocolitis
  - Bronchopulmonary dysplasia
  - Sepsis
  - Patent ductus arteriosus
- Long term problems:
  - Cerebral palsy
  - Retinopathy of prematurity
  - Autism
  - Hearing loss
  - Neurological impairment
  - Chronic lung problems



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 Scenarios

- **Scenario 1:**

G3P2 at 30 weeks gestation WITH c/o CRAMPING AND INCREASED DISCHARGE. Pt has a history of 1 previous preterm birth. Sve:1cm/50%/-2 (no change in 4 hours) WITH A NEGATIVE Ffn

- **Scenario 2:**

G2P1 at 28 weeks gestation c/o backache and pelvic pressure. Pt has an unremarkable health history. Pt's 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 at 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

Admit/Transfer/Discharge??

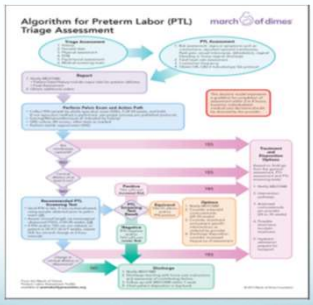
- **Scenario 4**

G2P1 at 33 weeks gestation presents for scheduled NST for history of Gestation Hypertension.

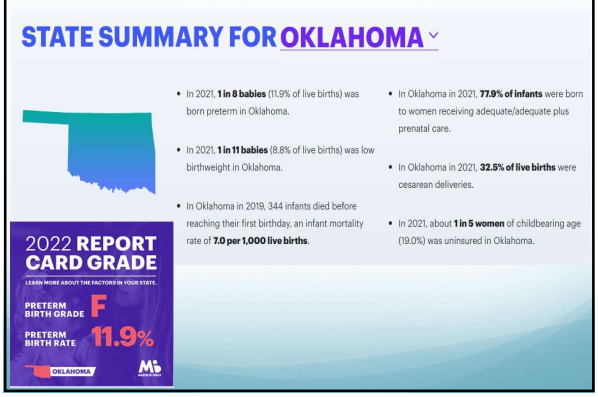
Pt denies any complaints.

Toco reveals the patient is having regular UCs and SVE is 3/80%/-1. No other testing available.

PTL Algorithm



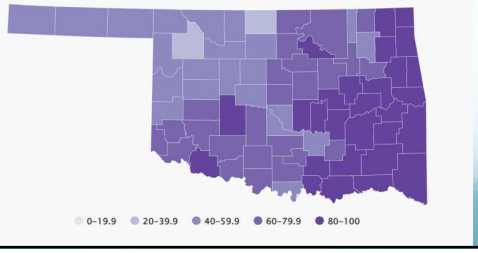
March of Dimes Peristats



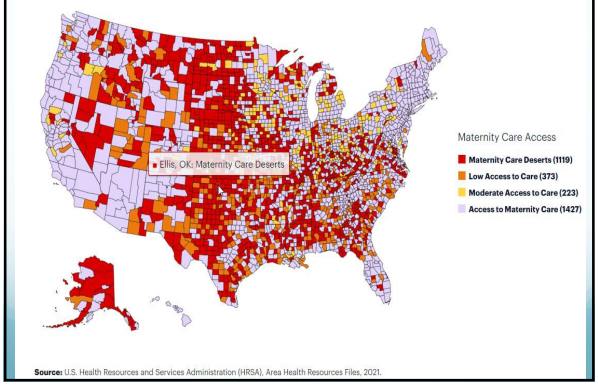
March of Dimes
Maternal Vulnerability Index

Identifies where and why moms are vulnerable to poor pregnancy outcomes & pregnancy-related deaths. Looks at clinical, social, contextual & environmental factors that influence health outcomes. A higher score indicates ↑ vulnerability.

Where in Oklahoma are mothers most vulnerable?



Maternity Care Deserts, 2020



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