OB Nursing: Labor and Delivery; Intrapartum Nursing

Topics covered include: Fetal heart strip monitoring, pain mgmt., labor at risk, induction of labor, birth variations, ER/Trauma and pregnancy

- Process of Labor and Delivery
  - Consider the P’s:
    - Powers
      - Primary powers: Contraction
      - Secondary powers: Pushing. Comes in 2 types:
        - Physiologic pushing: “grunting”
          - May take more time but more O2 to baby
        - Closed glottis pushing: hold breath
          - Take a deep breath and push to 10
          - Faster BUT less O2 to baby

- Passageway
  - Cervix: softening, effacement, dilation
    - Effacement: thinning of mucous membrane surrounding the os.
      - Thins in thickness and becomes elongated
    - Dilation: from 0 to 10 cms
  - Pelvic floor muscles
  - Vagina

- Passenger
  - Lie: long axis of fetus related to long axis of mother (longitudinal=upright; transverse = side)
  - Presentation:
    - cephalic (vertex)
    - Malpresentation: breech, shoulder (acromion)
  - Attitude: further describes the fetal presentation
    - Cephalic
      - Flexed
      - Military
      - Brow
      - Face
    - Breech
      - Complete: knees and hips flexed
      - Incomplete: 1 knee & hip flexed
      - Frank: hips flexed, knees extended
      - Footling: full extension
  - Station:
    - 0 station considered “engaged” when the neonate is at the ischial spines
    - Each cm below is a + sation
    - At 4+ or 5+ infant is crowning
  - Cardinal movements:

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- "Tuck, turn, and out"
  - Infant descends, hits the pelvic floor, flexes and then rotates head so the largest diameter can come out of the passageway
  - Extension leads to crowning
  - Newborn will look over its shoulder and the baby will turn to align itself

- Position
  - 3 components:
    - Right (R) or Left (L) side of maternal pelvis
    - Occiput (O) or malpositions: Mentum (M) Sacrum (S)
    - Anterior (A) Posterior (P) Transverse (T) of maternal pelvis
  - This is assessed during labor by feeling for fontanelles
    - Ant. Fontanelle is a diamond

- Psyche
- Pee
  - Bladder distension displaces uterus interfering with successful contractions
  - Important to assess urine output, empty bladder q2 and place foley

- Placenta
- Partner
- Powerful parents/in-laws
- Pain
  - Purposeful
  - Anticipated
  - Intermittent
  - Normal

- Signs of impeding labor:
  - "Lightening": fetus dropping into pelvis
    - Sudden ease in wob, but difficulty in walking
  - Cervical mucus/bloody show
  - Burst of energy/nesting
  - Increase in Braxton-Hicks contractions

- Stages of Labor
  - Stage 1: Cervix becomes fully dilated, fully effaced, movement from -3 to +3 station
    - Latent phase
      - Cervix is 0-3 cm dilated
      - Onset of regular contractions q 3-30 minutes
      - Mother is nervous, excited
      - Nursing responsibilities:
        - Intrapartum assessment
        - Repositioning/ambulation
        - Hydrotherapy

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- Massage
- Nonpharmacological pain relief
- BLADDER
- Hygiene

- Active phase
  - 4-7 cm dilated
  - Contractions q 2-5 minutes
  - Decreased ability of mother to cope
    - Reassurance
    - Reduce anxiety
    - Encourage partner involvement in caretaking

- Transition phase: avg descent 1-2 cm/hr
  - Cervix: slowly progresses from 8-10 cm
  - Contractions q 1.5-2 min
  - Significant maternal anxiety, withdrawn response, uncontrollable urge to bear down
    - Encourage mother’s support to initiate physical distractions
    - Reassure fears are normal but “will not split apart”
    - Physical support
    - Incontinence care

- Stage 2: Birth
  - Call CNM, MD
  - Comfortable env
  - Get delivery table/warmer ready (resuscitation gear)
  - “Police” family and other visitors
  - Pericare

- Stage 3: Birth of the placenta “Afterbirth”
  - Avg 5-30 min following birth
  - Prevention of hemorrhage (HUGE)
    - Oxytoxics:
      - Pitocin 10-40 U in 50-1000 mL LR fast
      - Pitocin 10 U IM
      - Metherine 0.2 mg IM
        - CONTRAINDICATED WITH HTN
      - Hemabate: 250 mcg IM, intracervical/uterine
        - CONTRAINDICATED WITH ASTHMA
      - Cytotec (misoprostol) 600-800 mcg PO, vaginally, rectally
  - Catherization
  - FUNDAL MASSAGE AFTER PLACENTA IS OUT
    - Before can lead to PPH
    - Assist parents to bond with newborn-skin to skin contact, newborn assessment
  - Breastfeeding → oxytocin release → aid in expulsion of placenta

- Stage 4: recovery phase

Anticipated need for:
- Sponges
- Sutures
- New sterile gloves
- Local anesthesia

Fetal Assessment
- Tests of fetal well being (typically done antenatal)
  - Nonstress test NST
    - Most widely accepted method of evaluation of well being
    - 20-40 minutes
      - If NST is nonreactive in first 20, retest in 20
    - Reactive or Nonreactive
      - Reactive: at least 2 FHR accelerations in 20 minutes
        - >32 weeks; >15 bpm lasting >15 sec
        - 28-32 weeks: >10 bpm lasting >10 sec
      - Nonreactive: insufficient accelerations in 40 min
  - Biophysical profile (BPP): assessment of fetal reflex activities controlled by ANS and sensitive to hypoxia
    - Score of either 2 (present) or 0:
      - NST
      - Ultrasounds exam
        - Fetal breathing movements lasting at least 30 sec
        - Fetal movement
        - Fetal tone
        - Amniotic fluid volume
      - Lower the score, more worrisome

Amniotic Fluid Index (AFI)
- Decreased AFI: indicates hypoxia
  - Hypoxia shunts blood from kidneys decr urine output
- Oligohydraminos: low fluid <5cm (increased prenatal mortality)
- Hydraminos >25 cm (fetal malformation)

Modified BPP: NST and AFI

Contraction Stress Test: contractions are spontaneous/induced (Pitocin/nipple stimulation)
- Negative (GOOD): no variable or late decelerations noted
- Positive (BAD): late decels noted with at least 50% of contractions
- Suspicious: Intermittent late or variable testing

Doppler Flow Studies

Estimation of growth/weight

Fetal lung maturity
- Amniotic fluid analysis of lecithin/sphingomyelin ratio:
  - Two components of surfactant

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- L/S ratio is >2:1 demonstrates low risk of Resp. Distress Syndrome
- Same with Phospatiglyglycerol (PG)

- Fetal Monitoring
  - Hypoxemia/Hypoxia: Decreased 02 in blood/ decreased 02 in tissues
  - Acidemia/Acidosis: Increased H+ in blood/tissues
  - Normal: 5 contractions or less in 10 minutes avg over 30 minute window
  - Uterine Tachysystole: more than 5 contractions in 10 minutes averaged over 30 min window
  - Low risk assessment:
    - Intermittent auscultation and contraction palpation
      - Auscultation via fetoscope or Doppler: before, during, and after contraction
    - EFM: Ultrasound transducer and tocodynameter
      - Toco doesn't measure intensity only frequency/duration
    - Intrauterine Pressure Cathather
      - Measures pressure and can be used for amnioinfusion
    - MVUs: intensity of contraction
      - Summation of forces of contraction in 10 minute period
      - >200 is sufficient for 90% of labor to progress
      - Be sure to subtract baseline uterine tone
  - NICHD Nomenclature (National Institute of Child Health and Human Development)
    - FHR Baseline: Mean FHR during 10 minute period (rounded to nearest 5 bpm EXCLUDING ACCELERATIONS AND DECELS; MUST BE OBSERVED FOR 2 CONT MINUTES)
      - Normal is 110-160
    - Baseline variability: most important predictor of adequate fetal oxygenation
      - Absent variability: variation in amplitude undetectable (Fetal sleep, medication effects, fetal hypoxia)
      - Minimal variability: variation is detectable but less than 5 bpm
      - Moderate: amplitude of 6-25 bpm above AND below baseline (predictive of absence of metabolic academia)
      - Marked Variability: Range is >25 bpm
        - Can't establish a baseline
        - Early/mild hypoxia, fetal activity, drugs
  - Sinusoidal pattern:
    - Amplitude of 5-15 bpm and occurs 3-5 times in 1 minute lasting for 20 minutes or more
      - Benign: pseudo sinusoidal

Pathologic: anemia, chronic fetal bleeding, CNS malformation, twin transfusion syndrome, isoimmunization of fetus, cord occlusion

- FHR changes:
  - Periodic: occur with at least 505 of contractions within 20 minutes
    - Accelerations and Decels
  - Episodic: not associated with contractions:
    - Variable decels
    - Accelerations
  - Accelerations:
    - Increase of baseline >15 bpm and duration of >15 sec but <2 minutes from onset to return to baseline (10 for <32 wks)
    - Prolonged: between 2 and 10 min
  - Decelerations:
    - Abrupt: onset to nadir is <30 sec
      - Variable: >15 bpm lasting between 15 s to 2 min
      - Cord Compression
    - Gradual: onset to nadir is >30 sec
      - Early or late
        - Early: mirrors contraction. Onset, nadir and recovery coincide with onset peak and end of uterine contraction
          - Benging: head compression → vagal nerve stimulation
        - Late: Onset of nadir is >30 sec, always occurs after the peak of contraction
          - Uteroplacental insufficiency
          - Fetal acidemia

- Categories:
  - I:
    - Normal baseline rate (110-160)
    - Moderate variability
    - No late or variable decels
  - II: Everything else
  - III: Includes either
    - Absent variability with recurrent lates
    - Absent variability with recurrent variables
    - Absent variability with bradycardia
    - Sinusoidal pattern

- Intrauterine resuscitation
Position change, IV fluid bolus
- 02 @ 10 L/min via non rebreather mask
- Call for help
- Notify provider
- Tachysystole:
  - Turn off pitocin, administer terbutaline (smooth muscle relaxant)
- Cervical exam for prolapsed cord, rapid cervical dilation
- Amnioinfusion

Pain Mgmt during L&D (Reference pain mgmt. chart)
- Non pharmacological techniques
- Pharmacological interventions:
  - Ambien for maternal exhaustion during labor (can actually increase response to pain stimuli)
  - Phenergan: n/v/anxiety
  - Fentanyl: 50-100 mcg IVP q 15 min up to 200 mcg in 1 hr
    - Ideal because short half life and little effect on FHR
  - Demerol: 50 mg IVP q 2
  - Morphine: 2.5-15 mg IV; also IM q 4 hrs
  - Nubain and Stadol
    - Synthetic opioid agonist
  - Epidurals
    - Concern is maternal hypotension, will preload with fluid bolus but research shows no substantial difference
      - Uncorrected can lead to late decels
  - Spinal block

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- Pudendal
- Labor at Risk:
- Birth Variations:
  - Indications for assisted delivery
  - Fetal bradycardia, maternal exhaustion, maternal heart disease where pushing can cause unsafe Valsalva effect, malposition
  - CNM can be trained for vacuum assistance, NOT forceps
  - Nursing care:
    - Have a second nurse present. Their responsibility is to keep track of how many times vacuum pops off or how long assistance has been tried
    - Assess injuries to mother/newborn
  - C/S
    - Indications:
      - Complete placenta previa
      - Cephalopelvic disproportion
      - Genital herpes flare up
      - Cord prolapse
      - Failure to dilate despite adequate contractions
    - Controversial indications:
      - Breech
      - Previous c/s
      - Tumors obstructing birth canal
      - Congenital anomalies
    - Low transverse incision allows future attempts at VBAC
    - Risks associated with C/S
      - 4x risk of death; risks associated with general surgery
      - Incr risk of blood clots, breastfeeding difficulties, longer duration of pain, longer hospital stays, increased readmissions, abnormal placentation in future pregnancies
      - Immediate risk in newborn for TTN, birth injury, asthma, allergies, diabetes
  - Labor at risk:
    - Bleeding during pregnancy
      - 1st trimester bleeding common: ½ will result in fetal loss (chances of loss increase when accompanied by pain)
      - EVEN RECTAL PAIN
    - Spontaneous abortion: expulsion of fetus prior to 20 weeks or >500 g weight
      - Ultrasound, progesterone and hCG levels
    - Ectopic pregnancy
      - Triangle of signs:
        - Missed menses or weak positive pregnancy test (low hCG levels), vaginal spotting/bleeding/brownish discharge, lower quadrant pain

• Tx:
  - Methotrexate: interferes with growth to preserve tubes
  - Surgical emergency
  - F/U: H&H mgmt., RhoGam prn

■ GTD: Gestational Trophoblastic Disease
  - Molar pregnancy or choriocarcinoma
  - Metastasis to lungs: deadly
  - S/sx: vaginal bleeding, passing of vessels (little balls)
    - Very early pre-eclampsia
  - Tx:
    - Suction evacuation of mole ASAP
    - Chemo
    - F/U
  - Keep pt free of pregnancy for AT LEAST a year

■ Incompetent cervix
  - Painless dilation of cervix without contractions
  - S/sx: Repetitive 2nd trimester losses
  - Tx: surveillance, cerclage

○ Obstetrical Emergencies/Trauma
  ▪ Uterine rupture
    - Nonspecific symptoms, first sign is changes in FHR
    - Sudden onset of constant, severe abd pain
    - Elevated resting tone measured by IUPC
    - Prevention and strategies to minimize risk:
      - Appropriate TOLAC candidates, avoid unnecessary induction of labor, continuous EFM during TOLAC
  - Tx:
    - Emergency C/S
    - Possible hysterectomy
    - Mgmt of hypovolemic shock
  ▪ Trauma: MVA, gun-shot wound, domestic violence
    - Women have extra 45% in blood volume→greater volume of blood loss before shock seen
    - Increased clotting factors→incr risk of DIC
    - Blood shunts TO MOTHER FIRST, therefore save her to save baby
  ▪ Amniotic Fluid Embolism (AFE)
    - Supportive: ICU, CPR, intubation, blood products, 2 large bore IVs, Norepi/dopamine
  ○ Group Beta Streptococcus (“GBS”)
    - Universal screening for all women 35-37 weeks
    - Exceptions include known cases such as Hx of infant with invasive Gbs
    - Vaginal rectal culture
    - Intrapartum Prophylactic Abx:
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- Who should receive?
  - Any positive vaginal/rectal culture in current pregnancy
  - Hx of GBS bacteria in this pregnancy or infant affected by GBS
  - If no known results:
    - Membranes ruptured for 18 hrs or greater
    - Intrapartum temp of 100.4
  - Schedule C/S Patients
    - If they are GBS positive but not in labor and membranes intact: no tx needed

- Penicillin G
  - Initially: 5-6 mil units IVPB
  - Then: 2.5-3 mil units q 4 unitl delivery
  - Alternatives for PCN allergy

  - Induction of Labor:
    - Indications: maternal medical conditions (DM, HTN, renal/pulmonary/cardiac disease), preeclampsia, PROM, chorioamnionitis, fetal demise, postdates, fetal compromise, risk of rapid labor or extensive distance from hospital, non reassuring FHTs
    - Benefits of elective RARELY outweigh risk
    - ALMOST Doubles chance for C/s, epidural use, PPH, O2 requirements, longer hospital stays
    - Assessment:
      - BISHOP SCORE- used to determine cervical ripening
        - If unripe can augment with prostaglandins:
          - Cervidil, cytotec (contraindicated with hx of previous c/s)
        - >8 proceeding with Pitocin appropriately
          - Score can vary based on other factors, such as:
            - One point added for preeclampsia, each previous vaginal delivery
            - One point subtracted for postdate pregnancy, nulliparity, premature prelabor rupture of membranes
      - Induction using Pitocin (Oxytocin)
        - Need main line IV with LR or NS
        - IVPB on a pump (closest port): make sure there is not any trapped in line
        - Titrated
        - RISKS: tachysystole, uterine rupture, water intoxication
      - AROM:
        - ENSURE FETAL HEAD ENGAGED BEFORE TO PREVENT CORD PROLAPSE
          - Placenta, Fluid, Cord
            - Placental issues

• Abruptio placenta: premature separation from uterine wall
  o Not same as during 3rd sage
  o Irritation on strip, eventually FHR tanks
  o Uterus is hard/distended
  o Bright red bleeding or brownish discharge
  o Types:
    ▪ Marginal:
    ▪ Central:
    ▪ Complete:
  o Risk factors: smoking, hypertension, pPROM, Trauma, uterine over distension, ETOH, Cocaine, fibroids
• Placenta previa: improperly implanted in lower uterine segment
  o Generally PAINLESS bright red bleeding
  o If covering cervical os will need to do c/s, if not proceed with TOL but prepare for C/S
  o Risk factors: Multiparity, Placenta Accreta, Prior C/S, large placenta,
• Accreta, increta, percreta: BAD, hysterectomy or death
  o A: Placenta implants into uterine wall and attaches to myometrium
  o I: placenta invades into myometrium
  o P: may attach to outside organs

- Fluid Issues:
  - PROM
  o Evaluate for infx
  - Oligohydraminos
  - Anydraminos
    o Indomethacin: decr urine output
  - BOTH OF THE ABOVE: CONCERN WITH CORD PROLAPSE
  - Polyhydraminos
- Cord Prolapse:
  • Releive pressure by pushing presenting part off cord, continue applying pressure
  • Trendelenburg may help
  o Too Soon, Too Slow, Too Fast, Too Late
• Dystocia: too slow labor
  • #1 reason for C/S, attributed to uncoordinated/dysfunctional contraction pattern
  • Either:
    o Hypotonic labor: stalling out after entered active labor
      ▪ MVU <200
      ▪ Interventions:
• Squatting, frequent position changes, treat infection, void/cath q 2 hrs, consider pain medications, hydration, pitocin/AROM
  • Hypertonic labor: Occurs before active labor (“prodromal labor”)
    ▪ Unknown cause
    ▪ Tx: Stop (therapeutic rest with ambien, morphine) or Start (IOL/Augmentation)
• Shoulder Dystoica
  • OB Emergency
  • Assessment: “turtle sign”: cheeks on the perineum
  • Blood accumulation in head → hypoxia
  • Interventions
    ▪ Intentional clavicle break (brachial plexus injury carries a risk of permanent damage)
    ▪ Notify staff
    ▪ Stool ready, extra RN at ready
    ▪ McRoberts maneuver: changes maternal pelvis angle
    ▪ Suprapubic pressure:
      • NOT fundal pressure
      • Woman pushes at same time RN pushes down
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- **Gaskin Maneuver:**
  - Precipitous labor
  - Preterm labor
    - Places infant at risk for:
      - RDS, intraventricular hemorrhage, PDA, Necrotizing enterocolitis, retinopathy of prematurity
    - Diagnostics:
      - Fetal fibronectin (fFN)
        - Vaginal swab: If Neg, <1% chance of giving birth next 7 days. If Pos, perform other testing
      - Cervical length via trans vaginal US
      - Serial sterile vaginal exams
    - Tx:
      - Tocolytics (mg sulfate, Nifedipine, Terbutaline)
      - Dealy in order to treat baby:
        - Steroids max efficacy 24-48 hrs after second round

- **Post-term pregnancy**
  - Can expect SGA/LGA, oligohydramnios, Variable/late decels