Course Objectives

- Compare and contrast BEST Practice recommendations relative to second stage labor management practice, procedure, and patient safety
- Review key strategies to promote vertical birth maneuvers by Perinatal Team members
- Review current hospital policies, procedures, and protocols relative to Second Stage Rx

BESsT - Practice Management Guidelines

B: BEST Decision
E: Evidence-Based
S: Simple & Safe
T: Team Focused

BESsT - Second Stage Labor
Practice Management Guidelines

1. Second Stage Adaptations
2. Risks of Second Stage
3. Vertical Labor & Birth
4. Maternal-Fetal Oxygenation
5. Maternal-Fetal Tolerance

Second Stage Labor Management: Historical Perspective
The Triple Tragedy of 1817

- First Stage of Labor:
  - 26 Hours
- Second Stage of Labor:
  - 24 Hours

The Triple Tragedy of 1817
Lessons Learned:

- Physician Negligence: Failing to Act on Fetal & Maternal Behalf (No utilization of Forceps)
- No limitations on Second Stage
- OB Intervention over NON-Intervention Prevailed
- Introduction of Anesthesia by Dr Simpson
Group Discussion #1
Question:
- How long do you typically ACTIVELY PUSH patients during second stage of labor?
  - Primiparous
  - Multiparous
- Does your facility support Passive Pushing?
- Do YOU support Passive Pushing?

Second Stage Labor Management: Physiological Adaptations & Mechanisms
Second Stage Labor Adaptations
Labor Mechanics
- Power
- Passenger
- Passage
Physiology
- Cervical Advancement
- Cardiac Output
Tolerance
- Maternal
- Fetal
- Uterine

Power: Uterine Contractions
- Stimulated by hormones, gap junctions, prostaglandins, & uterine pacemakers
- Force generated by uterine musculature
  - Frequency, Duration, Intensity, & Resting Tone
Assessment: Direct or Indirect
  - Indirect: Mother, Palpation, or Tocodynamometer
  - Direct: Internal Pressure Catheter

Adequate Labor?
- Frequency: 2-5 Minutes
- Duration: < 90 seconds
- Intensity: < 80 mmHg
- Resting Tone: < 20 mmHg
  - *ANY UC Pattern which promotes dilation + descent

Passenger: Fetus
- Attitude: Degree of Flexion or Extension of the fetal head
- Position: Occiput Anterior-Posterior-Transverse
- Anomalies: Hydrocephalus, Sacrococcygeal teratoma, Gastrochisis
- Number: Singleton v. Multiple Gestation
- Size: Macrosomia? LGA? SGA? IUGR?
- Lie: Longitudinal, Transverse or Oblique
- Presentation: Vertex, Breech, Shoulder, Compound, Face, Brow, or Funic (umbilical cord)
Passage: Pelvis

Pelvimetry

Pelvimetry: Pelvic Outlet
Suprapubic Arch
Intertuberous Diameter
Pelvimetry
Pelvic Inlet: > 10 cm
Mid Pelvis: > 10 cm
Pelvic Outlet: > 11 cm

Labor Mechanics: 3 P’s

Physiologic Mechanics & Adaptations: Labor Adaptations
Second Stage of Labor

Maternal
Expulsive Efforts
Breath-holding: ↓ O2, ↑ CO2
Positioning
↑ Uterine Contractions

Fetal
↓ Utero-Placental Perfusion
↓ Cerebral Perfusion

Lithotomy

Breath-Holding

Friedman Curve

Duration: Second Stage
Duration
Clinical Parameters

Nulliparous
Mean Second Stage: 53-57 minutes (+ Epidural: 79 minutes)
95th % Second Stage: 122-147 minutes (+ Epidural: 185 minutes)

Multiparous
Mean Second Stage: 17-19 minutes (+ Epidural: 45 minutes)
95th % Second Stage: 57-61 minutes (+ Epidural: 131 minutes)

Modern Labor Curve
Physiologic Adaptations & Mechanics

Tolerance v. Intolerance

Disease: Maternal Intolerance

High Risk Pregnancies
Low Tolerance to Second Stage

Maternal
- Severe Preeclampsia
- Insulin Dependent Diabetic
- Asthmatic
- Cardiac Disease

Fetal
- Intrauterine Growth Restriction (IUGR)
- Congenital Anomalies
- Oligohydramnios

Second Stage: Fetus At-Risk

✓ GA: AGA infants will tolerate hypoxia better than Preterm or IUGR fetuses
✓ Meconium: Fetal Hypoxia & Acidosis can ↑ Meconium Aspiration Syndrome risk
✓ NRFHR: As Second Stage duration ↑ First Stage FHR Patterns have an ↑ risk of deteriorating

NICHD Update

Three Tier FHR Interpretation System

Category II: Include ALL tracings not in Categories I or III:
✓ Bradycardia without FHRV: Absent
✓ Tachycardia
✓ FHRV: Minimal or Marked
✓ FHRV: Absent without Recurrent Decelerations
✓ Absent Accelerations after Induced Fetal Stimulation Recurrent Variable Decelerations+ FHRV: Minimal or Moderate
✓ Prolonged Deceleration > 2 minutes but < 10
✓ Recurrent Late Decelerations + FHRV: Moderate
✓ Variable Decelerations with Other Characteristics: Slow Return to Baseline, “Overshoots”, or “Shoulders”

Uterine Intolerance

Tachysystole
- Increases Hypoxia & Acidemia
  - (Simpson & James, 2008; Bakker et al., 2007; Bloom, 2002)
  - Decreases Fetal Saturation via FSp02
  - (McNamara, 1995; Simpson, 2003)
- Decreases Cerebral Perfusion
  - (NIRS Data: Wolf, 2008; Peebles et al, 1994)
- Increases Abnormal FHR Patterns
  - (Shenker, 1973; Freeman et al, 2003)

Effect of UC on FSpO₂
Group Discussion #2
Question ?:
❖ What interventions do YOU or your Perinatal TEAM support to maximize maternal-fetal oxygenation during second stage?

Second Stage Labor Management : BEST Practice
Frequency of FHR Assessment
Second Stage
ACOG, AWHONN, & SOGC
 Low Risk: Q 15 minutes
 High Risk: Q 5 minutes

Active Pushing
Ferguson’s Reflex

Positioning

Vertical Birthing
○ Standing
○ Squatting
○ Hands & Knees
 With or Without Epidural

Vertical Positioning
Benefits:
✓ ↓ Labor Duration
✓ ↑ Maternal Cardiac Output
✓ ↑ Pelvic Outlet 30%
✓ ↓ Intensity of Pain
✓ ↓ Use of Pain Medications
✓ ↓ Need for Oxytocin
✓ Fewer FHR Abnormalities
✓ Less severe Lacerations
✓ Fewer Episiotomies
✓ Less Operative Vaginal Births

Occiput Posterior Management

Open Glottis= Oxygen
✓ Noise/Sound: Glottis Open → Oxygen Delivery
✓ Breath-Holding/No Sound: Glottis Closed → Ø Oxygen
Group Discussion #3
Question ?:
❖ Please review the next EFM strip and tell us if this were your patient, what interventions, if any, would you perform?

Fetal Tolerance Intervention Options
Goals:
Fetal Tolerance

Example#2: Second Stage-Vtx @ 0

Pace
Maternal Tolerance Strategies
Passive
▪ Labor Down/Arrest & Descend
▪ High Risk→Low Tolerance
▪ Fetal Intolerance to Active Pushing
▪ Poor Staffing
▪ Maximize Maternal Energy
Active
▪ Reposition Frequently
▪ Offer Frequent Rest Periods

Fetal Tolerance Strategies
 ✓ Vertical or Side-Lying Positions
 ✓ Push Every OTHER Contraction
 ✓ Push at a Frequency Tolerated by the Fetus (Q2, Q3, or Q4 Ucs)
 ✓ Push ONLY if the Fetus has reestablished a normal FHRB
 ✓ Maternal Supplemental O2 (short periods)

Progress :Dystocia
Protraction of Descent
Nulliparous: < 1cm/hr
Multiparous: < 2cm/hr
Arrest of Descent

- Cephalopelvic Disproportion
- Molding
- Incomplete Cardinal Movements
- Full Bladder

Bladder Management

Foley Catheter:
- Increased Epidural Dosing
- Increased Oxytocin Augmentation
- Increased Duration of Second Stage

Probability of Vaginal Delivery

Second Stage: Morbidity

↑ Incidence of:
- Operative Vaginal Delivery
- Cesarean Delivery
- Risk of Trauma
- Postpartum Hemorrhage
- Febrile Incident
- Shoulder Dystocia
- Intracranial Hemorrhage

Protraction of Descent: Parameters

Failure to Progress: OVD v. C/S?

- Forceps
- Vacuum Extractor

Second Stage Algorithm

Second Stage: Medical Malpractice

- Abuse
- Misuse
- Obtuse

- Failure to Labor Down
- Prolonged Aggressive Active Pushing
- Accompanied by NRFHR
Misuse
Oxytocin
  Overdose
  Failure to Discontinue

Second Stage: Medical Malpractice
Abuse
Misuse
Obtuse
  o  Insensitive
  o  Impatient
  o  Impulsive
  o  Improper

Second Stage Documentation
  ▪ New AWHONN 2010 Staffing Guidelines
  ▪ Promote *Vertical/Lateral Interventions
    ▪ Address Fall Risk
    ▪ Ex: Epidural in Squat
    ▪ Siderails up x 2
    ▪ Lateral Support by 2 individuals
  ▪ Support Open-Glottis Pushing
    Patient Education
  ▪ Active Pushing Interventions regulated by Maternal-Fetal Tolerance
  ▪ Absence of Descent is a SIGN

OB Excellence: Second Stage-DATA ANALYSIS
Second Stage Labor-
  ?ACTIVE Pushing Rates
    Average Length per Multiparous
    Average Length per Nulliparous
  ?PASSIVE Pushing Rates
    Average Length per Multiparous
    Average Length per Nulliparous
  ?Open vs Closed-Glottis Pushing Rates
  ?Vertical Birth Rates
  ?Second Stage: Birth Trauma Rates

Contact US for more information on Perinatal University Competency Programs @www.perinatalu.org

NOTES: