Perinatal and Newborn Safety

Recent Trends in Litigation

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Makary, MA & Daniel, M, BMJ, 2016

Perinatal and Newborn Safety

Current Issues

- Labor and Birth
  - Fetal Assessment
  - Use of Oxytocin
  - 2nd Stage Labor Care

- Newborn Safety
  - Drops and Falls
  - Sudden Unexpected Postnatal Collapse (SUPC)

Liability and Patient Harm

Providing Better Care

- Closed perinatal claims (189) from single, large professional liability insurer between 2000-2005
  - 70% claims involving OB practice were found to involve substandard care (79% all costs)

- Review of perinatal claims from single large HC system (16 hospitals) between 2004-2008 found the following comprise majority of risk for perinatal harm:
  - Fetal assessment during labor
  - Labor induction
  - 2nd stage labor care

Clark, Belfort, Dildy & Meyers, 2008; Simpson, Kortz & Knox, 2009

Interdisciplinary Practice

ACOG, ACMN, AWHONN, SMFM

EFM Tracing Description

Requires evaluation

- Uterine Contractions
- Baseline Rate
- Baseline Variability
- Presence of Accelerations
- Periodic or Episodic Decelerations (early, late, variable, prolonged)
- Changes or Trends in FHR Over Time

ACOG 2010, 2009; AWHONN 2009; NICHD 2008
**FHR Characteristics and Acidemia**

*Intrapartum EFM*

**NORMAL**
- Fetal Acid-Base Status
  - Variability: moderate
  - Baseline rate: 110-160 bpm
  - Early decels: present or absent
  - Late or variable decels: absent

**INDETERMINATE**
- Compensatory Response
- Either required:
  - Absent variability with
    - Recurrent late decels, or
    - Recurrent variable decels, or
    - Bradycardia, OR
    - Sinusoidal pattern

**ABNORMAL**
- Fetal Acid-Base Status
- ALL required:
  - Variability: moderate
  - Baseline rate: 110-160 bpm
  - Early decels: present or absent
  - Late or variable decels: absent

**Category I**

**Category II**

**Category III**

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**“In-Utero Resuscitation”**

**Indeterminate and Abnormal Tracings**

- Maternal position change
- IV fluid bolus of approx. 500 mL nonglucose-containing solution
- Correct maternal hypotension
- DC oxytocin; remove Cervidil
- Amnioinfusion (1st stage)
- Alteration in maternal pushing efforts (2nd stage)
- Oxygen 10L/min nonrebreather
- Medications (SQ terbutaline; IVP ephedrine)


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**Prevention Strategies**

*Emerging Trends*

- National EFM certification for all nurses, midwives and physicians caring for women in labor and birth


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**Oxytocin**

*Induction Agent*

- Most commonly used induction agent in US and worldwide
  - Smith & Merrill, 2006
- High-alert medication

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**Uterine Contractions**

- Tachysystole:
  - >5 contractions in 10 min., averaged over 30-min.
  - Contraction lasting ≥ 2 min.
  - Contraction of normal duration occurring within 1 min. of each other


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**Excessive Uterine Contractions**

- Uterine Tachysystole
- Uteroplacental Perfusion
- Fetal Oxygenation

Tachysystole Management

- Spontaneous labor
- Labor induction or augmentation

- Category I: HR tracing
- Category II: HR tracing
- Category III: HR tracing

- No interventions required
- Intravenous resuscitation measures
- If no resolution, consider birth

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Prevention Strategies

Oxytocin Management

- Standard order sets and protocols based on current pharmacologic and physiologic evidence
- Most common in US: Start at 1-2 mU/min, ↑ by 1-2 mU/min. no more frequently than q30 min. based on maternal-fetal response

Second Stage Labor

Periodic Reassessment and Collaboration

- Active pushing is the most physiologically stressful time of labor for the fetus

- Fetal Physiologic Reserve
  - Fetus less likely to tolerate continued pushing with recurrent decelerations if:
    - Minimal variability
    - First stage decelerations
    - Rising FHR baseline into abnormal range
    - Infectious process

2nd Stage Pushing Techniques

Open (Spont.) vs. Closed Glottis (Valsalva)

- Active Pushing Phase: characterized by ↑ intensity of UC and strong urge to bear down with activation of Ferguson’s reflex
- When not coached, women push with open glottis (approx. 6-7 seconds, repeat x4)
- Cochrane review and meta-analysis: no difference in duration 2nd stage, rates operative delivery, CD, epis., lacerations, NICU admits, 5-min Apgar <7

Second Stage of Labor

Fetal Physiologic Reserve

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Cochrane review and meta-analysis: no difference in duration 2nd stage, rates operative delivery, CD, epis., lacerations, NICU admits, 5-min Apgar <7

ACOG Committee on Obstetric Practice Opinion, 687, February 2017; Rossi et al, JOGNN, 1886; Lemos et al, Cochrane Database, 2015; Prins et al, BJOG, 2011; Schaffer et al, ACOG; Adams et al, AWHONN, 2016
AAP Concerns

**Safe Sleep and Skin-to-Skin Care (SSC)**
- While there exits clear evidence as to the benefits of SSC and rooming-in, safety concerns exist:
  - Sudden Unexpected Postnatal Collapse (SUPC) — Includes any condition resulting in temporary or permanent cessation of breathing or cardiorespiratory failure
  - Many, but not all, of these events are related to suffocation or entrapment
  - Falls may occur during SSC, particularly if unobserved
  - Other situations or conditions may occur that prevent SSC from continuing safely

Feldman-Winter & Goldsmith, Committee on Fetus & Newborn, Task Force on SIDS, AAP, 2016

**Unexpected Postnatal Collapse**

- 66% of cases (30/45) over 1 year in national prospective UK study were related to airway obstruction during breastfeeding or in prone position
- Infants >37 weeks, Apgar score of >8 at 5 min, collapsed within 12 hrs. in hospital requiring PPV
- Of these infants:
  - 22 (73%) developed postasphyxialencephalopathy
  - 10 (33%) poor outcome
  - 5 died
  - 5 neurological sequelae at 1 year

Becher et al, Arch Dis Child Fetal Neonatal Ed, 2011

Newborn Safety

**Newborn Drops and Falls**

- 100 (55.1%) reasons for falls are family
- 74 (27.2%) reasons for falls are hospital
- 15 (5.5%) reasons for falls are new


Matteson et al, MCH, 2013


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Time of Newborn Falls

July 2004 - Dec. 2013
n=257

- 58% falls (n=149) occurred between: midnight - 0700

Rate of Falls While Under Family Care

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<th>YEAR</th>
<th>NO. OF NEWBORN FALLS</th>
<th>NO. OF LIVE BIRTHS</th>
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Recovery Care Standards
Immediately Postpartum (First 2 Hours)

- First 2 hours after birth, women require q15 min assessments until stable (VS, assessment of fundal status, incision, perineum, vaginal bleeding)
- Newborn requires q30 min assessments
- Continuous bedside attendance by a RN required

Newborn Safe Positioning
While Skin-to-Skin

- Infant’s face can be seen, nose/mouth not covered
- Head in “sniffing” position, turned to one side
- Neck straight, not bent, shoulders and chest face mother, legs flexed, back covered with blankets
- Mother-infant dyad is monitored continuously by staff in the delivery environment and regularly on the postpartum unit
- When mother wants to sleep, infant is placed in bassinet or with another support person who is awake and alert

Newborn Safety
Suggestions for Rooming-In

- Use a patient safety contract (AAP example)
- Monitor mothers according to risk (eg, observing q30 min. during night/early morning for high-risk dyads)
- Use fall risk assessment tool
- Assess ability to safely walk
- Review equipment to ensure proper function and demonstrate use (bed rails, call bells)
- Use risk assessment tools to avoid hazards of SSC and rooming-in practices

Final Considerations

- Adequate nurse staffing for — 2-hour recovery of mother and baby — Postpartum care
- 1 RN to no more than 3 mother-baby couplets postpartum
- Breastfeeding support by mother-baby nurses and lactation consultants
- Know standards and guidelines for recovery care

AAP 2016; AAP/ACOG 2012; AWHONN