The Neurologically Compromised Newborn: A Checklist for the First 24 Hours

Southern California Patient Safety Collaborative - Tract III
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Larry Veltman, M.D., FACOG

Going Into OB?

What You Are Up Against
Defending Your Care

- Expectations are very high for good outcomes.
- An adverse obstetrical outcome will frequently receive legal scrutiny.
- The questions will be asked, “Was it bad luck or was it bad medicine?”
- How the practitioner/organization gets credit for good care:

  **THE ANSWER:** FOLLOW A STANDARD PROTOCOL WHENEVER A SICK NEWBORN IS DELIVERED

Shooting Yourself in the Foot

Getting You “Off The Hook” - NOT

The Pregnancy Consent (Seattle Times, August, 2004):

“I recognize that no guarantee can be made as to the health of my baby. I recognize that there are a wide variety of abnormalities that can affect a baby. I understand that some of these defects can be associated with fetal death or severe lifelong disability such as mental retardation or cerebral palsy, requiring continuous care, medical interventions and substantial financial expenses.”
Getting You “Off The Hook” - NOT

The Pregnancy Consent (Seattle Times, August, 2004):

“I understand that not all complications of labor and delivery are treatable and that current available technology to monitor the fetus in no way guarantees a good outcome. Complications in labor can result in serious consequences to the fetus, including but not limited to bodily injury, permanent severe brain damage, or death.”

70% of cases are only associated with antenatal events or conditions such as:
- Infection
- Thyroid disease
- Inherited thrombophilias
- Prematurity
- Maternal trauma
- Epilepsy
- Drug abuse
- Third trimester bleeding
- IUGR

A Checklist For The Management Of The Sick Newborn

- Management of documentation
- Obtain cord gases
- Labs: toxicology, thyroid, thrombophilia
- Evaluate the placenta
- Interact effectively with the family
- Notify your insurance carrier/risk manager
- Work to maintain control of monitor strips, x-rays, CT, MRIs

- Interaction with neonatologists, pediatricians, pediatric neurologists, radiologists
- Follow baby in the NICU
- Discuss documentation issues (e.g., “asphyxia,” “birth trauma”)
- Ask about timing issues: pediatric neuroradiology consultation
- Suggest genetic evaluation
Manage Documentation Issues:
The OB Chart

Timely H and P
- Statement of review of the prenatal record
- Plan of management

There are contemporaneous, frequent, and \textit{timed} progress notes
- There is a comment about fetal well being with each note
- There is a plan of management and when it is changed, it is explained in the record

There is a note and rationale for each intervention, for example:
- Starting oxytocin  \textrightarrow  Amnioinfusion
- Instrumental delivery  \textrightarrow  C-Section

There is a delivery note (dictated for complicated deliveries)
- There is a comment about the placenta and cord (LMNOP)

Manage Documentation Issues:
The OB Chart

The record reflects that the family was brought into the discussions
- Describe recommendations and rationale, patient refusals and delays

The record is objective, legible, discrepancy-free, unchanged.
Watch for:
- Superlative modifiers, "Profound hemorrhage"
- "Deep variables"
- "Severe fetal distress"
- Disagreements with consultants
- Criticisms of other’s care
- Watch for red flag terminology "fetal distress", "inadvertent", "accidentally", "erroneously"

Manage Documentation Issues

"Perinatal Asphyxia", "Birth Trauma", "Birth Injury", "Intrapartum Asphyxia" should not be used based on the non specific findings of:
- Meconium staining
- Non-reassuring fetal heart rate patterns
- Low Apgar scores
- Neonatal encephalopathy
Manage Documentation Issues

The note should address the **FOUR ESSENTIAL** criteria and the **FIVE SUGGESTIVE** criteria

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**Manage Documentation Issues**

Do **NOT** attribute outcome to intrapartum event unless **ALL FOUR** essential criteria are met:
1. Metabolic acidosis in fetal arterial cord blood (pH < 7, base deficit > 12 mmol/L)
2. Early onset of severe or moderate neonatal encephalopathy in infants born at 34 or more weeks of gestation
3. Cerebral palsy of the spastic quadraplegic or dyskenetic type
4. Exclusion of other identifiable etiologies such as trauma, coagulation disorders, infection, or genetic disorders

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**Manage Documentation Issues**

Five Suggestive Criteria:
1. A sentinel hypoxic event occurring immediately before or during labor
2. A sudden and sustained fetal bradycardia or the absence of fetal heart rate variability in the presence of persistent, late, or variable decelerations, usually after a hypoxic sentinel event when the pattern was previously normal.
3. Apgar scores of 0 – 3 beyond five minutes
4. Onset of multisystem involvement within 72 hours
5. Early imaging study showing evidence of acute non-focal cerebral abnormality
Changing Medical Records: Spoliation of Evidence

- Still common
- It’s a crime (similar to perjury)
- Sophisticated ways to detect:
  - Paper analysis (watermarks, laser pressure analysis)
  - Ink analysis
  - Comparing original to other distributed records
- You will lose: *Omnia praesumptur contra spoliatorem* (“All things are presumed against the despoiler or wrongdoer”)

Thin Layer Chromatography Of Various Blue Inks
Obtain Cord Gases

- Whenever there is any concern
- Should it be routine?
  - Save a clamped segment of cord
- Get both arterial and venous gases
- Segment of cord gas is stable for 60 minutes

The Case For Routine Cord Gases

American Journal of Obstetrics and Gynecology

Unbilical cord blood gas analysis at delivery

CLINICAL OPINION

Unbilical cord blood gas analysis at delivery
The Case for Routine Gases

- The incidence of false positive gas values (vigorous newborn & low pH) is low (~1%)
- 73% children who have CP were vigorous newborns and had normal gases at birth
- Most cases of CP will lead to legal scrutiny
- It is best to have a record that defends the interapartum care (by virtue of normal gases) of most vigorous newborns who go on to develop CP.

Additional Lab Tests: The Three “T”s

- Thrombophilia
- Toxicology
- Thyroid

“The Placenta As A Risk Management Tool”

(Annie Stoeckmann)

“I never met a placenta that I liked.”

(unnamed plaintiff attorney)
Coiling Index: 1 coil per 5 cm.

Meconium
Nucleated red blood cells

Infection

“Severe Fetal Placental Vascular Lesions In Term Infants With Neurologic Impairment”
(Redwine, AJOB (2005) 192, 452-7)

• One or more of four severe placental vascular lesions
  – in 51% of 125 neurologically impaired term infants
  – 10% of 250 healthy term infants (P < .0001):
    • Fetal thrombotic vasculopathy
    • Chronic villitis with obliterator fetal vasculopathy
    • Chorioamnionitis with severe fetal vasculitis
    • Meconium-associated fetal vascular necrosis
• Prevalence of these lesions in the 64 infants with cerebral palsy was 52% (P < .0001).
Placental Triage: The Stakeholders

- Delivery room nurse
- Physician/CNM
- Pathologist
- Risk Manager
- Administration

The Physician or CNM

**LMNOP**

- Look at the placenta
- Measure the cord
- Note in the chart
- Obtain
- Polaroid / Pathology
Indications For Placental Examination:

Fetal Conditions

- Stillbirth
- Multiple births
- Fetal distress
- Oligohydramnios
- Newborn neurological problems
- Pre-maturity (gestation < 36 weeks)
- Post-maturity (gestation > 42 weeks)
- Transfer to neonatal intensive care unit
- Apgar scores: < 3 at 1 and/or < 5 at 5 minutes
- Meconium staining
- Erythroblastosis
- Congenital anomalies
- Polyhydramnios
- Suspected or actual infection of fetus, membranes or placenta
- Fetal weight anomaly:
  - < 25th %tile (for gestational age)
  - >75th %tile (for gestational age)
  - Or, < or > expected for the gestations age +/- 2 weeks
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Placental Conditions

- Foul smell
- Vasa previa
- Cord around neck
- Meconium staining
- Chorangioma or other mass
- True knot of umbilical cord
- Large infarcts i.e., >30% of placental mass
- Grossly abnormal placenta
- Amnion nodosum
- Placenta previa
- Abrupto placenta
- Two vessel umbilical cord
- Placental weight anomaly
  - >75th % tile or <25th % tile for gestational age; “term placenta rule” = 400g < normal weight < 600g

Maternal Conditions

- Hypertension
- Eclampsia
- C-section
- Cytomegalovirus
- Substance abuse
- ABO incompatibilities
- Maternal systemic disease(s)
- Repeated reproductive failure
- Infection suspected at delivery
- Maternal origination from or transfer to an intensive care unit
- Fever
- Rh immunization
- Herpes
- Repeated miscarriages
- Diabetes mellitus
- Intrauterine procedure
- Premature rupture of membranes, meaning:
  - RUPTURE OF MEMBRANES LONGER THAN 24 HOURS PRIOR TO DELIVERY

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The Management of Bad Results:  
A Specific Way of Interacting with Patients

• Part of one’s skill set.  
• Geared to help the patient and family through the crisis.  
• Manages surprise and new emotions.  
• Shows that you are a caring physician.  
• Shows you are genuinely sorry about the outcome.  
• You will be accountable and follow them through this.  
• Does not shoot oneself or any one else in the foot.  
• May leverage against accusation of negligence.

What Do Our Patients Want?  
(Annals Internal Med., March 16, 2004)

• I would want to be told as soon as it was discovered - 98.8%  
• I would want to know that something was being done about it to make sure that it didn’t happen again – 98.7%  
• I would want to be told in person rather than over the phone – 90%  
• I would want the doctor to tell me that he or she was sincerely sorry – 87.8%  
• I would want the medical fees related to the error to be waived – 86.5%

The Management of Bad Results

For the patient:  
• Get expert help early on in the process  
• Meet with the healthcare team including risk management specialists  
• Capitalize on your relationship  
• Meet with patient and family  
  – “Should I apologize?”  
  – “How and how much should I disclose?”  
• Consider appropriate write-offs  
  – Be careful what you say  
• Give meticulous follow-up
Conversations to Diffuse Anger

**What Do I Say?**
COMMUNICATING INTENDED OR UNANTICIPATED OUTCOMES IN OBSTETRICS
JAMES R. WIGGIN, M.D.
LAWRENCE A. ROSEFELD, J.D., M.P.H.

Should I Apologize?

- Apology is important in our society
- Get expert help before trying this alone
- Necessary, especially with a bad result
  - You are very sorry this happened
  - You regret very much that this occurred
  - You realize that this must have caused much pain, angst, lost work, and life change
  - You are committed to being there and seeing them through this
- Be careful about admitting fault
- Be sincere; It is easy to recognize a phony apology

Communications With Other Professionals

- Nurses
- Pediatricians
- Neonatologists
- Pediatric Neurologists
- Pediatric Neuroradiologists
Poor Communications Leads To This

Neonatologists note:

use. She presented in active labor. There was some loss of
heart-to-heart variability and late decelerations indicating fetal
distress. The infant delivered vaginally. Apgar scores were 5 at
one minute, 7 at five minutes and 8 at 10 minutes. There was no

Poor Communications Leads To This

How Can the Obstetrician Help the
Neonatologist? (and vice versa)

“I think…. the obstetrician (should) have a face to face meeting
with the baby’s doctor as soon as possible after the
event…..There are typically many nuances of obstetrical care
that are not at all apparent to the pediatric/neonatal
staff. Additionally there may be historical factors that the
obstetrician is aware of that are either not in the chart or are
missed (e.g. recent illness, decreased fetal movement, unusual
finding on U/S, etc.). I would also encourage the Ob to check in
daily with the pediatrician/neonatologist…best in person. This
again helps to clarify information, show concern, etc.”

John McDonald, MD, Neonatologist, Director of Newborn Services
Providence St. Vincent Medical Center
Portland, Oregon
Neuroradiology

- Exact timing of insult still imprecise
- Follow changes over time
- 12 hr, 24-72 hr, 5-7 days, months

Metabolic Or Genetic Testing

Children with CP may have congenital brain malformations.
- Data from the same group of 1464 children found that 7% of patients who had a CT scan and 11% of those who underwent MRI had major brain malformations.
- Malformations are associated with specific genetic disorders, their presence in affected children indicates the need for further genetic testing.

Genetic Disorders May Mimic CP

- Prader-Willi syndrome
- Angelman syndrome
- Rett Syndrome
- Kabuki syndrome
- Canavan disease
- Smith-Lemli-Opitz syndrome
- Pelizaeus-Merzbacher disease
- Neuronal axonopathy
- Krabbe disease
- Metachromatic leukodystrophy
- Niemann-Pick disease
- Sex-linked lissencephaly (m)
- Subcortical band heterotopia (f)
- Joubert disease
- Alexander disease
- Fragile X premutation carriers (f)
- Fragile X syndrome (m or f)
Antenatal Stroke

- ~1/4000 term neonates
- Frequently hemiplegic CP
- Etiology includes coagulopathy, congenital heart disease, infection, or maternal drug use
- Coagulation abnormalities and neonatal cerebral infarction
  - Factor V Leiden deficiency, the presence of antiphospholipid antibodies and Protein C or S deficiency.

What's Ahead?

- Total Body Cooling
- Cytokines / Intrauterine inflammatory response
Why You Should Care?

For more information about brain cooling and how our firm can help with a possible case related to injuries sustained during birth, please visit our Brain Cooling website and related page below.

- History of Brain Cooling
- Brain Cooling Statistics
- Cool Cap / Blanket Facts
- Summary / Conclusion of Facts

If your child has a brain injury or cerebral palsy, they possibly could have been offered brain cooling as a treatment. If it was not offered, it is possible there was medical malpractice. For a free case evaluation, call The Law Offices of Dr. Bruce G. Fagel and Associates at 800/241-9378.

Cytokines / Inflammatory Response

It’s Not Always Your Fault:
Get Credit For Doing Things Right
Questions

Thank you!