Neonatal Resuscitation & Pre-Transport Stabilization

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This outreach education presentation is intended as an overview of basic concepts surrounding assessment of the pregnant patient, OB complications and stabilization priorities for maternal and newborn patients.

Follow your designated hospital and county protocols, policies and guidelines for actual care of obstetric and newborn patients.
Case Study:
EMS Dispatch Female Abdominal Pain
On Scene: Unexpected Newborn Delivery ~ 26 weeks
Rapid Assessment: Apnea, Dusky, HR palpable ~ 80bpm
What Are Your Clinical Priorities?
Tiny Ones: Preterm Delivery

Delayed Cord Clamping:

IF vigorous DCC ➡️ reduction of IVH
IF NONVIGOROUS ➡️ immediate umbilical cord clamping & NRP

Thermoregulation & Neuroprotection:

Warming mattress, isolation bag, hat, nesting, & head alignment with gentle handling

NRP Guidelines:

Sp02 & ECG, CPAP, PPV, airway & perfusion support, careful fluid administration, glycemic control, early activation of neonatal & transport teams!

Source:
Neonatal Resuscitation & Stabilization Priorities

- **NRP: A, B, C versus PALS**
  - Airway, Airway, Airway
  - Ventilation Rate Adequate? Do You Have Slight Chest Rise?

- **Stabilization Measures: The S.T.A.B.L.E. Program**
  - Glycemic Control
  - Thermoregulation
  - Perfusion Support
  - Preparation For Transport
  - Transfer to higher level of care

Neonatal Airway Management: Babies are different.....

- Anatomical Challenges
- Ventilation Device Options
- Establishing Effective Ventilation
  - Correct Rate: 40-60
  - Slight Chest Rise
- Oxygenation
- Ongoing Airway Support modalities
- Alternative Airway Needed?
- Vt?
- Common ventilation support: BVM Rate & Pressures

Source
1. AAP. Neonatal Resuscitation Program. 7th Edition
2. The S.T.A.B.L.E. Program. 6th Edition
Neonatal Vascular Access

Emergent UVC:
- 18-20 gauge IV catheter: Prep—Tie—Cut--Cannulate
- Single lumen UVC catheter 3-5 cm, obtain blood return
- <1500 Grams/30 weeks 3.5 F and >1500 Grams/30 weeks 5.0 F

PIV Placement
- 24g

IO Placement
- EZ IO >3kg

Fluid Resuscitation
- NRP versus PALS

Source
1. AAP. Neonatal Resuscitation Program. 7th Edition
2. The S.T.A.B.L.E. Program. 6th Edition
Neonatal Fluid Resuscitation

**Indication:**
- Not responding to resuscitation
- Appears in “shock” hypo-perfused
- History of blood loss

**DOSE:** 10 ml/kg

**SOLUTION:** Normal Saline or O Rh- negative PRBC’s (if indicated)

**ROUTE:** PIV, UVC or IO

**RATE:** Over 5-10 min. Preterm precautions

**Total neonatal circulating blood volume:**
- 80-90ml/kg

Source:
Case Study: ED Admit
37.5 weeks, 3do, 3.1kg difficulty breathing, hypothermia

- Tachypnea: Respiratory Rate 70-80
- Increased WOB
  - Grunting
  - Retractions: Moderate/Severe
- Hypoxemia: sp02 low 90’s
- Hypoglycemia: BG 41
- Hypothermia: 35.9 C
- Hypotonic: decreased responsivness

https://www.youtube.com/watch?v=NBA9iiigiDgk
CXR Findings In The ED: Suspected Pneumonia
Birth History Risk Factors?
Before & During Birth

• Prolonged Rupture of Membranes > 18 hours

• PPROM

• Maternal Chorioamnionitis
  • Maternal fever/ infection
  • Fetal tachycardia
  • Foul smelling amniotic fluid

• Meconium aspiration
Neonatal Sepsis Clinical Priorities

• Rapid Consult, Stabilization & Transport to Regional Center
• NRP then STABLE
• Airway Support: noninvasive and/or invasive
• Perfusion Support:
  • Volume resuscitation/bolus
  • Pressor support (ensure adequate preload)
• Glycemic Control: Glucose bolus (as needed) + MIVF
• Thermoregulation: Goal temp 36.5C-37.5C
• Sepsis screen: CBC w/differential and Blood Cultures
• Early initiation of antibiotics: Ampicillin & Gentamycin
  • Consider/discuss antivirals if neuro assessment abnormal
Case Study:
ED, born @ term, 3.9 kg, 22 d/o

- Tachycardic: HR 170’s
- Labored Breathing
- Compromised Perfusion
- Acidotic
- Tender, distended abdomen
- Bilious vomiting
- Bloody stools
- Stopped eating
- Fussy all day
Suspected Bowel Obstruction?
Clinical Priorities

• Rapid Consult, Stabilization & Transport to Pediatric Surgical Center
• Airway Support
• Perfusion Support
• Gastric Decompression: Orogastric Tube 8F or 10F
• Glycemic Control: Glucose bolus (as needed) + MIVF
• Thermoregulation
• Rapid Transport---Time Sensitive

Source
1. AAP. Neonatal Resuscitation Program. 7th Edition
2. The S.T.A.B.L.E. Program. 6th Edition
Free Air On Xray Is A Surgical Emergency
Thank You & Questions