

M13: Neonatal Fluid and Glucose Management

Wes Bihlmayr

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Reviewed:

Introduction

Neonatal fluid and glucose management may involve a wide range of requirements, from general maintenance all the way to complete electrolyte replacement. The neonatal renal system does not reliably regulate electrolytes until sometime after the first 24 hours of life. During that time, fluid maintenance is primarily based on glucose replacement to meet the high metabolic demands of the infant.

Essentials

- Neonatal blood glucose levels can be corrected with feeding or intravenous glucose.
 - Attempt to correct blood glucose using oral glucose first. Be cautious with volumes, and protect the airway to the maximal extent possible.
 - If the neonate is asymptomatic: a blood glucose of greater than 2.6 mmol/L requires ad lib feeds. If the blood glucose is between 1.8-2.6 mmol/L, then a prescribed volume of feed every 2 hours is required.
 - If the neonate is symptomatic or has a blood glucose less than 1.8 mmol/L an IV is required and an infusion of glucose initiated. The normal starting solution is D10W at a rate of 3 ml/kg/hr if asymptomatic and 4 ml/kg/hr if symptomatic with an additional consideration of a 2 ml/Kg D10W bolus.
 - Once a neonate maxes out on fluid/glucose volumes the next step is to give glucagon, 0.5 mg IM/IV/SC.
- Maintenance fluids for the first 24 hours should be D10W and after 24 hours D10W with NaCl (20 mmol/L)
 - DOL 0 – 60-80 ml/kg/day
 - DOL 1 – 80-100 ml/kg/day
 - DOL 2 – 100-120 ml/kg/day
 - DOL 3 – 120-140 ml/kg/day
 - DOL 4 – 140-150 ml/kg/day
 - DOL 5 – 150 ml/kg/day

Additional Treatment Information

- Prehospital fluid management of the neonate should focus on glucose intake. D10W should be the fluid of choice. The fluid to use in a poor perfusion state is D10W with slow boluses of normal saline (10 ml/Kg).
- In general, the prehospital neonate should only receive intravenous fluid if there are signs of poor perfusion or a symptomatic blood glucose level.

Interventions

Emergency Medical Responder – All FR interventions, plus:

- Ongoing care as dictated by NRP
 - → [M09: Neonatal Resuscitation](#)
- Buccal Glucogel
- Transport to the nearest hospital

Primary Care Paramedic – All FR and EMR interventions, plus:

- Consider use of supraglottic airway if unable to oxygenate or ventilate with bag-valve mask alone
 - → [PR08: Supraglottic Airway](#)
- Consider need for vascular access based on clinical scenario
 - → [D03: Vascular Access](#)
 - **REQUIRES SPECIFIC TRAINING AND CLINICAL CONSULTATION (1-833-829-4099)**

- Correct documented hypoglycemia:
 - → [E01: Hypoglycemia and Hyperglycemia](#)
 - [Glucagon](#)

Advanced Care Paramedic – All FR, EMR, and PCP interventions, plus:

- Consider intraosseous access
 - → [PR12: Intraosseous Cannulation](#)

