Newborn Hypoglycemia Guidelines

Guideline # WHBC-94-018B
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I. Purpose of Procedure
Describe methods for preventing, identifying, and treating hypoglycemia in the newborn.

II. Definitions
Hypoglycemia in the normal newborn:
- Plasma glucose <40mg/dl, first 72 hours
- Plasma glucose <45mg/dl, after first 72 hours

In most newborns, low blood glucose concentrations are not reflective of any particular problem but rather representative of the transition to an extrauterine metabolic state. Although recurrent or prolonged low glucose values may cause long-term sequelae, for any one infant the exact level and duration of “hypoglycemia” needed to do so remains uncertain.

CG= capillary glucose obtained by screening test (e.g. d-stix) and is not a capillary specimen sent to lab for serum glucose testing

Newborns at risk and requiring screening in the WHBC:
- SGA or LGA
- <2500 grams
- <37 and >42 weeks gestation
- Twins or higher-order multiples
- Newborns of all diabetic mothers
- Indications of possible stress in labor (e.g., low scalp pH, nonreassuring EFM tracing; meconium stained fluid requiring endotracheal suctioning, cord pH < 7.21 arterial).
- Suspected sepsis requiring IV antibiotic therapy/heplock
- Apgar <5 at 5 or 10 minutes
- Hematocrit >65%
- Family history of newborn with hypoglycemia or unexplained death
- Newborn of preeclamptic/eclamptic mother
- Maternal medications predisposing newborn to hypoglycemia
- Any newborn with signs/symptoms of hypoglycemia

Vad är lämpligast att tilltala Gendered pronomen när man skriver på engelska?
Signs of Hypoglycemia:
- Tremors
- Apnea
- Cyanosis/poor perfusion
- Lethargy
- Hypotonia
- Respiratory distress
- Hypothermia
- Abnormal cry
- Convulsions
- Tachycardia
- Bradycardia

III. Standards of Care
Newborns who meet criteria and/or present with signs as described will be screened in WHBC and, as indicated, treated for hypoglycemia. Newborns who are AGA at term and do not meet criteria for screening and/or do not present with signs of hypoglycemia will be managed using a standard procedure for preventing hypoglycemia.

IV. Contraindications and Precautions
Newborns for whom care is appropriately provided by Holden (see Newborn: Location of Care Guidelines) will be screened and treated for hypoglycemia there.

V. Preparation of the Newborn
Stabilization at birth. Inform parents of newborn of the plan for care and monitoring. Answer questions and provide support as needed.

VI. Procedure Action
A. PREVENTION for newborns not at risk (AGA, term gestation, stable, no indication of stress in labor)
   1. Encourage early feeds via formula or breastfeeding, including first period of reactivity (usually within 30-60 minutes of birth).
   2. Maintain/establish neutral thermal environment.
   3. Observe for signs; go to screening protocol if any present.

B. MANAGEMENT:
   1. Initiation mode:
      1. Infants identified as “at risk” (see section II).
      2. First feeding within one hour. First feed (and any subsequent feed if CBGs normal) via breastfeeding OR formula.
      3. Nurse to begin glucose monitoring (as specified in section B)
      4. Note: Using the flow charts, infants are always to be classified as:
         a. Having/not having signs of hypoglycemia
         b. Having glucose screen values of
            - < 20mg/dl
            - >20mg/dl and <40mg/dl
            - ≥40mg/dl.
            c. Total 2 x 3 = 6 possible classifications.
2. Screening/Feeding Mode:
   1. Capillary blood glucose screen to be done at ~30 minutes and 2 hours (to correlate with before and after first feed), then at ~ 4 hours of age (or before second feeding).
      a. If these 3 CBGs are $\geq 40$ AND the baby is asymptomatic AND the baby is NOT an IDM (Infant of a Diabetic Mom), then the baby may exit the protocol at this point.
      b. If the baby is an IDM, continue to screen q 2-3 hours (pre-feed) through first 24hrs or until protocol exited (see section D).

   2. Note protocol calls for a serum glucose to be sent:
      a. when screening result $< 20 \text{mg/dl}$ at any time
      b. with signs of hypoglycemia
      c. other as specified in flow chart

   3. Feeding protocol:
      a. If CBG remains $\geq 40$, all feedings can be either breastfeeding or formula. No minimum is required*
      b. If CBG is $< 40$, all breastfeeds must be followed by formula supplement.
         Please inform parents and explain the rationale.
      c. Ideal first feed in first period of infant reactivity. (~30 minutes).
      d. First CBG occurs $ac$ and $pc$ first feed, subsequent CBGs $ac$ and prn.
      e. Feeds offered minimum q 2hrs. X 4 feeds, min q 3hrs thereafter.

   4. If CBG is $> 20$ and $< 40$ and infant is asymptomatic:
      a. Feed infant (if breastfed, must follow with formula supplement)
      b. Repeat CBG in 30 minutes, and before re-feed, in approximately 2 hours.

   5. If CBG is $> 20$ and $< 40$ and infant is SYMPTOMATIC and/or is incapable of adequate oral intake:
      a. Order stat serum glucose
      b. Notify MD and consider transfer to Holden.
      c. Attempt to feed and continue further management per MD order.

   6. If CBG is $< 40$ at any repeat, notify MD for further evaluation or treatment.

   7. If CBG is $< 20$ and newborn is asymptomatic:
      a. Draw a stat serum glucose
      b. Notify MD
      c. Feed per MD order
      d. Repeat CBG at 30 minutes and 1 hr after feed; repeat ac or pm
      e. If serum glucose $< 40$ at repeat, notify MD to decide refeed vs. IV therapy
      f. If CBG does not remain normal after feeds, notify MD.

   8. If CBG $< 20$ and infant is symptomatic:
      a. Draw stat serum glucose
      b. Notify MD; anticipate transfer to Holden for initiation of IV therapy.
      c. Attempt to feed and continue further management per MD order

*Standard formula (6.9 gm CHO/100cc), 7cc/kg/hr will deliver 8mg/kg/min of CHO load.
C. Exiting Protocol:
1. If the first 3 CBGs are \( \geq 40 \) AND the baby is symptomatic AND the baby is NOT an IDM, then the baby may exit the protocol at this point.

2. When the IDM infant is greater than 12 hours old and has had a CG \( > 40 \) for \( > 3 \) consecutive feedings, infant may exit the protocol and be monitored as per newborn policy.

3. If infant exits to NICU notify responsible MD and send serum glucose stat.

VII. Continuing Care
As determined by care team in Holden or WHBC.

VIII. REFERENCES


IX. APPROVAL
Newborn Care Committee
WHBC Clinical Practice Council
Perinatal Joint Practice Committee
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