





# USE OF DEXTROSE GEL FOR INFANTS WITH HYPOGLYCEMIA

Susan M O'Sullivan MSN RNC; Sandra Masiello BSN RNC; Jennifer Ellis BSN; Marianne Pastore BSN RNC IBCLC; Kim Francis PhD, RN, PHCNS-BC Massachusetts General Hospital, Boston, MA

### PRACTICE ISSUE

Staff nurses questioned whether the addition of glucose-gel to treat hypoglycemia would decrease infant separation from the mother, the need for I.V. dextrose, and admission to a higher level of care.

### PICO QUESTION

Is the use of oral dextrose-gel safe and effective for newborns at risk for hypoglycemia vs our standard of care (formula supplementation/pasteurized donor human milk)

# METHOD FOR SYNTHESIS OF EVIDENCE

A literature search was conducted and limited to peer reviewed, English studies from 2007-2017. The search included: Dextrose/glucose-gel, neonatal hypoglycemia, newborn, glucose and buccal-dextrose. CINAHL, OVID Nursing, OVID Medline and Academy of Pediatrics databases were searched. Brigham & Women's Hospital glucose gel guidelines were included. Johns Hopkins Nursing Evidence-Based-Practice (EBP) model was utilized, twenty-six articles were retrieved, articles not pertaining to the question were eliminated, leaving ten for review. Upon completion of the review, five articles remained, evidence levels included: 3, level 1, 1, level 3, and 1, level 5 all the articles, were good/high quality. Three of the studies showed use of gel was associated with an increase in breastfeeding rates and 2 showed a decrease for mother/baby separation.

#### HYPOGLYCEMIA PROTOCOL WITH GEL ADDED MGHfC Hypoglycemia Screening and Management Guidelines in Well-Appearing Newborns ≥ 34 Weeks Gestation up to 48 hours of life. Risk Factors for Hypoglycemia Increased risk by birth weight and GA Preterm < 37 0/7 weeks gestation Infant of diabetic mother SGA (< 10%, see chart) LGA (> 90%, see chart) Gestation 10%ile (SGA) 90%ile (LGA) 37 < 2,390 g</td> >3,590 g 38 < 2,560 g</td> > 3,810 g 39 < 2,740 g</td> > 4,030 g 40+ < 2,910 g</td> > 4,250 g Risk Factor(s) Present Check blood sugar Check FIRST blood suga If blood sugar ≥40 If FIRST blood sugar 2 If FIRST blood sugar < 25 mg/d 25 mg/dL Notify Newborn Triage MD, NP/DR1 for transfer Notify Newborn Triage (MD, NP)/DR1 Administer Dextrose Ge Breastfeed, followed by formula/PDHM Notify Pediatricia encourage enteral feeding Re-check 30 minutes after end of feed Re-check blood sugar in 3 hours **Subsequent Blood Sugar Screening** Goal: pre-feed blood sugar > 45 mg/dl If blood sugar 35 – 44 mg/dl If blood sugar < 35 mg/dL Administer <u>Dextrose Gel</u> Breastfeed followed by formula or PDHM Continue screening blood sugars Pre-feed q3 hours until > 45 mg/dL x3 i.e., if all sugars > 45 mg/dL since birth can discontinue Administer <u>Dextrose Gr</u> Start IV glucose\* Notify Newborn Triage MD, NP/DR1 Minimum of 5 blood sugars should be completed on all pts. For infants < 37 weeks GA or SGA, check pre-feed q6 hours (additional x2) until 24 hours of If Blood sugar 35-44 mg/dl Notify Newborn Triage If blood sugars remain unstable for >48 hours of life, consult responding clinician Consider repeating Dextrose Gel Consider IV Glucose Enteral Feeding 40% dextrose gel "Glutose", 0,5 ml/kg p



### RECOMMENDATION FOR PRACTICE OUTCOME

A unanimous decision was made to move forward with the use of glucose gel in June 2018. Preparations prior to instituting the gel including: presenting at multiple committees, adding gel to drug library, in-servicing staff nurses/ providers, revising the treatment algorithm, and teaching buccal gel administration. Glucose-gel demonstrated an 80% reduction for IV dextrose resulting in an 80% reduction in infant admission to a higher level of care. No adverse effects from gel.



#### PRE DEXTROSE GEL **POST DEXTROSE GEL** September-November 2018 February-April 2018 782 Infants Eligible for Glucose Protocol 756 Infants Eligible for Glucose Protocol Infants had Glucose Infants had Glucose **Protocol Initiated** Protocol Initiated Infants received **Dextrose Gel** Infants admitted to a Infants admitted to a 35 higher level of care to higher level of care to receive IV Dextrose receive IV Dextrose

# IMPLICATIONS FOR **NURSING PRACTICE**

Utilizing EBP to answer a nurse-driven clinical question can impact patients. The initiation of the gel allowed mothers and infants to remain together, decreased unnecessary invasive procedures and decreased length of stay/cost by avoiding a higher level of care.

#### A Special Thank You to:

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