



## Background

- Hypoglycemia is a common problem for neonates.
- Causes may include:
  - Lack of adequate **glycogen, amino acid, and lipid/fatty acid** stores.

### Glucose Supply In Utero

- Placenta: Facilitated diffusion of glucose
- Fetal insulin maintains homeostasis and euglycemia.

### Glucose Supply After Birth

- No more constant supply from mother.
- Initial drop within the first 2-3 hours after birth before subsequent increase.

## Risk Factors

- SGA/LGA/IUGR**
- Diabetic mother**
- Asphyxia**
- Premature infant**
- Other Risks:* Inborn errors of metabolism; Sepsis; Beckwith-Wiedemann Syndrome

If present, check glucose levels at 2 hours of age

### DEFINITION OF HYPOGLYCEMIA:

#### Canadian Paediatric Society (CPS)

< 72 HOURS OF AGE (TRANSITION):  
< 2.6 MMOL/L  
> 72 HOURS OF AGE (PERSISTENT):  
< 3.3 MMOL/L

#### American Academy of Pediatrics (AAP)

< 4 HOURS OF AGE:  
< 40 MG/DL  
4-24 HOURS OF AGE:  
< 45 MG/DL

## Signs & Symptoms

### Neurogenic



### Neuroglycopenic

#### Sympathetic Nervous System Activation

Diaphoretic

Pale

Irritable/Jittery

Poor Feeding

Tachycardic

Unstable temperature control

#### Lack of CNS Glucose Availability

Apneic

Cyanotic

Hypotonic

Lethargic

Coma

Death

## Prevention Techniques

- Identification** of at-risk newborns
- Frequent and early** breastfeeding
- Skin-to-skin** contact
- Temperature regulation**
- Delaying** first bath
- Symptom observation**
- Prompt** treatment initiation

## Screening & Management

### AT 2 HOURS OF AGE:

Uncomplicated Birth History; **Not At Risk**

Routine care; **NO TESTING**

Asymptomatic with **RISK FACTORS**

Check glucose level at 2 hours of age, after feeds, and every 3-6 hours

IF < 2.6 MMOL/L

### Enteral Feeds

IF STILL < 2.6 MMOL/L

- Begin feeds as early as tolerated
- 40% Dextrose Gel 0.5 mL/kg or feeds 5 mL/kg and breastfeeding

UNWELL/SYMPOMATIC HYPOGLYCEMIA WITH **BLOOD GLUCOSE < 2.6 MMOL/L**

**IMMEDIATE TREATMENT WITH IV BOLUS OF D10W 2 ML/KG OVER 15 MINUTES**

IF STILL < 2.6 MMOL/L

### IV Glucose Supplementation

IF STILL < 2.6 MMOL/L

- Infusion of **D10W** (TFI 60 mL/kg/d for term; 80 mL/kg/d for premature infants)
- Use 40% Dextrose Gel 0.5 mL/kg if delay in IV initiation
- If persistently low glucose levels, may increase glucose infusion rate (GIR)

\*Delay Endocrinology referrals and further investigation until > 72 hours of age\*

### Pharmacologic Interventions (If Necessary)

- IV glucagon (failure of management with IV glucose or significantly high GIR)
- Hydrocortisone/Octreotide/Diazoxide (Etiology-specific treatments with limited support)

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