

Protocol 9-6

SECTION: Pediatric General Medical Emergencies

PROTOCOL TITLE: Medical – Diabetic – Hypoglycemia

REVISED: 06/2017

OVERVIEW:

Symptomatic hypoglycemia is defined as a blood glucose level < 60 mg / dL with signs of altered mental status and / or unconsciousness. The many signs and symptoms that are associated with hypoglycemia can be divided into two broad categories: adrenergic and neurologic. The adrenergic stimulation is due to the increased epinephrine levels and the neurologic due to central nervous system dysfunction from the decreased glucose levels.

HPI	Signs and Symptoms	Considerations
<ul style="list-style-type: none"> History of diabetes Onset of symptoms Medications Fever or recent infection Alcohol consumption Last meal 	<ul style="list-style-type: none"> Anxiety, agitation, and / or confusion Cool, clammy skin Diaphoresis Seizure Decreased visual acuity, blindness Abnormal/ hostile behavior Tachycardia Hypertension Dizziness, headache, weakness 	<ul style="list-style-type: none"> Hypoxia Seizure Stroke Brain trauma Alcohol intoxication Toxin/ substance abuse Medication effect / overdose

HYPGLYCEMIA

	EMR	EMT	A	I	P
1. Perform general patient management.	•	•	•	•	•
2. Support life-threatening problems associated with airway, breathing, and circulation.	•	•	•	•	•
3. Assess for signs of trauma. Provide spinal immobilization as necessary.	•	•	•	•	•
4. Administer oxygen to maintain <u>SPO₂</u> 94 - 99%	•	•	•	•	•
5. For altered mental status, perform rapid glucose determination.	•	•	•	•	•
6. If glucose < 60 mg / dL or clinical signs and symptoms indicate hypoglycemia:					
a. If the patient can protect airway, give Oral Glucose 15 grams. Repeat in 15 minutes if necessary.		•	•	•	•
7. If glucose < 60 mg / dL or clinical signs and symptoms indicate hypoglycemia and oral glucose is contraindicated: Establish an IV of normal saline at KVO			•	•	•
a. If > 30 days, administer <u>DEXTROSE 10%</u> (5 mL / kg, max dose 100mL) via IV or IO.			•	•	•

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HYPOGLYCEMIA

	EMR	EMT	A	I	P
b. If < 30 days, administer DEXTROSE 10% (2 mL / kg) via IV or IO.			•	•	•
c. If DEXTROSE 10% bag unavailable: <ul style="list-style-type: none"> • If patient is < 30 days old, administer Dextrose 10% (2cc/kg) IV or IO, mixed as below • If patient is > 30 days old but < 8 years old, administer Dextrose 25% (2cc/kg) IV or IO, mixed as below • If patient is > 8 years old, administer Dextrose 50% (0.5mg/kg, max 25gm) IV or IO 			•	•	•
d. If unable to establish an IV, alternatively administer <u>GLUCAGON</u> <ul style="list-style-type: none"> • Under 20 kg: 0.5 mg IM (<i>ALS only</i>) • >20 kg 1.0 mg IM (<i>EMT and above</i>) 		• <i>over 20kg only</i>	•	•	•
8. For signs and symptoms of hypovolemic shock or dehydration, follow the <u>Pediatric Shock protocol</u> .	•	•	•	•	•
9. Place on cardiac monitor per patient assessment.				•	•
10. Transport and perform ongoing assessment as indicated.	•	•	•	•	•

Procedure for making Dextrose 25% and 10%

Dextrose 25%	Dextrose 10%
In 50 ml syringe, mix 25 ml of Dextrose 50% with 25 ml Normal Saline. Mixture will yield 50 ml of Dextrose 25%	In 50 ml syringe, mix 10 ml of Dextrose 50% with 40 ml Normal Saline. Mixture will yield 50 ml of Dextrose 10%

Age	Pre-Term	Term	3 months	6 months	1 year	3 years	6 years	8 years
Weight (lb / kg)		6.6 lb 3 kg	13.2 lb 6 kg	17.6 lb 8 kg	22 lb 10 kg	30.8 lb 14 kg	44 lb 20 kg	55 lb 25 kg
Glucagon		0.5 mg	0.5 mg	0.5 mg	0.5 mg	0.5 mg	1.0 mg	1.0 mg
Dextrose 10% (Bag or diluted) 2 ml / kg	4.0 ml	6.0 ml	X	X	X	X	X	X
Dextrose 10% (bag) 5 ml / kg	X	X	30.0ml	40.0 ml	50.0ml	70.0ml	100ml	100ml

Dextrose 25% 2.0 ml / kg	X	X	12.0 ml (3 gm)	16.0 ml (4 gm)	20.0 ml (5 gm)	28.0 ml (7 gm)	40.0 ml (10 gm)	50.0 ml (12.5 gm)
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PEARLS:

1. Hypoglycemia is the most common metabolic problem in neonates.
2. Use aseptic techniques to draw blood from finger. Allow alcohol to dry completely prior to puncturing finger for blood glucose level. Alcohol may cause inaccurate readings. Do not blow on or fan site to dry faster.
3. Blood glucose levels should be taken from extremity opposite IV and medication administration for most accurate reading.
4. After puncturing finger, use only moderate pressure to obtain blood. Excessive pressure may cause rupture of cells causing inaccurate results.
5. Know your specific agency's glucometer parameters for a "HI" and "LO" reading.
6. When administering IV fluids, a minimum amount should be delivered as large amounts may lower blood glucose level and impede original goal of administering Dextrose.
7. Patients who are consuming aspirin, acetaminophen, anti-psychotic drugs, beta-blockers, oral diabetic medications, or antibiotics such as sulfa-based, tetracycline, and amoxicillin that experience a hypoglycemic episode are at a greater risk for relapse. These patients should be strongly encouraged to accept transport.
8. An inadequate amount of glucose for heat production, combined with profound diaphoresis, may place a hypoglycemic patient at greater risk for hypothermia. Keep patient warm as needed.
9. Glucagon causes a breakdown of stored glycogen to glucose. Glucagon may not work if glycogen stores are previously depleted due to liver dysfunction, alcoholism, or malnutrition. Effects of Glucagon may take up to 30 minutes.
10. Any patient that has had a hypoglycemic episode without a clear reason should be transported for further evaluation.

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HYPOGLYCEMIA

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