Approved 9/2/26, Effective 1/15/27, replaces all prior versions

16H DEXTROSE (50% as D50; 25% as D25; 10% as D10)

EMT-INTERMEDIATE 85

ADVANCED EMT

PARAMEDIC

Class: Carbohydrate

Actions/Pharmacodynamics: Dextrose is the principal form of glucose (sugar) used by the body to create energy and support critical metabolic processes. Since serious brain injury can occur in prolonged hypoglycemia, the timely administration of glucose is essential in treating hypoglycemia (blood glucose < 50 mg/dL). Dextrose 10% IVPB is the treatment of choice for hypoglycemic patients. Medical literature shows speed of hypoglycemia reversal to be near clinically equivalent when comparing D10 infusion wide open with D50 IVP. The lower concentration of D10 results in less extravasation tissue damage than D50. Dextrose 25% IV/IO should be considered second line treatment for hypoglycemic patients and Dextrose 50% IV/IO should be considered the third line treatment of choice for hypoglycemic patients with weight at or exceeding 25 kg.

Indications:
Respiratory Arrest (3A)
Specific Cause of Cardiac Arrest (4I)
Altered Mental Status (6B)
Seizure (6D)
Syncope (6E)
Dystonic Reaction (6F)
Behavioral Disorder (7A)
Dialysis -Related Issues (9E)
Complications of Pregnancy (13D)
For all listed situations, indication is hypoglycemia (blood glucose < 50 mg/dL).

Contraindications:
Hyperglycemia (blood glucose > 100 mg/dL)
Normoglycemia in the setting of suspected cerebral ischemia.

Pharmacokinetics: Onset within 60 seconds after IVP with peak effect and duration of action dependent upon degree and cause of hypoglycemia. Usual effective duration is more than 30 minutes. Medical literature shows speed of hypoglycemia reversal to be near clinically equivalent when comparing D10 infusion wide open with D50 IVP.

Side Effects: Warmth, pain, or burning at the injection site. D50 extravasation can cause tissue necrosis (requiring skin graft surgery), phlebitis, sclerosis, or thrombosis at the injection site.

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PROTOCOL 16H: Dextrose (50% as D50; 25% as D25; 10% as D10)

Dosage:

Adult and Pediatric
Dextrose 10% (D10) 5 mL/kg IVPB up to 250 mL
Dextrose 25% (D25) 2 mL/kg IV/IO up to 100 mL (must be ≥ 1 year of age)
Dextrose 50% (D50) 1 mL/kg IV/IO up to 50 mL (must be ≥ 25 kg)

How Supplied:
D10 - Premixed using 25 grams dextrose in 250 mL normal saline (0.1 gram/mL)
D25 - Discard 25 mL of prefilled syringe of D50 – Draw up 25 mL of NS for a total of 50 mL (0.5 gram/mL)
D50 - Prefilled syringes of D50 - 25 grams dextrose in 50 mL of water (0.5 gram/mL)

Special Comments: D50 should be administered using an infusing IV, **NOT** a saline lock. The tissue caustic nature of D50 can be decreased by performing a slow and non-forceful IV push through the side port of an IV line that is flowing with normal saline into the patient's vein. Because of the risk of extravasation and the consequences of local tissue damage from extravasation, neither D50 nor D25 should be administered through an external jugular IV. High concentrations of dextrose can lead to cerebral edema in younger/smaller pediatric patients. A repeat determination of blood glucose level is to be performed post D10, D25, or D50 administration

Given markedly low perfusing pressures, such as in cardiac arrest, utilize Dextrose 50% IV/IO.