EMS Subspecialty Certification
Review Course

Diabetic Emergencies

1.3.4.1 Glucagon, oral/intravenous glucose
1.3.4.2 Protocols for treat & release

Learning Objectives

Upon the completion of this program participants will be able to:

• List the Pros and Cons of different forms of sugar in treatment of hypoglycemia
• Describe the issues involved in treating and releasing people after hypoglycemic event.

Curriculum Objectives

• Develop proficiency in the management of diabetic emergencies in the prehospital environment (including the role of glucagon, oral glucose, intranasal glucagon, and various concentrations of intravenous dextrose)
• Develop proficiency in the management of diabetic emergencies during transport of the prehospital patient with a continuous insulin infusion device
• Distinguish prehospital diabetic patients that can be safely treated and released
• Recognize the potential for intentional insulin overdose
Which of the following is a **TRUE** statement?

A. IV glucose is more commonly used than oral for correcting hypoglycemia.
B. Glucagon is not useful in correcting hypoglycemia
C. IV D50 and IV D10 have the same median recovery time when used to treat hypoglycemia.
D. IM glucagon is equivalent to using IV glucose for correcting hypoglycemia.

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Demographics

- 7% of US population suffers from diabetes
- Approx. 5 million ED visits for hypoglycemia from 1992 – 2005
- Only 750,000 visits for DKA over same time period
- Diabetic emergencies are 3-4% of EMS calls
- Diabetes and its complications account for 10% of all dollars spent on health care by Americans
Sugars

- Hypoglycemia is defined as < 70 mg/dl
- Oral most commonly used
- IV D50 (D25 for children) or D10 study shows no difference in median recovery time (8 min.)
- IM Glucagon takes longer for median recovery (8-21 min)
- Glucagon has been used successfully subcutaneously

Too Sweet

- Hyperglycemia is defined as > 200 mg/dl
- DKA mortality ranges from 9-14%
- Non-ketotic hyperosmolar state (NKHS) mortality is 10-50%
- No specific work in out of hospital tx of hyperglycemia
- IV fluid resuscitation is the answer
Treat and Release

- 34 – 69% of hypoglycemic patients refuse transport
- As many as 9% of all EMS non-transports are diabetic calls
- Research has shown patients prefer a release protocol
- Be alert for intentional medication overdoses

Release Protocol

Key elements for safe discharge after Treatment for Hypoglycemia

- Hx of insulin dependent diabetes
- Return to normal mental state within 10 min of dextrose
- Pretreatment glucose < 80
- Post treatment glucose > 80
- Tolerates food by mouth
- No other complicating factors or comorbid conditions
- Follow up with primary care physician
- No use of sulfonylureas or long acting insulins
- Normal vital signs
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B. Glucagon is not useful in correcting hypoglycemia
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**Take-Home Points**

- Hypoglycemia can be corrected by D50, D25, D10, glucagon, or oral sugar
- Hyperglycemia needs IV fluids
- Treat and release can be done safely and is preferred by patients
- Be alert to intentional medication overdose