EMS Subspecialty Certification Review Course

1.3.4 Diabetic Emergencies
1.3.4.1 Glucagon, oral/intravenous glucose
1.3.4.2 Protocols for treat & release
1.3.4.3 Evaluation/Treatment of Hyperglycemia

2025

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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
- Describe common treatments for hyperglycemia

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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
- Develop proficiency in the management of hyperglycemic emergencies

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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

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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

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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
  - Dilution is the solution to pollution

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Treat and Release

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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

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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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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

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