

Classification

Hormone (pancreatic)

Prehospital Indications

Hypoglycemia: glucose <60mg/dL and venous access cannot be established

Other Common Indications

Clearance of impacted esophageal foreign body (via smooth muscle relaxation) in an ED monitored setting
Treatment of beta-blocker overdose and/or adjunctive treatment of calcium channel blocker overdose

Adult Dose

1mg (1mL) IM, may repeat in x1 in 20 min prn

Pediatric Dose

< 1 year of age **0.5mL (1mg/mL) IM**, may repeat in x1 in 20 min prn

≥ 1 year of age **1.0mL (1mg/mL) IM**, may repeat in x1 in 20 min prn

Mechanism of Action

A hormone naturally produced by pancreatic alpha cells of the islets of Langerhans. Causes breakdown of glycogen (stored in the liver) to glucose and inhibits the synthesis of glycogen from glucose. The combined actions increase the blood levels of glucose.

Pharmacokinetics

Onset is 5-20 min; duration is 1-1.5 hr

Contraindications

In patients with known insulinoma (insulin-secreting tumor), glucagon will produce worsening hypoglycemia

Interactions

None

Adverse Effects

Hypotension
Nausea and vomiting

Prehospital Considerations

- Use mixture immediately after reconstitution of dry powder and provided solution.
- Patient usually awakens from hypoglycemic coma 5-20 min after glucagon injection. PO carbohydrates should be given as soon as possible after patient regains consciousness.
- Symptoms such as headache, nausea and weakness may persist after recovery from hypoglycemic reaction.
- Glucagon is effective only if there are glycogen stores in the liver. Therefore, it is unlikely to be effective in patients with severe malnutrition, adrenal insufficiency or young infants.