



## 18. GLUCAGON

### a) Pharmacology

- (1) Hormone synthesized by the pancreas
- (2) Increases blood glucose concentration
- (3) Inhibits gastric and pancreatic secretions
- (4) May increase heart rate and cardiac output
- (5) May decrease blood pressure
- (6) Increases metabolic rate

### b) Pharmacokinetics

- (1) Destroyed by the GI tract and is not effective orally
- (2) Maximum hyperglycemic activity occurs within 30 minutes and disappears after 1–2 hours.
- (3) Relaxation of smooth muscle occurs within 8–10 minutes and persists for 12–27 minutes.
- (4) The half-life is 3–10 minutes.
- (5) Degraded in liver and kidneys

### c) Indications

- (1) Patients with altered mental status who are suspected of being hypoglycemic where IV access is not obtainable
- (2) Beta blocker overdose

### d) Contraindications

Known hypersensitivity




### e) Adverse Effects

Nausea and vomiting

### f) Precautions

Glucagon only works if liver has significant glycogen stores.

### g) Dosage

- (1) For suspected hypoglycemia without IV access:
  - (a) Adult: Administer 1 mg IM/IN (Medical consult for additional dosing to a maximum of 3 mg IM)
  - (b) Pediatric:
    - (i) 1 mg IM/IN (5 years of age up to patient's 18<sup>th</sup> birthday)  
 (Medical consult for additional dosing to a maximum of 3 mg IM/IN)
    - (ii) 0.5 mg IM/IN (28 days–4 years of age)  
 (Medical consult for additional dosing to a maximum of 3 mg IM/IN)
- (2)  For suspected beta blocker overdose:
  - (a) Adult: Administer 1 mg IVP every 5 minutes
  - (b) Pediatric: Administer every 5 minutes
    - (i) 1 mg IVP (5 years of age up to patient's 18<sup>th</sup> birthday) every 5 minutes
    - (ii) 0.5 mg IVP (28 days–4 years of age) every 5 minutes



**f) Precautions**

- (1) Violent patients should be physically restrained while the medication is administered.
- (2) May mask subsequent evaluation.

**g) Dosage (May combine with midazolam in same syringe)**

- (1) Adult
  - (a) **Patient 18–69 years of age:**  
5 mg IM or IV
  - (b) **Patient greater than 69 years of age:**  
2.5 mg IM or IV
- (2) Pediatric
  - (a) **Child less than 5 years of age:**  
Contraindicated
  - (b) **Child 5–12 years of age:**  
0.05 mg/kg IM or IV, max of 2.5 mg
  - (c) **Patient 13 up to 18<sup>th</sup> birthday:**  
2.5–5 mg IM or IV