

Octreotide

Sulfonylureas are common agents used in the treatment of type II diabetes. They are oral hypoglycemics that cause an increase in the release of insulin. Consequently, hypoglycemia is likely to occur with supratherapeutic doses. Mild hypoglycemia is usually corrected with food such as candy or orange juice. In pediatric and intentional overdoses, hypoglycemia is often severe and prolonged. Intravenous dextrose is the mainstay of treatment for symptomatic hypoglycemia due to sulfonylureas. However, the dextrose infusion results in continued insulin release, and recurrent and rebound hypoglycemia. Octreotide is a safe and effective treatment for refractory sulfonylurea-induced hypoglycemia, reducing additional hypoglycemic episodes.

Mechanism/Indications: Octreotide (Sandostatin) is a somatostatin analogue that inhibits the secretion of many hormones. Compared to somatostatin, it is a more potent inhibitor of growth hormone, glucagon, and insulin. It is reserved for patients that experience a recurrent episode of hypoglycemia after standard dextrose therapy to prevent additional recurrences. Currently, octreotide does not have an FDA indication as an antidote for sulfonylurea overdoses; however, there is literature supporting its use.

Dosing: The Maryland Poison Center recommends 100 mcg subcutaneously in adults with additional doses at 6-12 hour intervals if hypoglycemia recurs. Typically, 1-3 doses are sufficient. Continuous infusion of 50-125 mcg/hr is an alternative. A dose of 2 mcg/kg subcutaneously should be used in children. Dextrose therapy is continued to restore euglycemia. Blood glucose should be monitored every 1-2 hours. After discontinuation of therapy, monitoring for 12-24 hours is recommended as rebound hypoglycemia may occur. Octreotide exhibits similar bioavailability with subcutaneous and intravenous administration. Within 15 to 30 minutes, peak levels are reached. The duration of action is limited to about 4 hours with IV administration, but can extend from 6 to 12 hours using the subcutaneous route.

Adverse Effects: When given in the acute overdose setting, adverse effects include gastrointestinal disturbances (nausea, diarrhea, abdominal pain, etc.), injection site reactions, headache, and hyperglycemia. These adverse reactions are dose-dependent, start within hours and typically subside within 10-14 days.

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For more on octreotide:

- Fasano CJ et al. Comparison of Octreotide and standard therapy versus standard therapy alone for the treatment of sulfonylurea-induced hypoglycemia. *Ann Emerg Med* 2008; 51:400-406.
- Howland MA. Antidotes in Depth: Octreotide. In: Flomenbaum NE, Goldfrank LR, Hoffman RS et al, eds: *Goldfrank's Toxicologic Emergencies*. New York NY, 2006; 770-773.
- Rowden AK, Fasano CJ. Emergency management of oral hypoglycemic drug toxicity. *Emerg Med Clin N Am* 2007; 25:347-356.