Maryland Poison Center
UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY

ToxTidbits: Antidote Facts

1-800-222-1222

Octreotide

Sulfonylureas, including glipizide, glyburide and glimepiride, are oral hypoglycemics that increase insulin release and are used in the treatment of type II diabetes. Hypoglycemia can occur with supratherapeutic doses. Mild hypoglycemia is usually corrected with food, but more severe and prolonged hypoglycemia is treated with intravenous dextrose. However, the dextrose infusion may result in continued insulin release leading to rebound hypoglycemia. Octreotide is a safe and effective treatment for refractory sulfonylurea-induced hypoglycemia, reducing additional hypoglycemic episodes. Octreotide may also be of use in the management of meglitinide-induced hypoglycemia (e.g repaglinide, nateglinide).

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. In patients with sulfonylurea-induced hypoglycemia, blood glucose less than 60 mg/dL regardless of symptoms or less than 90 mg/dL with associated neurologic deficits are indications for therapy with dextrose and possible octreotide. Octreotide is reserved for those 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 50-100 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 1-2 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 shorter with IV administration, requiring dosing every 4 hours compared with every 6 hours (sometimes up to 12 hours) with the subcutaneous route.

Adverse Effects: When given for sulfonylurea-induced hypoglyemia, adverse effects include gastrointestinal disturbances (nausea, diarrhea, abdominal pain, etc.), injection site reactions, headache, and hyperglycemia. Rarely bradycardia, hypokalemia and anaphylactoid reaction have been reported.

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, Smith S. Antidotes in Depth: Octreotide. In: Hoffman RS, Howland MA, Lewin NA Nelson LS, Goldfrank LR, editors: Goldfrank's Toxicologic Emergencies. 10th ed. New York NY, 2015;738-742.*
- *Klein-Schwartz W, Stassinos GL, Isbister GK. Treatment of sulfonylurea and insulin overdose. Br J Clin Pharmacol 2016;81(3):496-504.*

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