

Sulfonylurea Overdoses

The second generation sulfonylureas (e.g. glipizide, glyburide, glimepiride) are among the most commonly prescribed agents for the treatment and management of type II diabetes. They block the potassium channels on the pancreatic beta cells which opens the voltage gated calcium channels and increases intracellular calcium. This leads to the secretion of preformed insulin from the pancreas. Hypoglycemia is the primary effect associated with overdoses of sulfonylureas and can be prolonged due to their durations of action of 16-to 24 hours or longer. Untreated, overdoses of sulfonylurea medications may cause significant morbidity and mortality.

Ingestion of a single tablet of a sulfonylurea can result in hypoglycemia in children and some adults, especially non-diabetic patients. Hypoglycemia is defined as serum glucose below 60mg/dl, but the concentrations at which clinical manifestations of low blood glucose occur can vary widely between individuals. Symptoms of hypoglycemia include altered mental status, weakness, sweating, nervousness, difficulty speaking, irritability, and blurred vision. Delirium, seizures, tachypnea, tachycardia and neuroglycopenia presenting with focal neurologic deficits may also occur upon sulfonylurea overdose secondary to hypoglycemia. Severe and prolonged hypoglycemia can possibly lead to permanent brain injury, myocardial infarction, coma, and death.

Following an overdose of a sulfonylurea, patients should be admitted for observation for at least 6-24 hours depending on the duration of action of the drug. Blood glucose concentrations should be monitored every 1-2 hours. Activated charcoal can be considered within one hour of a potentially toxic ingestion to decrease the absorption of the sulfonylurea. Asymptomatic patients with normal glucose concentrations can be managed with administration of food. Patients who develop clinical symptoms of hypoglycemia should be treated with IV dextrose and food. Octreotide (a somatostatin analog) is a synthetically derived hormone that suppresses insulin release from beta cells and should be considered in patients who need more than one bolus of IV dextrose or a dextrose infusion. Octreotide is given subcutaneously at a dose of 100 mcg in adults and 2 mcg/kg in children every 6-12 hours as needed. Alternatively, it may be given intravenously.

Vaidehi Sheth
PharmD Candidate, 2012
University of Maryland - School of Pharmacy

DID YOU KNOW THAT... you can read more about the use of octreotide for sulfonylurea overdoses in ToxTidbits: Antidote Facts?

Administering IV dextrose to treat sulfonylurea-induced hypoglycemia results in hyperglycemia. Insulin is released in response, leading to recurrent hypoglycemia. This cycle is continued when repeat doses of dextrose are given. Octreotide prevents the rebound hypoglycemia that occurs with dextrose by suppressing the secretion of insulin. Read more about the indications and dosing of octreotide in *ToxTidbits: Antidote Facts* on our website:

<http://www.mdpoison.com/education/antidotes.html> .

