

Octreotide Use by Medical Toxicologists: an Analysis from the ToxIC Registry

Alexander Barbuto, Michael Chary, Michele Burns

Harvard Medical Toxicology at Boston Children's Hospital, Boston, MA, USA

Background: Octreotide is used to counteract hypoglycemia from insulin-secretagogue overdose. Theoretically, it could mitigate hypoglycemia due to excess insulin release from other causes. Its use in nonsulfonylurea anti-hyperglycemic poisonings has not been well-described.

Methods: We reviewed the ToxIC registry to describe octreotide use. We excluded patients who were not hypoglycemic, had no exposure to an anti-hyperglycemic, or did not receive octreotide. We defined hypoglycemia as blood glucose less than 60 mg/dL or free-text stating hypoglycemia. The primary aim was to quantify the association between hypoglycemia and treatment with octreotide. The secondary aim was to describe octreotide use in patients without sulfonylurea ingestion.

Results: We identified 144 patients with hypoglycemia of 7577 entries in ToxIC. Hypoglycemia was seen with anti-hyperglycemic medication exposure (66 of 144), analgesics (n = 13), ethanol (n = 12), opioids (n = 11), sympathomimetics (n = 6), and cardiovascular medications (n = 6) most commonly. Octreotide was used in 43 of these 144 patients. There was no significant difference in mortality when octreotide was used in all-cause hypoglycemia (Fisher exact test, not-significant). We identified 154 patients who had an anti-hyperglycemic exposure of 7577 entries. Of these, 14 had multiple anti-hyperglycemics listed (11 patients with two agents, 2 with three, and 1 with four). Metformin (n = 57) was the most common antihyperglycemic agent. Sulfonylureas were coded in 67 patients, 34 of whom received octreotide. In the 87 patients with non-sulfonylurea anti-hyperglycemic exposures, octreotide was almost exclusively used in patients with insulin exposure (n = 6). One patient had "diabetic med unspecified." In 16 patients who received octreotide without anti-hyperglycemic exposure, no pattern of use was established.

Conclusion: There is no significant difference in mortality with octreotide use in all-cause hypoglycemia in the ToxIC registry. Octreotide is widely used by toxicologists for sulfonylurea poisonings. Of non-sulfonylurea anti-hyperglycemic poisonings, insulin exposure is the most common specified instance in which octreotide is given.