

## Management Trends in the Toxicology Investigators Consortium Registry: a 10-Year Review

Diane P Calello<sup>1,2</sup>, Kim Aldy<sup>3</sup>, Sharan Campleman<sup>4</sup>, Paul Wax<sup>3,4</sup>, Jeffrey Brent<sup>5</sup>, On Behalf of the ToxIC Investigators Consortium (ToxIC)

<sup>1</sup>Rutgers New Jersey Medical School, Newark, NJ, USA.

<sup>2</sup>New Jersey Poison Information and Education System, Newark, NJ, USA.

<sup>3</sup>University of Texas Southwestern Medical Center, Dallas, TX, USA.

<sup>4</sup>American College of Medical Toxicology, Phoenix, AZ, USA.

<sup>5</sup>University of Colorado School of Medicine, Denver, CO, USA

**Background:** Management of poisoned patients may change over time due to new information about efficacy and adverse effects and shifting practice patterns among medical toxicologists. The ToxIC Registry, a multicenter prospective database of patients cared for at the bedside by medical toxicologists, was developed in 2010 and has nearly 10 years of data.

**Research Question:** How has management by medical toxicologists changed over time?

**Methods:** ToxIC Annual Reports were searched from 2010 to 2019 regarding three categories: antidotes, chelators, and GI decontamination. Chelators and decontamination methods were reported from 2012 to 2019. Percentages were compared from year to year, which reflect the percentage of patients given a specific therapy among those in whom an entry was made in that category.

**Results:** Antidotes: The most common antidotes were N-acetylcysteine (average 29.4% of all antidotes, range 27–32.9), naloxone (19.3%, 17–21.9), and sodium bicarbonate (11.9%, 10.9–14) with minimal variation over 10 years. Other infrequently used antidotes demonstrated minimal change, including fomepizole (3%, 2.8–4), hyperinsulinemia-euglycemia (0.9%, 0–1.4), and lipid emulsion (0.66%, 0–1.2). The one antidote which showed steady decline in use was physostigmine, (6.4%, 2.3–11) which was reported in 9% of antidote cases in 2010, peaked in 2012, and steadily declined to 3.6% in 2018. Chelators: DMSA and DFO were most common each year, followed by EDTA and BAL. Penicillamine and DMPS were rarely reported. GI decontamination methods: Of patients receiving GI decontamination, activated charcoal was most common (80%, 78.8–81), followed by whole bowel irrigation (11%, 7.7–14.2) and gastric lavage (3%, 1.4–6).

**Conclusion:** Practice patterns were stable over the study period. This may reflect areas of consensus among board-certified medical toxicologists. Several therapies which are the subject of much study were rarely used in the registry, such as hyperinsulinemia and lipid emulsion. Future study may analyze behaviors and attitudes among medical toxicologists about specific therapies.