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52. Characterizing the administration of fomepizole by medical toxicologists

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Objective: Fomepizole is used as antidotal therapy for poisonings involving ethylene glycol (EG) and methanol. The decision to administer fomepizole may precede confirmatory serum toxic alcohol concentrations. We queried the Toxicology Investigators Consortium (ToxIC) Registry to determine the characteristics of poisoned patients who received fomepizole by a medical toxicologist.

Methods: A retrospective search of the ToxIC Registry was performed for the time period January 2010 to July 2016 for patients who received fomepizole. Demographic and clinical parameters were collected and analyzed using descriptive statistics. Logistic regression analysis was used to determine if associations existed between serum EG or methanol concentrations and endotracheal intubation, use of vasopressors, or hemodialysis.

Results: A total of 533 patients received fomepizole during the timeframe of this study. The majority of patients were 19 years or older (90%) and the most common age range was 19–65 years (83%). Most cases were reported in males (68.6%). The most common toxic alcohol exposures were EG (48%) and methanol (9.7%). Most exposures were intentional (66.9%) and involved a single substance (61.9%). Hypotension (12.5%) was the most common vital sign derangement. Acid-base laboratory abnormalities were recorded in 66.6% of cases including metabolic acidosis (pH < 7.35 , 46.9%; osmolar gap > 20 , 32.4%). Central nervous system depression was present in 49.5% of cases. Therapeutic interventions included intubation (24.9%), use of vasopressors (11%), and hemodialysis (22.8%). No toxic alcohol exposure was identified in 36.9% of cases. An acid-base abnormality was present for 72% of these cases. Only 34% of the 32 total deaths reported involved a toxic alcohol. Logistic regression did not demonstrate a significant relationship between serum EG or methanol concentrations and use of intubation, vasopressors, or hemodialysis.

Conclusion: Fomepizole was most commonly administered for EG and methanol exposures. In cases where no toxic alcohol exposure was ultimately identified, it was usually given in the presence of an acid-base abnormality. Fomepizole's favorable safety profile, delay in readily available measurement of serum toxic alcohol concentrations, and high morbidity/mortality of untreated EG or methanol poisonings likely also contributed to its empiric use. The serum toxic alcohol concentration did not predict use of therapeutic interventions.