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161. Treatment Modality Trends in Fatalities Reported to the Toxicology Investigators Consortium (ToxIC) Registry: a Six Year Review

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Background: Unintentional poisoning deaths are the leading cause of injury-associated mortality in the United States. Given their illness severity, patients who die from poisonings may receive various critical care treatments. Increased accessibility of critical care training and interventions may affect trends in critical care modalities and antidotes used to treat critically ill toxicologic patients.

Research Question: For patients with fatal overdose deaths, have intensive care treatment modalities or antidotes changed from 2014 to 2019?

Methods: This is a retrospective review of ToxIC Registry cases with a fatal outcome between 2014 and 2019. Cases were compared by year with attention to critical care treatment modalities and antidote use. Descriptive statistics and comparisons were performed using SPSS.

Results: Six hundred and sixteen deaths occurred over six years. Total annual fatalities ranged from 89 in 2014 to 128 in 2016. Life support was withdrawn in 64% of patients, and brain death was confirmed in 26% of patients in whom life support was withdrawn. Common interventions included intubation/ventilatory support (57%), intravenous fluids (54%), vasopressors (51%), N-acetylcysteine (25%), CPR (21%), benzodiazepines (20%) and sodium bicarbonate (19%). Critical care antidotes including methylene blue (2.8%), hydroxocobalamin (3.4%), insulin euglycemic therapy (5.8%) and lipid rescue (6.3%) were used infrequently. However, use of these therapies nearly doubled from 2014 to 2015. Continuous renal replacement therapy (CRRT) use was more common than hemodialysis (HD) (15% vs. 3.1% or 6.8%). There was an increase in HD use for toxin removal and CRRT in 2016. ECMO was used in 3.2% of fatalities.

Conclusion: Critical care treatments in patients with fatal toxicologic exposures demonstrate variability and reflect the suspected xenobiotic (i.e., 25% received NAC). Other treatment modalities such as methylene blue or lipid rescue therapy are not frequently used. HD and CRRT use increased in 2016, which correlates with the release of EXTRIP guidelines in 2015.