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279. Characterizing benzodiazepine toxicities using the Toxicology Investigators Consortium (ToxIC) Registry

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Objective: Benzodiazepines are among the most widely prescribed drugs in the US. Benzodiazepine toxicity may result in significant respiratory and central nervous system (CNS) depression. Our objective was to characterize benzodiazepine exposures reported in the ToxIC Registry from January 2010 to July 2016.

Methods: The ToxIC Registry database was queried for all benzodiazepine exposures from January 2010 to July 2016. Data collected included age, gender, race, chronicity of exposure, presence of co-ingestants, pertinent symptoms, use of gastrointestinal (GI) decontamination techniques [gastric lavage (GL), activated charcoal (AC), whole bowel irrigation (WBI)], intubation (ET), hemodialysis (HD), multi-dose activated charcoal (MDAC), intravenous fluids (IVF), and use of flumazenil.

Results: Over the study period, 4658 cases met the inclusion criteria. Exposures were slightly more common in females (54.1%) than males (42.8%). The majority of exposures occurred in persons aged 19–65 years (78.9%), with significantly fewer exposures in patients aged 13–18 years (8.9%), >65 years (4.8%), and 0–12 years (4.4%). Race was recorded in only 1031 (22%) of cases. Of these, Caucasian (81.3%) and Black (11.2%) were the most commonly reported. Exposures were acute in 44.2%, acute-on-chronic in 11.3%, and chronic in 3.5% of exposures. Clonazepam (33.2%), alprazolam (29.8%), lorazepam (18.2%), and diazepam (8.9%) accounted for the vast majority of benzodiazepine exposures. Only 23.4% of benzodiazepine exposures occurred as a single substance exposure, the remainder being part of a polysubstance ingestion. In terms of symptomatology, 34.6% of patients developed a sedative-hypnotic toxidrome, 55.1% exhibited central nervous system depression, and 13.1% exhibited respiratory depression. Few patients received a GI decontamination intervention (GL 0.2%, AC 3.6%, WBI 0.2%), or underwent enhanced elimination (HD 0.2%, MDAC 0.1%). Sixty-four percent of patients received some kind of treatment, with the most common being IVF (23.8%). Intubation was performed in 12.3% of patients, and 2.8% required vasopressors. Flumazenil was administered in 11.2% of cases, primarily in the 19–65 (84.5%) and >66 years (7.6%) age groups. Twenty-four patients were reported to have died.

Conclusion: Benzodiazepine exposures reported to the ToxIC Registry occurred primarily in females, people aged 19–65 years old, were acute in nature, and part of a polysubstance ingestion. Few GI decontamination or enhanced elimination interventions were performed or necessary, and only a small percentage of exposures were treated with flumazenil.