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221. Trends in Pediatric Toxin-Induced Seizures reported to the ToxIC Core Registry

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Background: Seizures are a serious manifestation of acute poisoning in pediatric patients. Understanding which toxins commonly cause seizures, their frequency, and outcomes may help guide management of poisoned children.

Hypothesis or Research Question: What toxins most commonly cause seizures in pediatric patients and what are the trends in their epidemiology?

Methods: A retrospective analysis of the Toxicology Investigators Consortium (ToxIC) Core Registry was conducted to identify all pediatric patients (age 0-17 years) who experienced seizures as a result of acute poisoning between January 2010 and December 2024. Cases were stratified by age group and substance classes. Descriptive statistics were performed using Microsoft Excel.

Results: A total of 443 pediatric cases with toxin-induced seizures were identified during the study period. The median age was 6 years (range 2-17 years). Females accounted for 222 (50.1%) patients. The median age of 251 (56.7%) unintentional ingestions was 3 years (range 2-17 years), with 95 (37.8%) female patients. The most common clinical manifestation was central nervous system (CNS) depression, which was observed in 200 (79.7%) cases. Bradycardia was reported in 95 (37.8%) patients. Hypotension was present in 62 (24.7%) cases. Bradypnea was seen in 6 (3.1%) patients. There was one patient with QRS widening but no cases on QT prolongation on electrocardiogram (ECG). There were no deaths. Naloxone was administered to 91 (36.3%) patients. Intravenous fluid resuscitation was required in 97 (38.6) cases. Endotracheal intubation with mechanical ventilation was performed in 34 (13.5%) cases. Vasopressors were administered to seven (2.8%) patients. Of the 192 cases that were considered intentional overdoses, the median age was 14 years (range 5-17 years). Females accounted for 127 (66.1%) cases. CNS depression was observed in 130 (67.7%) cases. Bradycardia was reported in 117 (60.9%) patients. Hypotension was present in 43 (22.4%) cases. Bradypnea was seen in 6 (3.1%) patients. There was one patient with QRS widening but no cases on QT prolongation on ECG. There were no deaths. Naloxone was administered to 50 (26.3%) patients. Intravenous fluid resuscitation was required in 84 (43.8%) cases. Endotracheal intubation with mechanical ventilation was performed in 15 (7.8%) cases. Vasopressors were administered to 12 (6.3%)

patients.

Conclusion: In this study, pediatric clonidine overdoses were characterized primarily by CNS depression and bradycardia. Hypotension was commonly observed and typically responded to intravenous fluids. ToxIC research was performed by the ACMT Toxicology Investigators Consortium.

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