

Presented at NACCT 2013 – Las Vegas 2012

Published in *Clinical Toxicology* 2012,50;676

227. Drug-induced seizures in children presenting to the emergency department

Yaron Finkelstein 1, Janine R. Hutson 1, Jeffrey Brent 2, Paul M. Wax 3

1 *Hospital for Sick Children, Toronto ON Canada*; 2 *University of Colorado, Denver CO USA*; 3 *University of Texas Southwestern Medical School, Dallas TX USA*

Background: Seizures are a worrisome, though not uncommon in children presenting to the emergency department (ED). Seizures may be drug-induced, and can be associated with exposure to a wide range of medications and non-pharmaceutical agents. This etiology should be considered in any new-onset seizure in a child, especially in an afebrile child. Many drugs are classified as having the potential to provoke seizures, however, it is unknown which drugs are commonly responsible for this acute pediatric presentation in real-life context. Using the Toxicology Investigators Consortium (Toxic) Case Registry as a toxico-surveillance tool, we aimed to describe common agents responsible for pediatric drug-induced seizures in the United States.

Methods: In 2010, the American College of Medical Toxicology (ACMT) established a nationwide database, the Toxicology Investigators Consortium (Toxic) Case Registry, exclusively cataloging all cases in which bedside consultation by a medical toxicologist was provided in any of the 31 American registry sites, in a prospective manner. Using the Toxic registry database, we identified all children consulted by a medical toxicologist for drug-induced seizures over a two-year period between April 1, 2010 and March 31, 2012. Demographic and clinical parameters were collected and analyzed.

Results: We identified 143 drug-induced seizure cases reported to the Toxic registry in patients 18 years or younger (57% male). The majority of cases (75%) occurred in children aged 13–18 years, 13% were in children less than 2 years, and 12% in those between 2–12 years. Forty-three percent were consulted while in the Emergency Department. The most common drug classes involved in seizure activity were antidepressants (42%), anticholinergic/antihistamines (22%) and non-opioid analgesics (15%). Thirty-nine percent of cases involved ingestion of multiple agents. The majority of seizure episodes (84; 59%) resulted from intentional overdoses, all of which occurred within the 13 to 18 year age group (i.e., 79% intentional in this group). Of the intentional overdoses leading to seizures in children, 61% involved antidepressants.

Conclusions: Antidepressants are the most common drug class leading to pediatric drug-induced seizures in the United States, more so in intentional overdose. In the context of adolescents presenting with new-onset seizures of unknown etiology, the since the majority of drug-induced seizures in this age group are intentional.