

Adverse Drug Events and Reactions Managed by Medical Toxicologists: an Analysis of the Toxicology Investigators Consortium (ToxIC) Registry, 2010–2016

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Background: Adverse drug events/reactions (ADE/ADR) cost more than \$75 billion annually and are among the leading causes of death in the USA. Little is known about patients treated at the bedside for ADE/ADR by medical toxicologists.

Hypothesis: The aim of this study is to review ADE/ADRs reported to the ToxIC registry.

Methods: We reviewed all cases cataloged in ToxIC registry between 1/2010–12/2016. Age was categorized as pediatric (0–18 years), adult (19–65 years) and older adult (> 65 years). Descriptive statistics were used to analyze study variables as appropriate. Chi-square tests and logistic regression were used to assess differences in distribution of study variables by participant age and sex. All analyses were performed with Stata SE v 14.2. Results: A total of 50,899 patients were identified in the registry: 13,836 (27.2%) were pediatric, 34,133 (67.1%) were adults and 2930 (5.8%) were older adults. ADE/ADRs accounted for 1840 cases, 3.6% of all consults to medical toxicologists. Compared to the 19–65 age group, older adults were more likely to be managed for an ADE/ADR (OR = 4.2, 95% CI: 3.7–4.7). There was a trend for female predominance of ADE/ADR with prevalence in females and males 3.8 and 3.5%, respectively (NS). The most common class of drug associated with ADE/ADRs in the pediatric population was antipsychotics (18.1%); for adults, opioids/analgesics (12.4%); and for older adults, cardiovascular medications (32.1%). Bradycardia was the most reported vital sign abnormality, occurring in 13.2% of the sample, and was more common (OR = 4.9, 95% CI: 3.1–7.7) in older adults compared to younger adults. For ADE/ADRs, the most common medical interventions were Bnone/observation[^] (73.2%), pharmaceutical (21.9%) and intubation (5.0%), with no differences by patient se

Discussion: Age-based differences were observed in agents involved in ADE/ADRs: antipsychotics among children, opioids/analgesics among adults up to age 65 and cardiovascular medications among older adults. These differences have potential implications for age-specific prevention and management strategies of ADE/ADRs.

Conclusion: Age-based differences were observed among patients managed at the bedside by medical toxicologists for ADE/ADRs, with a strong predominance among older adults.