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105. Opiate and Sedative-Hypnotics/Muscle Relaxants: Trends in Two Important Drug Classes as Reported to the ToxIC Registry, 2010–2014

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Background: Opioids (OPIs) and sedative-hypnotic/muscle relaxants (SEDs) are two of the most common agent classes reported to the Toxicology Investigators Consortium (ToxIC). Recent review of the relative proportion of total agents has appeared to show a decline in both OPIs and SEDs over time. However, as almost one third of the Registry cases reported an exposure to more than one agent, it is important to parse out the relative influence of multiple vs. single agent exposures, as well as other factors, to explain any observed crude changes.

Research Question: What changes in toxic events involving OPIs and/or SEDs have occurred over the initial 5 years of reporting to the ToxIC Registry?

Methods: This descriptive analysis included all ToxIC Registry cases reported over the period January 1, 2010 through December 14, 2014. Summary descriptive statistics calculated included relative frequencies and chi-square for linear trend.

Results: Linear tests based on the percentage of total agents indicated a downward trend for SEDs ($P < 0.001$ chi-square) and no trend for OPIs ($P = \text{NS}$ chi-square). In contrast, among single-agent poisonings only, significant positive trends appeared for OPIs only (+28.1 % absolute, $P < 0.001$ chi-square). In the OPI class (% 5 years, P for trend chi-square), the most frequently agents reported in single agent events were heroin (2.5 %, $P < 0.0001$), methadone (1.3 %, $P = 0.012$), and oxycodone (1.1 %, $P = \text{NS}$). Clonazepam, alprazolam, and lorazepam were the most common agents reported in the SED class (range 0.7–1.5 %). Benzodiazepines as a group (4.4 % single agent cases) demonstrated a positive trend ($P = 0.033$ chi-square). However, no individual SED agent demonstrated a significant trend over this 5-year time period.

Discussion: As the Registry continues to increase in size and accumulated data years, the ability to identify stable estimates of trend will improve. Not only by using simple descriptive analysis but also via modeling to determine the influence of other case and site characteristics.

Conclusion: ToxIC Registry cases involving an OPI or SED demonstrated significant positive increases in their relative proportion of single agent poisonings for the individual agents heroin and methadone, and for the sub-class benzodiazepines.