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### **153. Prescription stimulants combined with prescription or illicit opioid exposures within the Toxicology Investigators Consortium (ToxIC) Core Registry, January 2012–December 2021**

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**Background:** From 2014 to 2019, the dispensing of prescription stimulants has increased significantly. Because prescription stimulants can be misused and concurrent use of both prescription stimulants and opioids is common among adults with ADHD, it is important to better understand how these drug exposures present in patients treated in healthcare facilities. The present study examined drug exposures involving co-use of prescription stimulants and opioids by demographics and common clinical presentations.

**Methods:** We examined drug exposures in the Toxicology Investigators Consortium (ToxIC) Core Registry from January 2010 to December 2021, which is a case registry of patients presenting to participating healthcare sites that receive a medical toxicology physician consultation. Drug exposures involving co-use of prescription stimulants and opioids included symptomatic intentional exposure to a prescription stimulant, combined with at least one reported prescription or illicit opioid exposure. Patient demographics and clinical presentations were assessed using descriptive analyses performed in SAS 9.4.

**Results:** Co-use of prescription stimulants and opioids were identified in 93 exposure cases; 61 (65.6%) involved prescription opioids and 32 (34.4%) involved illicit opioids. Prescription stimulant and prescription opioid exposures most commonly involved males (55.7%), persons aged 15–24 years (26.2%) and non-Hispanic White persons (52.5%). Prescription stimulant and illicit opioid exposures largely involved males (78.1%), persons aged 25–34 (53.1%), and non-Hispanic White persons (46.9%). Sedative-hypnotic syndrome presented with similar proportions in both prescription stimulant and prescription opioid (n = 13, 21.3%) and illicit opioid (n = 6, 18.8%) exposures, while opioid toxidrome was more common among prescription stimulant and illicit opioid exposures (n = 9, 28.1%) than prescription stimulant and prescription opioid exposures (n = 10, 16.4%). Sympathomimetic syndrome was also reported (n = 13, 14.0%); 9 co-use with prescription opioid (14.8%), 4 co-use with illicit opioids (12.5%). Respiratory depression was reported by more than one in five prescription stimulant and prescription opioid exposures (n = 13, 21.3%), while this was reported in 40.6% (n = 13) of prescription stimulant and illicit opioid exposures. More than half of prescription stimulant and illicit opioid exposures (n = 19, 59.4%) presented with central nervous system (CNS) depression, presenting proportionally more often than prescription stimulant and prescription opioid exposures (n = 27, 44.3%). Nearly two in five prescription stimulant and prescription opioid exposures presented with agitation (n = 24, 39.3%), presenting proportionally more often than prescription stimulant and illicit opioid exposures (n = 10, 31.3%).

Nearly all exposures with hyperreflexia involved co-use of prescription stimulants and prescription opioids.

**Conclusions:** Co-use of prescription stimulants and opioids may complicate clinical presentation of patients receiving care following a toxicological drug exposure. Patients often presented with a range of toxidromes counter to one another including sedative-hypnotic syndrome and opioid toxidrome or sympathomimetic syndrome. Clinical presentations of prescribed stimulant and opioid co-use may mask the effects of one another, thereby complicating both treatment and surveillance efforts by potentially misattributing an incorrect substance contributing to an overdose.