

008. Fentanyl Exposures: The ToxIC Experience 2010–2017

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Background: Fentanyl and its analogs are common contaminants in heroin and other illicit drugs, leading to significant overdoses and deaths. Large population-based studies of fentanyl overdoses are limited.

Hypothesis: This study aims to describe the epidemiology and clinical course of fentanyl overdoses using a large national database, the Toxicology Investigator's Consortium (ToxIC) Registry, hypothesizing that exposures are increasing and significant toxicity occurs.

Methods: Cases involving fentanyl/analogues as primary agent in the ToxIC registry between 1/1/2010 and 8/31/2017 were reviewed. Therapeutic use and withdrawal cases were excluded. Data collected included demographics, exposure state and year, outcomes, and treatment. Descriptive statistics were used.

Results: Three hundred fifty-three cases were identified. Two hundred fifty-six cases from 18 states were included. Pennsylvania (47.3%), New York (12.9%), Arizona (7.4%), Indiana (7.4%), and Massachusetts (4.7%) represented most cases. One hundred thirty-five were males. Most (88.7%) were ages 19–65 years. Two hundred nineteen (85.5%) intentional, 26 (10.2%) unintentional adult, 5 (2.0%) pediatric exploratory, and 6 (2.3%) unclassified exposures were reported. Annual exposures increased from 29 in 2010 (0.6%) to 55 by August 2017 (1.1%). Route of exposure was not reliably reported; coingestants were common. 98.4% reported signs or symptoms of toxicity. Neurologic, pulmonary, and renal data were recorded in 209, 162, and 140 cases, respectively. CNS depression occurred in 80.1%, agitation in 18.2%, delirium in 10.5%, hyperreflexia in 8.6%, and seizure in 6.2%. Respiratory depression occurred in 58.6%, aspiration pneumonia in 16.7%, and acute lung injury in 7.4%. Acute kidney injury (Cr > 2.0) occurred in 19.3% and rhabdomyolysis (CK > 1000) in 14.3%. In-hospital naloxone data were recorded in 213 cases; 77.0% received naloxone. There were seven deaths in 149 cases (4.7%).

Discussion: Fentanyl as an adulterant and a drug of abuse is increasing across the US, reflected in this national registry. Significant neurologic, respiratory, and renal toxicity is reported. Trends in large data sets such as ToxIC can better inform clinicians and public health officials in ongoing prevention, surveillance, and treatment efforts.

Limitations: Confirmatory fentanyl testing was not reported. Conclusion: Fentanyl overdoses reported to the ToxIC registry increased from 2010 to 2017. Neurologic and respiratory symptoms, acute kidney injury, and rhabdomyolysis were common.