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52. Characteristics of toxicological exposures among unhoused individuals compared to patients with secured housing

Michael Chary[a], Paul Wax[b], Rachel Culbreth[b], Kim Aldy[b], Sharan Campleman[b], Alyssa Falise[b], Robert Hendrickson[c], Alex Krotulski[d], Keith Burkhart[e], Oluwafemi Jimo[h], Alison Meyn[b], Jeffrey Brent[f] and On behalf of the ToxIC DOTS Study Group

[a]Weill Cornell Medical Center, New York, NY, USA; [b]American College of Medical Toxicology, Phoenix, AZ, USA; [c]Oregon Health & Science University, Oregon Poison Center, Portland, OR, USA; [d]Center for Forensic Science Research and Education, Horsham, PA, USA; [e]FDA, Silver Springs, MD, USA; [f]School of Medicine, University of Colorado, Denver, CO, USA

Background: Background: Postmortem analyses of fatal opioid overdoses increasingly detect stimulants, cocaine and/or methamphetamine. The clinical significance of this increasing prevalence is unclear because postmortem xenobiotic concentrations do not directly relate to antemortem concentrations. The most common antemortem test for stimulants, the urine toxicology test, provides no quan- titative information. The purpose of this analysis was to determine the relationship between the antemortem concentration of stimulants and clinical severity after a life-threatening overdose. Our hypothesis was that those who consumed stimulants would have worse clinical outcomes among patients with opioid overdoses.

Methods: The Toxicology Investigators Consortium (ToxIC) Drug Overdose Toxico-Surveillance (DOTS) Reporting Program (Food and Drug Administration Contract #75F40122D00028/75F40123F19002) enrolls patients 13 and older after a nonfatal opioid or stimulant overdose presenting to one of 17 US Emergency Departments (EDs). DOTS is a prospective observational study that captures patient characteristics, clinical information, contextual data, and whole blood xenobiotic concentrations. We performed a subgroup ana- lysis of patients enrolled from April 2023 to March 2024 after a presumed opioid overdose who had detectable concentrations of fentanyl, cocaine, methamphetamine, or their metabolites as deter- mined by liquid chromatography tandem quadrupole mass spectrometry. We divided patients into three groups according to the ratio of amphetamine to methamphetamine. Our primary outcome was disposition from the ED—discharge, extended observation, admission to general floor, or admission to an intensive care unit. Summary statistics are expressed as median [interquartile range]. Central/site IRBs approved this study, and patients provided informed consent.

Results: Among patients with completed laboratory results (n 1⁄4 293) who had completed disposition records (n 1⁄4 283), the median age was 44 [33–57] years, and 75% were male. The median time between presentation and blood draw was 2 [1–7] hours. In subjects with a fentanyl concentration of fentanyl >1 ng/mL and a clinical presentation consistent with opioid toxidrome (n 1⁄4 184), the cocaine concentration was 1 [0.5–61] ng/mL, benzoylecgonine (BZE) 170 [10.3–540] ng/mL and methamphetamine 110 [14–320] ng/mL. Patients with concentrations of BZE in the highest tertile were more likely to be admitted to the ICU (4/7, 57%) than those in the lowest (22/77, 29%) tertile (Fisher's

exact test, p 1⁄4 0.02). We found a similar result for methamphetamine, with 4/5 (80%) of patients in the highest tertile admitted to the ICU compared to 24/ 87 (28%) in the lowest tertile (Fisher's exact test, $p < 0.01$). The correlation between fentanyl and BZE concentrations in whole blood was negligible (−0.018), as was the correlation between fentanyl and methamphetamine concentrations (−0.005).

Conclusion: In patients with severe or life-threatening opioid overdoses, those with higher whole blood concentrations of BZE or methamphetamine were more likely to be admitted to the ICU than those with lower concentrations. Concentrations of methamphetamine or BZE were not correlated with fentanyl levels. As the DOTS enrollment increases, future analyses should incorporate a multivariable approach.