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159. Concordance Between Self-Reported Drugs and Blood Toxicology Results: Findings From the ToxIC DOTS

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Background: People who use drugs are frequently unaware of the spectrum of potential adulterants in the drug supply; however, most studies examining discrepancies in self-report are limited to typical drug use patterns and rely on urine or hair sample testing.

Hypothesis or Research Question: What is the concordance between self-reported overdose drug and blood toxicology results among patients with an opioid or stimulant overdose?

Methods: This analysis was conducted using data from the Toxicology Investigators Consortium (ToxIC) Drug Overdose Toxicology-Surveillance (DOTS) Reporting Program. Patients ages >13 years presenting to emergency departments (EDs) with a severe opioid or stimulant overdose at one of 17 medical centers between April 2023 and September 2024 that provided informed consent were eligible. All patients provided informed consent. Interviews assessed current drug use, sociodemographics, and treatment history. Qualitative and quantitative blood toxicology tests were conducted by the Center for Forensic Science Research and Education. Two medical toxicologists independently reviewed each case for tolerance, precipitated withdrawal or stimulant intoxication, and substances contributing to the overdose. Any discrepancies were resolved by a third reviewer or group consensus. Descriptive statistics compared self-reported substance use associated with the overdose presentation, detected substances, and case adjudicated causality.

Results: Among the 995 patients enrolled, 933 completed the interview. Almost half (n=446; 43%) reported taking opioids only, 19% reported stimulants only, 13% reported other drugs only, and 25% reported other drug combinations (e.g., alprazolam, cannabis). Among those who reported taking fentanyl only (n = 199), 189 (95%) had fentanyl present, but only 31% of those who reported taking only cocaine (n = 734) had no fentanyl, nonfentanyl, or fentanyl analogues ($p<0.001$). Notably, fentanyl was detected in 72% of patients who reported taking cocaine only and 50% of patients who reported taking methamphetamine only.

Conclusion: Patients who self-reported fentanyl or methamphetamine use prior to their overdose had high sensitivity (<90%) and concordant analyses; however, the specificity for self-reported fentanyl and methamphetamine use was poor. There was considerable discordance for both cocaine and heroin. Future analyses should incorporate timing of blood collection. These findings could be compared with the illicit drug supply to inform public health messaging.

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