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112. Psychostimulant Drug Co-ingestion in Emergency Department Patients with Opioid Overdose: A Multi-Center ToxIC Collaboration

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Background: In 2017, psychostimulant deaths involving cocaine and methamphetamine both increased by > 30%. Opioid co-exposure with psychostimulants is a major driver of this increase in overdose deaths. Characterization of clinical outcomes in patients with exposure to fentanyl/fentanyl analogs (fentalogs) and psychostimulants is critical but few studies have examined outcomes in this population.

Research Question: This study aims to investigate outcomes in patients with exposure to fentanyl and psychostimulants and compare outcomes in patients with fentanyl/psychostimulants to those with fentanyl/fentalogs only.

Methods: This was a secondary analysis of a prospective consecutive cohort of emergency department (ED) patients aged 18+ with opioid overdose presenting to nine sites within the ToxIC network from October 6, 2020 to August 17, 2021. Waste blood specimens were analyzed with liquid chromatography quadrupole time-of-flight mass spectrometry. The primary study outcome was total naloxone bolus dose administered. Secondary outcomes included endotracheal intubation, cardiac arrest, troponin elevation, and presenting vital signs. We performed t-test and chi-squared analyses to compare demographics and outcomes between groups.

Results: Of 378 enrollees, 207 (51.8%) had psychostimulants and fentanyl present. Patients in the fentanyl only group were significantly older than the fentanyl/stimulant group (mean 45.2 years versus 40.6 years, $p < 0.01$). Patients in the fentanyl/stimulant group had significantly higher total naloxone dose requirements (mean total dose 3.56 mg vs. 2.85 mg, $p = 0.01$). There was no significant difference in presenting vital signs or rates of intubation, cardiac arrest, and troponin elevation.

Conclusion: We identified a high rate of psychostimulants and fentanyl co-exposure. Patients in the fentanyl/stimulant group had significantly higher naloxone dose requirements, suggesting potential greater severity of overdose. Further, powered studies are needed to fully evaluate the impact of psychostimulant co-exposure on outcomes in fentanyl/fentalog overdose.