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095. Levamisole: A Classic Adulterant with a Novel Association

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Background: Adulterants are agents added to illicit substances in the drug supply for various reasons-as mimics, synergistic high enhancers, or bulking agents. While classically found in cocaine, levamisole has been detected anecdotally in other substances during the opioid epidemic.

Research Question: What is the prevalence of levamisole detected in the serum of emergency department (ED) patients with confirmed illicit opioid overdose?

Methods: This is a subgroup analysis from the Toxicology Investigators Consortium (ToxIC) Fentalog Study, an ongoing multi-center study across the US. ED patients with suspected opioid overdose were included across eight sites from September 30, 2020 to October 1, 2022. Discarded serum from each patient was analyzed via liquid chromatography quadrupole time-of-flight mass spectroscopy to detect the qualitative prevalence of over 1,000 psychoactive substances and metabolites. Descriptive statistics (R v4.1.2) were calculated for the prevalence of levamisole among confirmed cocaine overdose and confirmed opioid overdose.

Results: From September 30, 2021 to October 1, 2022, 537 samples were collected, of which levamisole was detected in 22.2% (n=119). Additionally, levamisole was present in 60.3% (n=151) of all cocaine-positive patients. The majority of levamisole was discovered in the northeast region of the US (62.2%) (p=0.01). Levamisole was also present in patients without stimulants; it was detected in 5.8% (N=103) of patients with fentanyl without stimulants. Levamisole was identified in the majority of patients (54.5%) with fentanyl, non-fentanyl opioids, and stimulants.

Conclusion: In this large multi-center subgroup analysis of ED patients with confirmed opioid overdose, levamisole prevalence was higher than expected. Levamisole may now be more commonly found in opioids, even in the absence of stimulants.