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109. Para-Fluorofentanyl Detected in Patients with Suspected Opioid Overdose

Kim Aldy^{1,2}, Alex Krotulski³, Sharan Campleman¹, Alison Meyn¹, Stephanie Abston¹, Barry Logan^{3,4}, Jeffrey Brent⁵, Paul Wax¹, Alex F Manini⁶, On Behalf of the Toxicology Investigators Consortium (ToxIC) Fentalog Study Group

¹ American College of Medical Toxicology, Phoenix, AZ, USA. ² University of Texas Southwestern Medical Center, Dallas, TX, USA. ³ Center for Forensic Science Research and Education at the Fredric Rieders Family Foundation, Willow Grove, PA, USA. ⁴ NMS Labs, Horsham, PA, USA.

⁵ University of Colorado School of Medicine, Aurora, CO, USA. ⁶ Icahn School of Medicine at Mount Sinai, New York, NY, USA

Background: Para-fluorofentanyl (PFF), a fentanyl analog, is a schedule one drug with no accepted medical use in the US. PFF is commonly found in combination with illicit fentanyl, but occasionally alone, and may reflect a change in the use of precursors in illicit fentanyl manufacture. No reports of its clinical effects exist in the literature to date.

Research Question: This study aims to investigate PFF exposures.

Methods: This is a prospective cohort of adult emergency department patients with presumed opioid overdose presenting to nine US sites with available waste blood. Exclusion criteria were non-toxicologic diagnosis, pediatrics, and prisoners. Residual blood testing via liquid chromatography quadrupole time-of-flight mass spectrometry for over 900 substances was paired with clinical data for analysis.

Results: Between 10/6/20-10/31/21, 59 of 412 patients (14.3%) were PFF positive. Average age was 42 years; 61% were male (n = 36). Heroin was the most common self-reported exposure (n = 29, 49.2%), but only 13 had heroin on confirmatory testing. Fentanyl exposure was reported by nine (15.3%), but 97% had fentanyl present. Forty-seven (80%) received at least one naloxone dose. The most common indications were depressed level of consciousness (n = 34, 72.3%) and respiratory depression (n = 30, 63.8%). After initial naloxone, 10 (21.3%) had no response, necessitating additional doses. Cardiac arrest prior to naloxone occurred in one that ultimately succumbed to brain death. Quantification ratios of fentanyl to PFF by comparison of peak area showed six had more PFF than fentanyl. In one case, the PFF amount was 38 times greater than fentanyl.

Conclusion: PFF was present in 14.3% of our presumed opioid overdose cohort, with fentanyl also in 97%. Decreased consciousness and respiratory depression were most common, and nearly 1/5 had no initial naloxone response. Though low potency has been described, these findings suggest it may have more serious clinical consequences than previously thought.