

Presented at the ACMT Annual Scientific Meeting 2022 – Virtual

Published in J Med Tox 2022; 18:87

038. Co-presence of Mitragynine and Fentanyl in Emergency Department Patients with Suspected Opioid Overdose

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Background: Kratom (*Mitragyna speciosa*) is an herbal drug that produces stimulant effects at low doses and opioid-receptor mediated effects at higher doses. Mitragynine is used as a marker for kratom exposure and is responsible for its clinical and psychoactive effects. Fentanyl plus kratom use is poorly described despite independently escalating prevalence of use recently.

Research Question: To describe the clinical course of patients with coexposure to mitragynine and fentanyl in the ongoing ToxIC Fentalog Cohort Study.

Methods: This case series includes adult ED patients with co-exposure to mitragynine and fentanyl in the ongoing ToxIC Fentalog Cohort Study. Comprehensive toxicological testing was performed on residual blood samples via liquid chromatography quadrupole time-of flight mass spectrometry for the presence of over 900 psychoactive substances. Cases with mitragynine identified in biologic samples were reviewed.

Results: Between 10/20-10/21, > 400 biological samples of patients with suspected opioid overdose were analyzed from nine sites over eight states. Mitragynine was detected in seven samples from two states (Pennsylvania, Michigan). Ages ranged from 23-44 and 71% were male. One patient developed hypotension (SBP < 80), rhabdomyolysis (peak creatinine kinase > 275 K), and acute kidney injury (peak Cr 5.58) requiring seven hemodialysis sessions. No patients required ventilatory support and there were no deaths. Five patients received prehospital naloxone. Response to naloxone for the first dose in three cases was improved respiratory rate and level of consciousness. Two cases had no initial response, but both received an additional dose of naloxone with improved respiratory rate and level of consciousness. Fentanyl was co-identified with mitragynine in all seven cases.

Conclusion: In our cohort, mitragynine was identified along with fentanyl in all cases, suggesting either addition to the illicit opioid supply or concomitant use. Combined illicit fentanyl and kratom use resulted in multisystem organ failure in one patient, but all survived the overdose.