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Kratom-Associated Fatalities in Northern Nevada- What Mitragynine Level Is Fatal?

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Abstract

Mitragyna speciosa, commonly known as the kratom tree, has been utilized in Southeast Asia for centuries for its opioid-like effects. Kratom has been available in the United States for the past decade and has grown increasingly popular despite a lack of clinical research to determine its safety. With its widespread use, there have been an increasing number of fatalities. This study aims to establish a potential lethal range for mitragynine, the active compound in kratom, by investigating the toxicology reports of 35 deaths in Northern Nevada between 2015 and 2020. Mitragynine concentrations ranged from 8.7 to 1800 ng/mL (n = 27) in cases with drug toxicity as the cause of death; in 1 case, the sole intoxicant was mitragynine with a blood concentration of 950 ng/mL. In cases with nonmitragynine causes of death, the concentration was 110 to 980 ng/mL (n = 8). There was no statistically significant difference in blood concentrations between cases where mitragynine was not listed as a cause of death (mean, 315 ± 297.2 ng/mL) and cases in which mitragynine contributed to death (mean, 269.4 ± 382.5 ng/mL; P < 0.201). A literature review is also presented.

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