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A comparative analysis of Kratom abuse in Thailand and the United States from 2010-2017

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Objective: This study describes patient characteristics, common co-abuse substances, clinical effects, treatments, and outcomes of kratom abuse exposures reported to the Ramathibodi Poison Center (RPC) in Thailand and the National Poison Data System (NPDS) in the United States (U.S.).

Methods: This is a retrospective analysis of kratom abuse exposures reported to the Ramathibodi Poison Center (RPC) in Thailand and the National Poison Data System (NPDS) in the U.S. from 2010 to 2017. Patient characteristics, clinical effects, treatments, and medical outcomes were described and compared between two databases. Subgroup analysis of both single-substance and multiple-substance exposures were performed. NPDS was used as the reference for comparative analysis. A severe outcome was defined as a major clinical effect or fatal outcome.

Results: Nine hundred and twenty-eight cases from NPDS and RPC were included (760 from NPDS and 168 from RPC). The most common age group was 20-30 years in both countries (44.08% in U.S. and 38.10% in Thailand). There was a higher proportion of kratom co-abuse in Thailand (65.0% and 35.0% in Thailand and U.S. respectively; odd ratio [OR] 3.10, 95% confidence interval [95%CI] 2.15-4.47). Ethanol, opioids, and stimulants were the most commonly co-abused substances in both countries. There were more reports of stimulant co-abuse in Thailand (21.43% versus 2.89% in Thailand and U.S. respectively; OR 9.15, [95%CI] 5.04-16.82) but no difference in ethanol or opioid co-abuse rates between the two countries.
Common clinical effects were tachycardia (30.39%), agitation/irritability (26.19%), and drowsiness/lethargy (21.12%). There were more reports of dystonia in Thailand (9.52% in Thailand versus 0.66% in U.S., OR 15.89, [95%CI] 5.43-56.07) and more coma in U.S (1.79% in Thailand versus 7.37% in U.S., OR 0.23, [95%CI] 0.05-0.72). Common treatments provided in both countries were IV fluids (40.09%), benzodiazepines (27.26%), and supplemental oxygen (10.88%).
There were 6 deaths, including 1 single-substance exposure in U.S., 3 multiple-substance exposures in U.S., and 2 multiple-substance exposures in Thailand. There were no deaths reported from kratom abuse alone in Thailand. Single-substance kratom abuse resulted in 48 cases (10.08%) with severe outcomes in U.S., whereas none in Thailand (0) (OR 0, [95%CI] 0-0.58). In multiple-substance abusers, 58 cases (20.42%) in U.S. and 3 cases (2.75%) in Thailand reported severe outcomes (OR 0.11, [95% CI] 0.02-0.35).

Conclusions: Kratom abuse in Thailand is more likely to involve multiple-substance exposure than in U.S.; however, severe medical outcomes were reported more frequently in U.S. in both single-substance and multiple-substance kratom abuse.