KRATOM

Kratom continues to make the news in the United States and sales are reported to be increasing. Kratom is the common name for *Mitragyna speciosa*, a tree native to Southeast Asia. When used traditionally, leaves were chewed or made into tea to treat a variety of different conditions including cough, diarrhea, pain, and opioid withdrawal. It is also used to increase energy and appetite. Mitragynine is the most prevalent alkaloid in kratom preparations. Mitragynine’s reported antinociceptive activity is mostly mediated by agonist activity at the supraspinal mu- and delta-opioid receptor subtypes. Its affinity for kappa-receptors is considerably lower than opioid receptors, but it also appears to exhibit analgesic effects via kappa-receptors. Mitragynine has depressant effects on locomotor activity via presynaptic dopamine effects. Mitragynine can inhibit neurotransmitter release by reversibly blocking neuronal Ca2+ channels. Stimulation of postsynaptic alpha-2 adrenergic receptors and blockage stimulation of 5-HT2 receptors by *Mitragyna speciosa* has also been suggested.

The pharmacologic effects of kratom leaves and their constituents are dosedependent. Low to moderate dosages (1 to 5 g) reportedly can offer light stimulant effects to help against fatigue, while moderate to high dosages (5 to 15 g) have reported opioid-like effects. Kratom also presents with stimulant effects at high dosages (>15 g). Anxiety, irritability, and enhanced aggression are described. Hyperpigmentation of the cheeks, tremor, anorexia, weight loss, and psychosis have been noted in individuals with long-term addiction.

Cardiotoxicity was observed as Torsade de Pointes. Blockage of the human Ether-a-go-go-Related Gene (hERG) channel in the heart constitutes a major risk of cardiotoxicity, and it is believed that *Mitragyna speciosa* suppresses hERG-mediated K+ currents and prolongs action duration. Kratom has been linked to rare instances of acute liver injury. There have been multiple reports of deaths in people who had ingested kratom, but most have involved other substances.

 Continued other side

**News and Notes:**

**Lung Injuries Associated with Vaping: AN UPDATE**

As of November 5th, 2019, there have been 72 reported cases, including one reported death, associated with this outbreak in Virginia. National numbers are higher. Health officials are reporting they have found a link to vitamin E acetate.

Recent CDC laboratory testing of bronchoalveolar lavage (BAL) fluid samples (or samples of fluid collected from the lungs) from 29 patients with EVALI submitted to CDC from 10 states found vitamin E acetate in all of the BAL fluid samples. Vitamin E acetate is used as an additive in the production of e-cigarette, or vaping, products. This is the first time that a potential chemical of concern has been detected in biologic samples from patients with these lung injuries.

More information:

https://www.cdc.gov/tobacco/basic_information/e-cigarettes/severe-lung-disease.html
Kratom’s pharmacokinetics in humans has not been well studied so far, and several factors such as metabolic half-life, protein binding properties, elimination rates, and metabolism are not yet known. Kratom is responsible for CYP3A4, CYP2D6, and CYP2C9 inhibition.

Like many other agents, the internet has made knowledge and access to kratom more obtainable. It is currently used for both recreation and medicinal purposes and is typically available as a powder, extract, or e-liquid for vaporizers.

It is banned in some countries, such as Australian and Thailand. Its reported medicinal features for the treatment for chronic pain and opioid addiction have generated substantial controversy. Due to increasing public health concerns, the FDA issued a warning in November of 2017 regarding the risks associated with kratom. In current form, kratom products are unregulated and come in variable formulations, strengths and may have a variety or intentional or unintentional contaminants, resulting in varied and unpredictable experiences in the user.

Kratom intoxication is typically managed similar to that of opioid overdoses. Monitor for central nervous system and respiratory depression. Other effects include nausea and vomiting, miosis and confusion. Hallucinations and psychosis have been reported. As these products may contain unknown contaminants practitioners should be mindful that patients may present with atypical symptoms. Supportive care will be the mainstay of therapy. Benzodiazepines can be used for symptoms of agitation or psychosis. Naloxone can be used to help reverse central nervous system depression. Neither kratom or its chemical constituents are not readily detectable on standard urine drug screens, however, testing for mitragynine is available from some reference labs.

If questions arise on this or any other poisoning, the medical staff at the Blue Ridge Poison Center would happy to assist. Free medical consult is available 24 hours a day, every day: 1-800-222-1222. (Healthcare providers may also call 1-800-451-1428.)

For further information, see the following:

https://www.drugabuse.gov/publications/drugfacts/kratom