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Opinion Article

Pediatricians Should Know About Kratom: A Pediatrician's Perspective

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Abstract

Kratom is an herbal alkaloid dietary supplement that acts agonistically at opioid receptors. It is increasingly used by those with opioid dependency to treat symptoms of opioid withdrawal. Classification and regulation of kratom is controversial. Currently it is unregulated, widely available and heavily advertised. Advocates tout its potential to help those with opioid dependency however risks to kratom use are well documented. It has been associated with dependency, withdrawal, toxicity and more recently neonatal abstinence syndrome (NAS) or withdrawal in newborns. For these reasons, pediatricians need to be aware of its existence and potential to impact their patients.

Keywords: neonatal abstinence syndrome; pediatrician; kratom

Introduction

In the current opioid epidemic, opioid use among pregnant women and the incidence of neonatal abstinence syndrome (NAS) is on the rise [1, 2]. NAS is a constellation of withdrawal symptoms in newborns secondary to chronic in utero exposure. It is most frequently attributed to maternal prescription and illicit opioid use [3]. Compounding the stress that can come with pregnancy, mothers with opioid addiction also face guilt over opioid's effects on their unborn babies, obstacles to finding obstetrical providers comfortable with caring for opioid-dependent mothers, and fear over social services involvement [4]. It is understandable that pregnant women with opioid addiction would look to over-the-counter non-opioid alternatives advertised as safe and effective for treatment of opioid withdrawal. Indeed, non-opioid treatments of opioid addiction would seem to offer benefits for both mother and baby. In the current opioid crisis, search for such alternatives has intensified. Kratom, an herbal supplement, is heavily advertised as a natural, non-opioid aid for opioid withdrawal and is increasingly used by those with histories of opioid dependency [5,6,7]. It is likely that pediatricians will increasingly encounter kratom exposure in newborns and pediatric patients.

Kratom is indigenous to Southeast Asia and has long been used there recreationally and medicinally to treat opium addiction [8, 9]. It is an indole alkaloid and its main components, mitragynine and 7-hydroxymitragynine, act as agonists at opioid receptors. Mitragynine is less potent than morphine, while 7-hydroxymitragynine is more potent. Their binding to opioid receptors induces an opioid-like analgesia and euphoria but seemingly without respiratory depression and other noxious symptoms attributed to morphine. Kratom also interacts with non-opioid receptors (α-2 adrenergic, serotonin and dopamine receptors) which may be associated with its perceived lack of respiratory depression [9, 20].

Chronic users of kratom can develop dependency. Abstinence results in withdrawal symptoms similar to that of opioid withdrawal: rhinorrhea, insomnia, lacrimation, myalgias, arthralgias, myoclonus, depression, anxiety, and increased pain severity [8, 13, 21-23]. Symptoms of kratom toxicity seen in adults include: palpitations, chest pain, tachycardia, hypertension, diaphoresis, altered mental status, agitation, central nervous system depression, seizures, diarrhea, abdominal pain and hepatotoxicity [22, 23]. Withdrawal has been managed with clonidine and opioids and toxicity with benzodiazepines [22, 23].

Kratom use in the United States is on the rise and is increasingly used by those with opioid dependency to treat opioid withdrawal. It is available for purchase online and in stores as a tea, powder or capsules. Online users testify to its alleviation of opioid withdrawal and its addictive potential [5-7, 24]. Its classification as an opioid is debated. Advocates argue its alleviation of opioid withdrawal without respiratory depression make it a potential therapeutic for opioid dependency and regulating it would potentially harm those who use kratom to successfully overcome opioid addiction [25-27]. Without regulation products marketed as kratom have the potential to be adulterated to achieve a higher potency and mixed with dangerous contaminants such as a recently linked Salmonella outbreak [28-30]. Kratom is illegal in several states and the US Drug Enforcement Administration has considered scheduling kratom. In February 2018 the US Food and Drug Administration released a statement classifying kratom as an opioid based on review of the scientific literature and computational modeling of its receptor binding [31]. Policing kratom may stifle efforts to research its potential therapeutic benefits and adverse effects. [32] Currently, kratom is unregulated and widely available for purchase.

Kratom's effects on pregnant women and the fetus and newborn are largely unknown. Few cases are reported in the literature but seem to be increasing among pregnant women with a history of chronic opioid use. Women experience withdrawal when discontinuing kratom and their newborns can develop NAS requiring pharmacologic treatment, prolonging hospital stay and potentially resulting in separation of mom and baby. Symptoms seen in newborns are typical of NAS due to opioids (diarrhea, tachypnea, excessive cry, excoriations, poor feeding) and seem to present 1—2 days after birth [22, 23, 33-37]. The American Kratom Society (https://www.americankatom.org/science) does not recommend use of kratom by pregnant or breastfeeding women. Transmission through breastmilk is unstudied, but one case reports improvement in withdrawal symptoms with breastfeeding [35]. Most of the published cases of kratom use by pregnant women do not report amounts consumed, however duration and frequency are cited as chronic and daily [22,23,33-37].

Kratom cannot be detected on standard urine drug screens but qualitative immunologic assays are in development [38, 39]. Detection in urine is by liquid chromatography or mass spectrometry. Time to results is highly variable but can take 1-2 weeks, well after signs of withdrawal present [33].

Pediatricians and obstetricians must rely on history-taking to suspect kratom exposure and should enquire about kratom use from all women with a history of opioid dependency. Some recommend screening for kratom in all pregnant women with a history of opioid use by sending urine for specialized testing [33].

Pediatricians, obstetricians and those caring for pregnant women and newborns with potential substance exposure need to be aware of kratom and its potential for dependency and withdrawal. Further research is needed to guide management of kratom-exposed newborns and pregnant women. Providers caring for pregnant women should counsel mothers on the risk of using kratom for their health and their babies' just as they would any other legal substance with the potential to negatively impact pregnancy.

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