Let's Talk Tox

A resource for drug court professionals

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Neonatal Abstinence Syndrome Linked with Maternal Kratom Use

Kratom is heavily advertised as a safe, non-opioid alternative and is being used by pregnant women with chronic opioid use resulting in babies born with neonatal abstinence syndrome (NAS). As Kratom use becomes more widespread, pediatricians will encounter neonates exhibiting NAS and need to familiarize themselves with potential adverse effects to help guide their management of Kratom-exposed patients.

NAS is the condition of withdrawal secondary to chronic in-utero substance exposure. Withdrawal symptoms, similar to opioid withdrawal, are: anxiety, depression, insomnia, abdominal pain, decreased appetite, weight loss, nausea, vomiting, sweating, fever, diarrhea and headache. Infants exhibit withdrawal symptoms 1 – 2 days after birth. NAS is managed with the use of morphine, clonidine and benzodiazepines and treatment time has been reported from 5 days to 2 months.[1]

There are two case studies recently published that illustrate NAS following maternal use of kratom:

1. Case Study

An infant was born to a mother suffering from chronic low back pain, fibromyalgia and anxiety. In addition to prescribed medications (gabapentin and clonazepam), the mother admitted to taking 1 – 3 kratom tablets anywhere from one to three times each day.

Twenty-four hours after birth, the infant started exhibiting clinical signs of NAS: reduced oral intake, jitteriness, hypertonia, sneezing and excessive crying. The infant was transferred to the neonatal intensive care unit and responded favorably to morphine therapy. After 14 days in the NICU, the infant was discharged.[2]

2. Case Study

A 29-year old woman was transferred to BC Women's Hospital and Health Centre in Vancouver on postpartum day 2 for treatment from her daily kratom use. The woman's past medical history revealed opioid abuse, chronic back pain and anxiety. Six years previous, she was prescribed oxycodone for low back pain and her use escalated over time. She attended an opioid detoxification program on two occasions, but her back pain recurred. A friend recommended she try a safe alternative to opioids – kratom. The woman found that taking kratom relieved her back pain and improved her mood and level of anxiety. Throughout her pregnancy, she ingested 18 – 20 g of kratom powder three times per day. The woman was treated with morphine and was weaned off of the kratom dosage; but, still exhibited withdrawal symptoms. Continued therapy with morphine in decreasing dosages resulted in the woman being drug-free in 4 weeks.

The infant was admitted into the NICU and was treated for NAS due to the following symptoms: feeding intolerance, jitteriness, irritability and emesis. Physicians started intravenous morphine due to the severity of the symptoms and over the next few days, was titrated down on the morphine dosage. Prior to discharge, oral morphine replaced the IV and the baby was released from the hospital as the symptoms disappeared.[3]

With the growing popularity of kratom and it being readily available for purchase, it is vital that primary care physicians be aware of the dangers and the effects of kratom on maternal and infant outcomes.

A Physician's Perspective:

The Use of Medication-Assisted Treatment in the Justice System

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Medication-Assisted Treatment (MAT) is the standard-of-care treatment for opioid-use disorder (OUD). The three FDA approved medications for the treatment of OUD are methadone, buprenorphine and naltrexone. When prescribed appropriately on a maintenance schedule, the patient becomes physiologically tolerant and experiences neither intoxication nor sedation, nor does he or she have any withdrawal symptoms. The patient feels "normal" if the medication is taken as prescribed.

Studies show consistent and positive results within the justice system for inclusion of MAT: fewer post-incarceration overdose deaths; improved return-to-court numbers; less criminal activity; fewer arrests, probation revocations and incarcerations; as well as improved retention in treatment.

Barriers to using MAT in a drug court are misunderstandings of the medications themselves, concerns about diversion and administrative/financial barriers. Despite the challenges of introducing MAT more fully into the justice system, there has been increasing support for doing exactly that. For example, drug court leaders promote that MAT should be one of the modalities available to drug court participants, and that not having MAT available is a breach of best practices for drug courts.

The author concludes that the use of MAT for justice-involved OUD patients is a viable, potentially lifesaving strategy that should be available to all who need it. As with all medications, the benefits for a patient should be weighed against the potential risks. Similarly, for the justice system itself, the pros and cons of using MAT must be evaluated separately by each drug court, jurisdiction, jail and prison.[4]

In the News

Grey Death...Another Street Drug to Watch

Recent reports in the news talk about Grey Death, a drug that is more potent than other street drugs. It began showing up in certain regions at the end of 2016 and early 2017 and recently appeared in Louisiana. Grey Death contains a blend of opioid substances (such as heroin, fentanyl, and U-47700, or "Pink"). The scary thing is that some samples can cause immediate death to drug users and to anyone who touches it which puts first responders at risk.

The name of the drug comes from its color and its power. Gray death is the color of cement or concrete and can be found in a variety of textures and sizes such as rock-like chunks or a gray powder substance. One of the most frightening things about gray death is that the formulation can differ from one batch to the next.[5,6]

Grey Death: A new killer on the street

Did You Know?

Thermo Fisher Scientific offers a range of Specimen Validity Tests (SVT) designed to assist Criminal Justice laboratories for the screening of urine samples that may have been subjected to tampering. The SVT DRI tests detect the following:

pH-Detect: This test is based on colorimetric changes that are detected by an analyzer depending on the pH of the urine. This test detects urine that was tampered with acid or basic products. Normal urine should have a pH between 4.7–7.8.

Creatinine-Detect: This test is based on the Jaffe reaction, whereby creatinine concentration is associated to colorimetric changes of substrate. The normal range of creatine in urine is between 80 and 200 mg/dL. Samples with a creatinine concentration below 20 mg/dL indicate possible adulteration. Substituted samples may have concentrations below 5 mg/dL. Creatinine test helps to detect "in-vitro" dilution, meaning the use of diuretics and/or heavy drinking and post-dilution of the sample with water or other liquids.

Oxidant-Detect: This test is based on the reaction between the substrate and the oxidant in the sample producing a color change that can be measured by an analyzer. Most common oxidizing adulterants are nitrite, chromate, iodine, bleach and horseradish peroxidase. This test detects a wide range of oxidizing agents.

Gravity Detect: This test is designed to detect solid particles that are dissolved in urine. Normal urine range for specific gravity is 1.003 to 1.035 g/mL. Samples with low specific gravity may indicate dilution whereas high specific gravity may indicate addition of salts or other adulterants.

NADCP RISE20 is going Virtual!

May 26-29, 2020

Visit our booth at RISE20 VIRTUAL - the world's largest conference on addiction, mental health and justice system reform.

RISE20 Workshops:

- **This is How We Do It: Automated Drug Screening Strategies**
  Wednesday, May 27, 1:15 – 2:30 PM
  Speakers:
  Jon Ridge
  Chief Probation/Parole Officer, Washington County, PA
  Joel Carter
  Program Coordinator/Probation Officer, Mount Vernon, OH
  Andrew Cummings
  Executive Director, Advanced Outcomes Consulting Group

  Drug Courts differ in participant size and length of programs. Automated urine drug screening provides rapid and accurate results enabling the court, regardless of size, to improve their overall workflow and efficiency. Two drug courts, that have implemented automated urine drug screening, will discuss how they manage their participant's through the program and what they have learned about drug use in their community. Finally, a consultant will provide guidance on how to establish service guidelines promoting the best evidence-based practices for sustaining a drug court program.

- **CBD: Is It The New, Natural Miracle Drug?**
  Thursday, May 28, 1:15 – 2:30 PM
  Speaker: Ms. Patricia Pizzo, Toxicologist

  CBD products are currently advertised as the "natural miracle" drug that will cure many illnesses and ailments; everything from pain relief to anxiety and depression to cancer. However, there are many unknowns about the science, safety and quality of CBD products. These products are not regulated by the FDA and may cause serious side effects, especially when interacting with other prescription and/or illicit drugs. How do products containing CBD affect urine drug screen tests?

Q&A

My quality control (QC) is not passing?

This question is quite common and there could be multiple reasons for QC failures but there is a common troubleshooting path.

1. If it is happening with one assay only: Review the calibration date, the reagent amount and the date when the fresh reagent was filled into the wedges. If reagent lot is being used for the first time, review the control ranges.
2. If it is happening with multiple assays: Review the amount of the control material placed in the cup, proper placement of the cups into the designated tray, review the positions. Review the dates of the latest calibration performed for the affected assays.
3. Rerun the QC using the same controls, it could have been a bubble or an artifact that may have interfered with the reaction and produced an unacceptable result
4. If QC fails a second time, check the date when the control vial was open. If approaching the expiration time or has signs of contamination open a new vial. If all the QC reruns fail re-run the calibration.
5. Check parameters to make sure parameters were entered according to manufacturing specifications.

Thermo Fisher Scientific™ CEDIA™, DRI™, QMS™ and Instrumentation Technical Support contacts:
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Phone:+1 800-232-3342, option 2, option 3.

Find out more at thermofisher.com/doascreen

1. https://www.pediatricresearchjournal.com/articles/kratom-an-opioidlike-herbal-supplement-pediatricians-should-know-about.html
2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6484255/
3. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5964386/
4. https://www.nadcp.org/wp-content/uploads/2019/07/Journal-for-Advancing-Justice-Volume-II_Final.pdf
5. https://drugabuse.com/heroin/gray-death-crisis/
6. https://www.wfla.com/news/new-deadly-drug-called-gray-death-found-in-louisiana-officials-say-just-touching-it-could-kill-you/

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