Detection of Eutylone in Chronic Pain and Behavioral Health Populations

Overview

**Purpose:**
- Evaluate the prevalence of eutylone in a chronic pain and/or behavioral health clinical setting and better characterize its potential impact on patient care

**Methods:**
- Liquid-liquid extraction followed by LC-MS/MS
- Seventy-two (72) positive eutylone results were reported from samples that were evaluated from July 2020 through early April 2021 received across 43 states

Introduction

- Eutylone was first identified on the DEA Emerging Threat Report in 2019
- Classified as a synthetic cathinone, a group of Novel Psychoactive Substances (NPS) that act as central nervous system (CNS) stimulants
- Quickly has become the most detected cathinone derivative
- Structural analog of N-ethyl pentylone and butylone, containing ethyl groups at the α-carbon and amine positions
- Also known as bk-EBDOB or N-ethylbutylone
- May be present in cases that are suspected of being Ecstasy, "Molly" and/or Methyleneedioxyxymethamphetamine
- Synthetic stimulants, such as eutylone have stimulant and entactogenic properties – euphoria, mental stimulation, intensification of sensory senses, empathy connection

Sample preparation
- Hydrolysis with liquid-liquid extraction followed by evaporation and reconstitution
- Chromatographic separation
- LC-MS/MS: reverse phase, Restek Raptor Biphenyl (100x3mm, 2.7µm) column

Instruments
- MS/MS: SCIEX API 4000™
- Data Interpretation Software: SCIEX MultiQuant™ 2.1.2

Figure 1. Co-Positive Analytes (% Positive)

- Cytidine
- Methamphetamine/Amphetamine
- Buprenorphine
- Carfentanil-THC
- Codeine
- Ethyl Glucuronide/Ethyl Sulfate
- Opiates
- Naloxone
- Fenfluramine
- Gabapentin/Proglinbin
- Antipsychotics
- Benzodiazepines
- Heroin
- MDMA
- Synthetic Cannabinoids
- Designer Benzosidinepees
- Designer Opioids
- Other Synthetic Stimulants

Results

- Sample positivity based on what was ordered and tested; Not all samples may have been tested for all classes. Percent positivity based on number of samples tested.

Data Analysis

- Eutylone was present in 72 samples out of 123,304 requested synthetic stimulant tests, which is a 0.06% positivity rate
- Although this positivity rate does not seem high, eutylone is one of the most prevalent synthetic stimulants that appear in forensic toxicology and seized drug casework
- Detected in patients from a variety of age groups with no gender bias
- Detection is not limited to a specific geographical area, which shows eutylone use is widespread

Conclusions

- Eutylone is an analyte of concern for clinicians in chronic pain and behavioral health settings
- Eutylone can be present with other prescription drugs, illicit drugs, or alcohol
- Testing of NPS compounds helps provide a valuable tool for clinicians to support effective patient treatment plans
- Overdose deaths from synthetic opioids, psychostimulants and cocaine have been on the rise and co-ingestion with NPS drugs can increase this risk factor

References