H170 The Frequency of Cannabinoids in a Medical Examiner Population

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Learning Overview: After attending the presentation, attendees will: (1) have a better understanding of how often cannabinoids are detected in various types of death that fall within the jurisdiction of the medical examiner's office, (2) be able to compare this frequency with the reported frequency of cannabis (marijuana) use, and (3) be able to compare the frequency in which cannabinoids are detected with the frequency in which ethanol is detected in these cases.

Impact on the Forensic Science Community: This presentation will impact the forensic community by documenting the current use of cannabis in the medical examiner population and suggesting trends that the forensic community may expect to see with increasing legalization of cannabis use in the United States.

Within the past several years, many states have legalized the use of cannabis for medicinal use. There has been an ever-increasing push to expand the legalization of cannabis for recreational use. Eight states and the District of Columbia have current laws legalizing cannabis for recreational use. Proponents of marijuana legalization profess its safety, but with the expected trend of legalizing marijuana use, the question of its potential impact on mortality must be considered.

Recently published data from The Substance Abuse and Mental Health Services Administration indicates that self-reported current use of marijuana (cannabis), defined as use within the past month, in the United States for the year 2016 was 8.9% of the population (those 12 years of age or older). The same agency reported that for the state of Michigan, the estimated current use of marijuana by the same population was 10.45% (averaged for the years 2014 to 2016). For comparison, the self-reported current use of ethanol in the United States for the year 2016 was 50.7%.

The electronic database of a forensic pathology practice that provides medical examiner services to several counties in mid-Michigan was queried for death investigations that included a postmortem examination and toxicology testing for the period of January 1, 2017, to May 31, 2018. During this time, 929 death investigations included a postmortem examination, and, of these, 884 had toxicology testing also performed. The cases evaluated included 193 natural deaths, 424 accidental deaths, 168 suicides, and 40 homicides.

In all cases reviewed, 21.7% had a postmortem toxicology screen (blood, urine, or other) that was positive for cannabinoids (THC and/or THC-COOH), significantly higher than the reported frequency of "current use" in the United States and Michigan. By type of case, the breakdown of a positive toxicology screen for cannabinoids was as follows: 45% of homicides, 25.7% of accident drug intoxications, 25% of suicides, 21.9% of drivers in motor vehicle accidents, 21.5% of drownings, 16.6% of natural deaths, and 15.4% of passengers in motor vehicle fatalities.

By comparison, in all cases reviewed, 23.5% had a postmortem toxicology screen positive for ethanol, significantly lower that the reported "current use" in the United States.

The results of this study indicate that cannabinoids are present at a higher-than-expected frequencies in the studied medical examiner population when compared to baseline reported marijuana use (using current data based on self-reported).

Cannabinoids, Marijuana, Medical Examiner

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