ToxTalks

A Bulletin for Healthcare Professionals Who Manage Poisoned Patients

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An Update on Cannabinoids

Cannabis plants, commonly known for their ability to produce smokeable flowers, contain numerous chemical compounds including a broad group called cannabinoids. The most well-known cannabinoid, delta-9-tetrahydrocannabinol (delta-9-THC), is psychoactive and often referred to simply as THC. Also present is the non-psychoactive cannabidiol (CBD). However, U.S. poison centers are receiving calls about exposures to other cannabinoids, such as delta-8-THC, delta-10-THC, THC-V, THC-P, and other THC acetates.

What are these other cannabinoids?

Delta-8-THC is a psychoactive chemical component of the cannabis plant Cannabis sativa. Delta-8-THC and these other cannabinoids occur in this plant naturally in very small concentrations. Delta-8-THC is extracted and concentrated from both hemp and psychoactive cannabis plants and sold to consumers. Delta-8-THC and other cannabinoids are also synthesized. These other delta-derivatives are structurally similar to delta-9-THC, but some, such as delta-8 THC, are reportedly less potent and less psychotropic. Virginia sales of edible cannabinoid products have significantly increased over the past 2 years.

The 2018 Farm Bill is a federal law that removed hemp with delta-9-THC concentrations less than 0.3% from schedule I of the Controlled Substances Act. Because some of these other THC derivatives are found in hemp, they remain potentially legal in low concentrations, due to the passage of the 2018 Farm Bill. However, that bill was never intended to allow for the sale of high concentrations of these chemicals in or on various products.

Clinical studies regarding any health benefits are lacking and reports are purely anecdotal. Consumers endorse numerous benefits, including better pain relief with delta-8-THC with less of a “high” than that of delta-9-THC. Anecdotal reports of delta-8-THC and other synthesized cannabinoid benefits are soaring on social media websites, with users promoting them for aiding mental health with less associated paranoia, anxiety, and sedation. Consumers also report using delta-8-THC in addition to their prescription medications, including medicines for treatment of major depressive disorder or substance use disorder. None of these purported

Images of Delta-8 products purchased in Virginia stores. Both the products and the packaging often resemble familiar candies, cereals, and snacks. Images courtesy of the Blue Ridge Poison Center. Do not reprint without permission.

beneficial claims have valid, supportive evidence.

What clinical effects can occur after using these concentrated and synthesized cannabinoids?

Cases of delta-8-THC and other synthesized cannabinoid ingestions reported to poison centers have been associated with a variety of clinical symptoms, including drowsiness, confusion, anxiety, palpitations, chest pressure, and a sense of generalized numbness. Vital sign abnormalities have included tachycardia, tachypnea, and hypotension requiring vasopressors. Mental status changes have included marked CNS depression, especially in toddlers, and agitation. The variation in clinical effects from synthesized cannabinoid use is not unexpected, as previous reports have described varied human responses to delta-9-THC, in part based on exposure dose. With an unpredictable clinical picture, healthcare practitioners must often rely on patients to be forthcoming about their use of these new synthesized products.

How are these agents identified?

Urine "drug screens" may be helpful as many of these other cannabinoids cross-react to common screening tests for delta-9-THC metabolites. However, these commercial urine drug screens do not differentiate among the various cannabinoids, and more study is needed to determine if all such THC compounds cross react with various screening tests. After a positive urine drug screen, these agents may be further identified through confirmatory mass spectrometry. However, most healthcare facilities do not have such confirmatory testing.

What products contain these concentrated and synthesized cannabinoids?

Numerous products continue to appear on the market, including vape cartridges, tinctures, joints, blunts, gummies, syrups, and other edibles and beverages. These products can now be purchased over-the-counter at gas stations, local convenience stores, CBD and vape shops, as well as online. Currently, there is no required quality control for these products, and consumers must blindly trust that these products match the labels (if there is a label with an ingredient list present). Studies demonstrate that the content and quantity of the chemicals present in the product may vary widely from what it stated on the label, risking inadvertent overdose.

These products have also been purchased by both users confusing them for CBD, as well as users looking for a "legal" version of delta-9-THC. Unfortunately, gummies and other edibles frequently resemble candy, and thus are enticing to young children. There have been tragic reports of toddlers ingesting gummies containing delta-8-THC and developing symptoms including sedation, agitation, tachycardia that progresses to bradycardia, hypotension, and bradypnea.

For healthcare providers:

Providers should be aware of the emergence of delta-8-THC and other concentrated and synthesized cannabinoid products, be able to properly screen patients for their use, and provide appropriate education to patients about their potential for harm. There is no antidote and supportive care should be provided to symptomatic patients post-exposure. Please contact the Blue Ridge Poison Center at 1-800-222-1222 (or directly for healthcare professionals via 1-800-451-1428). Our center has professionals who can help in management of these exposures, and your calls aid us to determine the epidemiological occurrence of such exposures and the associated clinical impact to patients.

The Blue Ridge Poison Center receives funding from University of Virginia Health, the Virginia Department of Health, and the U.S. Health Resources Services Administration (HRSA). We are accredited by the American Association of Poison Control Centers. We've been proudly serving the Commonwealth since 1978.

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