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A Case of Psychosis in an Adolescent Male Using CBD Keif Nugs

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The use of recreational cannabis in children and adolescents is not supported by the medical community. Evidence has shown increased risk of early-onset psychotic disorder for those who have used cannabis during adolescence, especially those who have preexisting risk factors and are frequent users.¹ The 2 most represented phytocannabinoids in *Cannabis sativa* plants are cannabidiol (CBD) and tetrahydrocannabinol (THC).² The latter is considered the main psychoactive ingredient of cannabis, while the former is supposed to be nonintoxicating and nonpsychoactive.^{3–5} Hemp, a cannabis plant, was legalized under the 2018 Farm Bill, requiring that the THC threshold be less than 0.3% of dry weight.⁶ Hemp is not used for psychoactive purposes due to its low levels of THC.⁷ With its various unspecified health advantages, CBD is the compound of highest interest from all hemp constituents.⁸ Since CBD and THC have contrasting effects, it is important to ensure the purity of CBD. We present the case of a 17-year-old male teenager who developed psychosis after smoking an advertised CBD product.

Case Report

The 17-year-old male patient presented to the inpatient psychiatry unit for increased mood lability and perceptual disturbance described as distortions in lights and objects. Recently, he was vaping “CBD keif nugs” purchased online, consuming 6 grams of this product at least 2 weeks prior to this admission. He reported avoiding any psychoactive (THC) cannabis use, as it had caused some paranoia symptoms in the past. The urine drug screen was positive for metabolites of THC. His past psychiatric history was significant for hallucinogen-induced psychosis requiring inpatient treatment a year ago, associated with aggression, paranoia, and hallucinations. There had been no hallucinations for more than 8 months, and the patient was maintained only on a selective serotonin reuptake inhibitor for anxiety in the

past 5 months. A month prior to this admission, he started to exhibit increased anxiety, aggression, and paranoia after an untreated dental problem. He was started on a low dose of clonazepam to address his behavioral symptoms, but it was not helpful. Three weeks prior to admission, he was started on chlorpromazine with no improvement in symptoms, and, eventually, the patient was hospitalized. At the time of hospitalization, he endorsed hearing voices, seeing lights and visual movements, and paranoia. He was started on olanzapine with reduction in hallucinations within days after admission. He was discharged to follow-up at an outpatient drug and alcohol treatment facility.

Discussion

Keif nugs or keifs are resin glands containing terpenes and cannabinoids that make cannabis.⁹ While CBD has not clearly been linked to psychosis, in cases when it is made from the hemp flower such as that found in keif nugs, it can contain 47.8% of CBD and less than 0.3% of THC. However, when large quantities of CBD in this form are used consistently, patients can unknowingly consume high doses of THC concurrently. An amount of 10–20 mg is considered high and can lead to intoxication.⁸ Our patient was using 6 mg of hemp flower, which could mean that he was consuming up to 18 mg of THC a day, explaining the positive urine drug screen. In addition, there is a high rate of mislabeling and lack of standardization in the online marketplace for CBD products.¹⁰ Some online markets overlabel the CBD content and underlabel the THC content. Underlabeling CBD does not have serious adverse consequences at high doses, but higher THC content may be enough to cause impairment and intoxication, especially in the pediatric population.¹¹ It is important for providers and consumers to be aware that the use of hemp plants, even if within the federal limits, can cause intoxication if used in excessive amounts.

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