Synthetic Cannabinoid Induced Psychosis in a Previously Nonpsychotic Patient

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Synthetic cannabinoids are relatively new substances that have become rapidly popular among young adults. Despite their legal status in most states, they are virtually unregulated and unstudied. Nevertheless, recent case studies have brought new attention to their potentially harmful side effects, such as psychosis, agitation, and withdrawal. This case report examines the acute psychosis displayed by a psychiatric patient after smoking “Spice,” a substance comprised of various synthetic cannabinoids, on three separate occasions. Furthermore, in comparing this patient’s lack of psychotic symptoms after tetrahydrocannabinol (THC) use, to the episodes of psychosis experienced after “Spice” consumption this case study explores the possibility that synthetic cannabinoids are more potent than their organic counterpart. This is the first case report of synthetic cannabinoid-induced psychosis in a previously nonpsychotic patient.

“Spice,” comprised of various synthetic cannabinoids, is a growing trend within substance use in young adults. It has been tried by up to 6% of 15- to 18-year-olds in Germany.1 Despite the current lack of data revealing the prevalence of “Spice” use within any age group in the United States, case reports are documenting a recent increase in emergency room and forensic presentations related to its use.2,3

To date, there are no studies of inhaled synthetic cannabinoid use in humans. Nevertheless, recent case reports have shown a correlation between synthetic cannabinoid consumption and acute psychosis2,4 and agitation.3 Another study describes acute withdrawal in a patient smoking up to 3 g/day for 8 months.5

Despite mounting public health concerns and concomitant legislative effort to remove it from the public domain, this compound is still legal in various forms in most states. Given its increased potency compared to harvested cannabis,6,7 conventional merchant availability, and potentially negative health impact, synthetic cannabinoids are anticipated to be an emerging issue in the field of substance abuse.

CASE REPORT

Mr. G is a 59-year-old Latino male with a history of post-traumatic stress disorder (PTSD) and polysubstance abuse. Without a prior history of psychosis, he was admitted to the same inpatient psychiatric unit three times over a period of 60 days for the development of psychotic symptoms after smoking “Spice.” The patient has a long history of alcohol, heroin, cocaine and THC use that meets the criteria for polysubstance abuse, but he stopped the use of all of these substances 3 years ago. The patient presented to the emergency room before his first admission with detailed flashbacks of trauma related to combat after smoking two joints of “Spice” (1.5 g) daily in addition to using alprazolam 1 mg/day during 3 days per week for the previous 3 weeks. The patient relapsed on benzodiazepines and “Spice” after discharge and was readmitted 3 weeks later with visual hallucinations. He left against medical advice 1 day after admission. He was admitted for the third time 2 days later after a relapse on “Spice” with visual hallucinations and disorganized, bizarre behavior, as reported by his family. Benzodiazepines were not used before his third admission.

During all three admissions the patient rapidly recovered over 24 hours. Labs drawn, including complete blood count (CBC), basic metabolic panel (BMP), and liver enzymes, were within normal limits. In addition, his serum alcohol and urine cocaine, opiates, and THC screens were negative. On the third admission, a more extensive serum drug screen was performed and the patient was negative for amphetamines, benzodiazepines, barbiturates, cannabinoids, opiates, and phencyclidine (PCP). The patient was discharged on his outpatient medications, consisting of gabapentin 400 mg QID, hydroxyzine 25 mg TID PRN,
Evidence suggests this patient’s psychotic symptoms were related to his acute synthetic cannabinoid intoxication. For example, his urine drug screens and personal history reveal that the only common element preceding his three psychotic episodes was heavy “Spice” consumption. In addition, his psychotic symptoms rapidly subsided with discontinued “Spice” use. Furthermore, other case studies have reported that “Spice” or other synthetic cannabinoid consumption causes acute psychosis in selected patients. In these two case reports, however, psychosis was induced in diagnosed schizophrenic patients and in a patient who had previous THC-induced psychotic episodes. This case report marks the first account of psychosis induced by “Spice” in a patient who had never before experienced psychotic symptoms.

It is important to consider other possible causes of this patient’s psychotic symptoms. For example, his acute presentation with visual hallucinations and disorganized behavior may have been related to benzodiazepine withdrawal. This is a less likely explanation, however, because the patient had only been using xanax occasionally and in low doses, did not use benzodiazepines for at least 6 days before the third admission, did not exhibit any signs of benzodiazepine withdrawal, and did not score on CIWA scale. Substance induced psychosis because of unknown drugs, such as PCP lacing of the “Spice,” is also possible, but PCP was ruled out in his serum drug screen. Delirium is another possible diagnosis because the visual hallucinations developed over a short period of time (24–48 hours), but is less likely as the patient did not have a disturbance of consciousness, which is a defining factor of delirium. Another possible cause of this patient’s symptoms is THC use. Because of its chemical similarity to synthetic cannabinoids, THC may have precipitated the psychosis, as seen in the study by Müller et al. Evidence reveals that THC use is correlated with psychotic episodes in a dose dependent manner. It is possible that this patient’s history of heavy THC use may have predisposed him to develop acute psychosis. Nonetheless, he had never experienced psychotic symptoms before using “Spice.”

In addition to psychotic symptoms, studies have revealed other worrisome side effects associated with the use of synthetic cannabinoids. For example, short-term heavy, daily use of synthetic cannabinoids can precipitate similar symptoms to THC withdrawal. In addition, JWH-018, a synthetic cannabinoid often found in “Spice,” is a potential carcinogen. Therefore, synthetic cannabinoids may have more extensive side effect profiles than THC, which is concerning, considering their increasing popularity and the alarming presentations of their users.

This is the first report of suspected psychosis induction by “Spice” in a patient who lacked a previous psychotic disorder diagnosis despite years of heavy THC use. This case suggests that synthetic cannabinoids may be more likely to cause psychosis than THC, their organic counterpart, and, hence, potentially more dangerous. One limitation of this case was the use of urine drug screening as opposed to a more comprehensive battery in assessing this patient during his first two admissions.

Declaration of Interest
The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this paper.

REFERENCES