

Selected Topics: Toxicology

“SPICE” GIRLS: SYNTHETIC CANNABINOID INTOXICATION

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Abstract—Background: “Spice” refers to various synthetic cannabinoid-containing products that seem to have rapidly become popular recreational drugs of abuse. Very little medical literature currently exists detailing the adverse effects and emergency department (ED) presentations associated with “spice” use. **Objectives:** To describe the presentation of 2 patients who recreationally used a “spice” product and to briefly summarize what is known about “spice” and synthetic cannabinoids. **Case Report:** Two patients presented to the ED with, predominantly, anxiety after recreationally using a “spice” product that we subsequently confirmed to contain the synthetic cannabinoids, JWH-018 and JWH-073. **Conclusion:** We suspect that use of “spice” products may increase. Although anxiety was a prominent presentation in both of the patients described here, undoubtedly, future studies will describe the manifestations of intoxication and toxicity with the various synthetic cannabinoids. © 2011 Elsevier Inc.

Keywords—spice; cannabinoid; JWH-018; JWH-073

INTRODUCTION

“Spice” refers to various products containing synthetic cannabinoids that seem to have become available to the public in the early to mid-2000s and represent the emergence of “designer cannabinoids” (1,2). Beyond the novelty of use, appeal of these products seems to include a “legal high” and the inability of typical urine drugs-of-abuse screens to detect use (3). Currently, very little medical literature exists on the adverse effects and

emergency department (ED) presentations associated with “spice” use (4–8). We report two young women who presented to the ED with adverse effects after recreationally using the same “spice” product that we subsequently confirmed to contain two synthetic cannabinoids.

CASE REPORTS

Two previously healthy women, aged 20 and 22 years, called 911 after smoking “spice.” Both reported daily smoking of various “spice” products they were acquiring at local smoke shops. They both denied recent use of any other drugs, including marijuana, and were not taking any medications. They described enjoying the use of “spice” and for the first time had smoked a product, “Banana Cream Nuke,” a nearly empty packet of which they brought in with them (Figure 1). They reported sharing the contents of this single packet. The product label lists the ingredients as alfalfa, marshmallow, blue violet, nettle leaf, comfrey leaf, *Gynema sylvestre*, passion flower leaf, horehound, and neem leaf. A price tag of \$30.00 was adherent to the packet and the product label stated “not for human consumption.” Very shortly after smoking the product, the women described feeling unusual, disoriented, “as if they did not know where they were,” and soon after called 911. They were transported by ambulance without any intervention and arrived in the ED approximately 90 min after using the product.



Figure 1. Front and back of spice product used by the 2 patients.

Patient 1

The older of the 2 patients described feeling anxious, tremulous, and experiencing palpitations soon after using the product. By the time of arrival she reported that her symptoms were resolving. Physical examination revealed normal vital signs, occasional inappropriate laughter, normal-sized pupils, bilaterally injected conjunctiva, and a few beats of lateral gaze nystagmus bilaterally. She was not tremulous and had normal reflexes. The rest of the examination was unremarkable. Routine chemistries and a complete blood count were normal, and a pregnancy test was negative. A urine drugs-of-abuse immunoassay was negative for amphetamines as a class, barbiturates, benzodiazepines, benzoylecgonine (cocaine metabolite), methadone, opiates as a class, oxycodone, phencyclidine, propoxyphene, and tetrahydrocannabinoids. An electrocardiogram was normal. The patient was reassured, observed for approximately 1 h, and discharged asymptomatic.

Patient 2

The younger patient presented with the primary complaint of anxiety that began shortly after smoking the product. She also described feeling "psychotic" but did not elaborate further. Initial ED vital signs were normal except for a pulse of 126 beats/min. Physical examination revealed normal-sized pupils, bilaterally injected conjunctiva, and tachycardia. The patient refused observation and laboratory evaluation, stated she felt much better, and demanded to leave. Her heart rate at discharge was 110 beats/min.

Residue remaining in the packet was sent to NMS Laboratory (Willow Grove, PA) for a synthetic cannabinoid screen that tested for the presence of 15 synthetic cannabinoids in addition to delta-9-tetrahydrocannabinol (THC). The presence of two synthetic cannabinoids, namely JWH-018 and JWH-073, were identified by gas chromatography/mass spectrometry and high performance liquid chromatography with ultraviolet/diode-array detection (Figure 2).

DISCUSSION

Currently, there is very little literature detailing the clinical presentations of individuals who have used "spice" (4–8). It seems that anxiety was a prominent feature in both of the patients we describe, and tachycardia in one. In two series recently published as abstracts, one a poison-center-based study, anxiety and tachycardia were common. Additionally, paranoia and hallucinations were described in some patients (7,8). One additional abstract that confirmed the presence of JWH-018 in the product and serum described persistent vomiting and retching that resolved with symptomatic treatment (6). In a self-experiment, Auwarter et al. described conjunctival injection, increased pulse, xerostomia, and alteration in mood and perception after use (9). One report associated use as a trigger for cannabis-induced psychosis (4). Another report details a potential withdrawal syndrome in a 20-year-old who had been using the product "Spice Gold" for 8 months. Drug craving, nocturnal nightmares, profuse diaphoresis, nausea, tremor, hypertension, and tachycardia were all described (5).

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