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Characterization of Suspected Synthetic Cannabinoid Intoxications in Washington, DC

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Background

There has been a surge of synthetic cannabinoid (SC) exposures in recent years, with more severe outcomes. At the same time, the constituents of such preparations are subject to variability and are rarely confirmed.

Study Objective

To characterize reported SC exposures presenting to emergency departments (EDs) in Washington, DC.

Methods

Patients who presented to two academic EDs with reported SC exposure from July 2015-July 2016 had blood and/or urine samples obtained at the discretion of the provider during the course of routine care. De-identified samples were sent to the medical examiner's office for toxicology screening and laboratory confirmation with gas chromatography-mass spectrometry (GC/MS).

Results

A total of 132 cases were submitted for analysis. Four samples were pending or inadequate for analysis. Of the 128 samples with results, 72 (56.3%) were positive for a SC on GC/MS, with 40 (55.6%) positive for a SC alone and 32 (44.4%) for a SC and another substance. The most common SC detected was AB-FUBINACA (28, 38.9%), followed by ADB-FUBINACA and AB-CHMINACA 3-methyl-butanoic acid (15, 20.8% each), ADB-CHMINACA (14, 19.4%), and 5-fluoro-PB-22 (8, 11.1%). Twenty-eight (21.9%) cases were negative for SCs but positive for another substance. The most common non-SC substances detected on toxicology screening were tetrahydrocannabinol (33, 25.8%), phencyclidine (23, 18.0%), cocaine (14, 10.9%), opioids (13, 10.2%), and amphetamine derivatives (6, 4.7%). Thirty-six percent of samples were negative for both SCs and other drugs on the toxicology screen.

Discussion

Our study was limited because we could not examine the clinical effects of specific SCs. In addition, our findings could be subject to bias as more severe presentations would be more likely to have blood and/or urine specimens obtained by the treating physician. Our study took place in two urban academic EDs in Washington, DC and our results may not be generalizable to other populations or different regions.

Conclusion

The individual SCs detected in our study were different than compounds detected in earlier studies (such as JWH compounds), suggesting that there has been a change in constituents, possibly to avoid regulation. Additional prospective research is needed to determine the clinical implications of these findings.