011

A new drug epidemic: Emergency Department visits for synthetic cannabinoid (SC) intoxication with laboratory analysis of SC samples.

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Objectives

Use of synthetic cannabinoids (SC) has emerged as a new drug epidemic. Our Emergency Departments (EDs) received a surge of SC users presenting with lethargy and bradycardia, contrasting prior reports of SC-induced tachycardia and agitation. We aim to describe these novel presentations and characterize the compounds.

Methods

We present a case series of patients with SC intoxication who presented to our toxicology service covering two tertiary care EDs. A retrospective chart review recorded initial vital signs, chief complaint and clinical course. Urine, blood and xenobiotic samples were analyzed using gas chromatography/mass spectrometry. Spectra were compared against the SWGDRUG database and scored based on a reference comparison. Urine samples were compared to an expanded SC panel using liquid chromatography/mass spectrometry.

Results

Between 2/11/2015 and 6/23/2015 141 visits were identified. Males comprised 139 visits (age range 21-68 years; median 35, interquartile range 20). Sixty-eight percent presented with lethargy or loss of consciousness. Hypotension (SBP <90 mmHg) and bradycardia (HR<60 bpm) were seen in 10% and 24% of visits, respectively. While most patients were discharged after observation, 3 were admitted to the ICU and 7 to telemetry. Admissions were for vital sign instability, bradycardia requiring pacing, prolonged sedation and respiratory failure requiring mechanical ventilation.

Laboratory analysis revealed SC in the XLR-11 family in 19/36 drug, 9/12 blood, and 23/31 urine samples. INACA family compounds were detected in 23/36 drug samples, 13/31 urine samples but no blood samples. Others detected included PB-22 and several 5-fluorinated compounds. No JWH compounds, opiates, imidazoline receptor agonists, benzodiazepines or other sedative-hypnotics were detected.

Conclusion

Unlike their predecessors, novel SC may be associated with significant CNS depression and bradycardia. While prior reports indicated that SC mostly contained JWH compounds, none were detected in these samples. The most commonly identified compounds in this series were in the XLR-11 and INACA families. These tend to be full-agonists at the cannabinoid receptor and are presumably more potent. The lack of other depressants suggests that the clinical findings are due to the combination of these compounds and not coingestants. SC intoxication should be considered for patients with undifferentiated psychomotor depression and bradycardia.