The Importance of Recognizing Cannabinoid Hyperemesis Syndrome from Synthetic Marijuana Use

Xibei Liu¹ · Angela Villamagna¹ · Ji Yoo¹

Received: 9 March 2017 / Accepted: 21 March 2017 / Published online: 28 March 2017
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Sorensen and colleagues (2016) [1] evaluated the current diagnostic criteria, pathophysiology, and treatment for cannabinoid hyperemesis syndrome (CHS) through analysis of multiple case reports and case series. Their results identified major diagnostic criteria, including history of regular cannabis use, cyclic nausea and vomiting, and symptom relief with hot baths. The authors also highlighted current hypotheses for CHS development and identified abstinence as the only definitive treatment. All of the findings were evaluated using the Grading and Recommendations Assessment, Development, and Evaluation (GRADE) criteria, which is a novel quality of evidence assessment tool [2].

In 2009, the Department of Justice decided that medical marijuana users and distributors in states where medical marijuana was legal would not be federally prosecuted, as long as they complied with all state laws [3]. Use of marijuana in states with liberal definitions of medical use, such as California and Colorado, has increased significantly since then [4]. According to the National Inpatient Sample (NIS) developed by the Healthcare Cost and Utilization Project [5], hospital discharges with diagnosis of unspecified cannabis dependence (international classification of diseases, 9th revision, clinical modification (ICD-9-CM) code 304.30), are on the rise, from 29,635 incidents in year 2008 to 44,175 incidents in year 2014. The hospital discharge incidents of diagnosis of persistent vomiting, (ICD-9-CM code 536.2) also increased from 49,662 in

year 2010 to 69,210 in year 2014. This increase in persistent vomiting may be attributed to rising cannabinoid use.

Of note, there has also been a recent rise in synthetic marijuana use, which this study did not discuss. After a survey of major search engines including PubMed, Web of Science, and Cochrane Review, we found a total of three cases of CHS caused by synthetic marijuana. Urine drug screens were negative in all three cases as synthetic cannabinoids are not detected on standard urine tests. Unfortunately, this makes the diagnosis of CHS even more challenging in synthetic cannabinoid use [6–8]. Synthetic cannabinoids are currently detected through specialized laboratory testing, which is costly, and results are often delayed. These limitations in testing will make synthetic cannabinoid toxicity more challenging to study.

Synthetic cannabinoids tend to be more toxic than natural cannabis because they are direct agonists of cannabinoid receptors, whereas natural cannabinoids are partial agonists [9]. The most commonly reported synthetic cannabinoid toxicities are sympathomimetic (tachycardia and chest pain) and psychotoxic (agitation and hallucination), rather than alimentary tract toxicity such as CHS [10]. However, it seems likely that CHS from synthetic cannabinoid use is more common than currently realized. Synthetic cannabinoid use and related effects are expected to increase further, so healthcare providers working in emergent or inpatient care should be aware of CHS and other potential toxicities.

✉ Ji Yoo
jwyoo@medicine.nevada.edu

¹ University of Nevada School of Medicine, Las Vegas, NV, USA

Compliance with Ethical Standards

Conflicts of Interest None.

Sources of Funding None.

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