Schizophrenia Research 172 (2016) 211–212

Contents lists available at ScienceDirect

Schizophrenia Research

journal homepage: www.elsevier.com/locate/schres

Cannabis-induced psychosis associated with high potency "wax dabs"

Joseph M. Pierre [a,b,*], Michael Gandal [a], Maya Son [c]

[a] Department of Psychiatry and Biobehavioral Sciences, David Geffen School of Medicine at UCLA, Los Angeles, California
[b] Department of Veterans Affairs, VA Greater Los Angeles Healthcare System, Los Angeles, CA
[c] College of Medicine, University of Vermont, Burlington, VT

ARTICLE INFO

Article history:
Received 20 January 2016
Received in revised form 27 January 2016
Accepted 29 January 2016
Available online 11 February 2016

Keywords:
Marijuana
Tetrahydrocannabinol
Cannabis
Cannabis oil
Cannabis wax
Cannabis-induced psychosis, catatonia

ABSTRACT

With mounting evidence that the risk of cannabis-induced psychosis may be related to both dose and potency of tetrahydrocannbinol (THC), increasing reports of psychosis associated with cannabinoids containing greater amounts of THC are anticipated. We report two cases of emergent psychosis after using a concentrated THC extract known as cannabis "wax," "oil," or "dabs" raising serious concerns about its psychotic liability. Although "dabbing" with cannabis wax is becoming increasingly popular in the US for both recreational and "medicinal" intentions, our cases raise serious concerns about its psychotic liability and highlight the importance of understanding this risk by physicians recommending cannabinoids for purported medicinal purposes.

Published by Elsevier B.V.

With mounting evidence that the risk of cannabis-induced psychosis may be related to both dose and potency of tetrahydrocannbinol (THC) (Moore et al., 2007; Di Forti et al., 2015) increasing reports of psychosis associated with cannabinoids containing greater amounts of THC are anticipated. We report two cases of emergent psychosis after using a concentrated THC extract known as cannabis "wax," "oil," or "dabs."

Mr. A is a 17-year old Latino man with no previous psychiatric history other than recreational cannabis use 1–2 times/week. After 2 years of smoking with no problems, he used cannabis wax "a few times" and over the course of 3 weeks, began to experience paranoid concerns associated with checking the locks of his home, fear of sleeping alone, and <4 h/night of sleep. This progressed to full-blown delusions about being "possessed by Satan" and getting "caught in the middle of a war between the Free Masons and the Illuminati." His family brought him to the emergency room, where he appeared confused, disorganized, and agitated with mild fever (up to 100.3'F), tachycardia (up to 110 beats/min) and hypertension (up to 170/90 mmHg), diaphoresis, and photophobia. Medical work-up consisting of physical exam and routine laboratory studies including urine toxicology screening (UTS) were unremarkable such that Mr. A was admitted to psychiatry. Treatment with risperidone 3 mg/day over the following week resulted in gradual normalization of vital signs along with psychotic symptoms and behavioral control such that he returned to his baseline mental status and was discharged on hospital day (HD) 12. During outpatient follow-up including abstinence from cannabis, risperidone was slowly tapered over a 6-month period and eventually discontinued altogether with no recurrence of psychosis at 13 months.

Mr. B is a 26-year old man with no psychiatric history other than daily smoking of "medical marijuana" recreationally and based on social anxiety and obsessionality, for which he'd previously received psychotherapy. After using cannabis obtained from a marijuana dispensary daily for 1 year, he transitioned to using wax products ("Fire OG" and "Mystery") by vaporizer and water pipe. After using wax daily for 18 months, he developed increasing paranoid concerns that he was being "targeted" by Mexican gangs and that he could "see the future." He became increasingly restless, confused, and disorganized (e.g. shaving his head, wandering naked) such that family negotiated psychiatric hospitalization. Physical exam and routine laboratory tests were normal, except for a UTS positive for cannabinoids. On initial interviews, he displayed significant disorganization, thought blocking, and paranoia prompting treatment with olanzapine 20 mg/day on HD 1 and a change to risperidone 2 mg/day on HD 2. On HD 3, antipsychotic medications were discontinued on suspicion of drug-induced psychosis, but there was little improvement and by HD 7 and 8, the patient experienced two episodes of catatonia with mutism, catalepsy, and waxy flexibility resulting in initiation of lorazepam 2 mg 3 times/day. His catatonia resolved following acute administration of lorazepam and after restarting and titrating risperidone to 4 mg/day, his psychotic symptoms diminished over the next week and were significantly improved by discharge on HD 17. As an outpatient, risperidone was tapered to 2 mg/day at 2-week follow-up and discontinued altogether after a month due to patient preference and with no recurrence of

* Corresponding author at: 11301 Wilshire Blvd., Building 210 Room 15, Los Angeles, CA 90073.
E-mail address: joseph.pierre2@va.gov (J.M. Pierre).

http://dx.doi.org/10.1016/j.schres.2016.01.056
0920-9964/Published by Elsevier B.V.

psychosis. At 2-months post-hospitalization, he remained off antipsychotic medications, abstinent of cannabis, and psychosis free.

Cannabis "wax" is a hyper-concentrated "hash oil" formed by solvent extraction, resulting in up to 90% THC along with residual solvent and pesticides (Raber et al., 2015; Loflin and Earleywine, 2014). Users typically inhale a small "dab" by vaporization through a heated glass pipe to achieve a rapid and intense "high." While manufacture carries a known risk of serious burns (Jensen et al., 2015), the adverse effects of use remain unclear. One survey of wax dabs users concluded no increase in "problems or accidents," but greater "tolerance and withdrawal" compared to smoking the cannabis plant (Loflin and Earleywine, 2014).

In contrast, our cases suggest a psychotic risk with cannabis wax, well beyond mild paranoia and including significant positive symptoms, disorganization, confusion, autonomic arousal, and catatonia. The temporal association between psychosis and cannabis wax in our patients, with no previous or family history and despite over a year of smoking cannabis conventionally without incident, supports a heightened psychotic risk of wax related to THC content. While antipsychotics were helpful acutely, cannabis abstinence allowed discontinuation of medications without psychotic relapse during longer-term follow-up.

"Dabbing" with cannabis wax is becoming increasingly popular in the US for both recreational and "medicinal" intentions (Krauss et al., 2015; Daniulaityte et al., 2015), with popular beliefs that it may be safer than smoking (Stogner and Miller, 2015) or that it can even cure cancer (Romano and Hazekamp, 2013). However, the high THC content of cannabis wax raises serious concerns about its psychotic liability. Together with a previous report of cannabis-induced psychosis associated with "medical marijuana" (Pierre, 2010), Mr. B's use of wax obtained from a dispensary underscores the importance of understanding this risk by physicians recommending cannabinoids for purported medicinal purposes.

Funding

The authors report no source of funding for this project.

Contributors

Joseph M. Pierre, M.D.
Michael Gandal, M.D., Ph.D.
Maya Son.

Conflicts of interest

The authors report no conflicts of interest in relation to this manuscript.

Acknowledgements

The authors report no acknowledgements in relation to this manuscript.

References

Daniulaityte, R., Nahhas, R.W., Wijeratne, S., Carlson, R.G., Lamy, F.R., Martins, S.S., Boyer, E.W., Alan Smith, G., Sheth, A., 2015. "Time for dabs": Analyzing Twitter data on marijuana concentrates across the U.S. Drug Alcohol Depend. 155 (Oct 1), 307–311.

Di Forti, M., Marconi, A., Carra, E., Fraietta, S., Trotta, A., Bonomo, M., Bianconi, F., Gardner-Sood, P., O'Connor, J., Russo, M., Stilo, S.A., Marques, T.R., Mondelli, V., Dazzan, P., Pariante, C., David, A.S., Gaughran, F., Atakan, Z., Iyegbe, C., Powell, J., Morgan, C., Lynskey, M., Murray, R.M., 2015. Proportion of patients in South London with first-episode psychosis attributable to use of high potency cannabis: a case–control study. Lancet Psychiatry 2 (3), 233–238.

Jensen, G., Bertelotti, R., Greenhalgh, D., Palmieri, T., Maguina, P., 2015. Honey oil burns: A growing problem. J. Burn. Care. Res. 36 (20), e34–e37.

Krauss, M.J., Sowles, S.J., Mylvaganam, S., Zewdie, K., Bierut, L.J., Cavazos-Rehg, P.A., 2015. Displays of dabbing marijuana extracts on YouTube. Drug Alcohol Depend. 155 (Oct 1), 145–151.

Loflin, M., Earleywine, M., 2014. A new method of cannabis ingestion: the danger of dabs? Addict. Behav. 39 (10), 1430–1433.

Moore, T.H.M., Zammit, S., Lingford-Hughes, A., Barnes, T.R.E., Jones, P.B., Burke, M., Lewis, G., 2007. Cannabis use and risk of psychotic or affective mental health outcomes: A systematic review. Lancet 370 (9584), 319–328.

Pierre, J.M., 2010. Psychosis associated with medical marijuana: risk vs. benefits of medicinal cannabis use. Am. J. Psychiatry 167 (5), 598–599.

Raber, J.C., Elizinga, S., Kaplan, C., 2015. Understanding dabs: contamination concerns of cannabis concentrates and cannabinoid transfer during the act of dabbing. J. Toxicol. Sci. 40 (6), 797–803.

Romano, L.L., Hazekamp, A., 2013. Cannabis oil: chemical evaluation of an upcoming cannabis-based medicine. Cannabinoids 1 (1), 1–11.

Stogner, J.M., Miller, B.L., 2015. Assessing the dangers of "dabbing": mere marijuana or harmful new trend? Pediatrics 136 (10), 1–3.