Dusunen Adam The Journal of Psychiatry and Neurological Sciences 2016;29:374-378
DOI: 10.5350/DAJPN2016290410

Case Report / Olgu Sunumu

Capgras Syndrome After Use of Synthetic Cannabinoids: an Adolescent Case

Urun Ozer[1], Veysi Ceri[2], Cuneyt Evren[3]

[1]Acibadem Atakent Hospital, Department of Psychiatry, Istanbul - Turkey
[2]Dumlupinar University, Evliya Celebi Training and Research Hospital, Department of Child and Adolescent Mental Health, Kutahya - Turkey
[3]Bakirkoy Training and Research Hospital for Psychiatry, Neurology and Neurosurgery, Alcohol and Substance Research, Treatment, and Training Center (AMATEM), Istanbul - Turkey

ABSTRACT

Capgras syndrome after use of synthetic cannabinoids: an adolescent case

Anxiety, agitation, irritability, confusion, hallucinations and delusions are among common psychoactive effects of synthetic cannabinoids, which are referred as "bonsai" and "jamaica" in Turkey. Cases of psychotic disorder induced by synthetic cannabinoid use are becoming increasingly more reported. Capgras syndrome is a psychotic disorder characterized by a delusion that a specific person or object has been replaced by an identical one. It has been reported to occur rarely in pure form, but generally accompanying schizophrenia or organic psychosis. Herein we aim to report an adolescent case presenting with Capgras syndrome developed after use of synthetic cannabinoids and to draw attention to psychotic symptoms and to this uncommon psychotic syndrome which may occur after synthetic cannabinoid use. Seventeen years old male, who reported using "bonzai" for about 10 days, was brought to the emergency room by his family. Capgras syndrome, defined with delusion that his mother and father have been changed and replaced by others, has been detected. In adolescents who admit with psychotic symptoms, synthetic cannabinoid use should be considered and detailed history should be taken, even laboratory tests were negative. Adolescents, as a vulnerable population, should be informed about negative effects of synthetic cannabinoids which are easily accessible and distributed as "herbal", "natural" and "legal", as well as their parents and institutions such as schools which may guide them. Thus, it might be possible to prevent psychotic disorders which will be induced by this substances.

Keywords: Adolescent, Capgras syndrome, cannabinoid, psychotic disorder

ÖZET

Sentetik kannabinoid kullanımı sonrası gelişen capgras sendromu: Bir ergen olgu

Türkiye'de "bonzai", "jamaika" olarak anılan sentetik kannabinoidlerin sık rastlanan psikoaktif etkileri arasında anksiyete, ajitasyon, irritabilite, konfüzyon, varsanılar ve sanrılar sayılmakta, sentetik kannabinoid kullanımıyla tetiklenen psikotik tablolara ilişkin olgulara giderek daha fazla bildirilmektedir. Capgras sendromu hastanın özgün kişi ve nesnelerin benzerleriyle yer değiştirildiğine inanmasıyla karakterize psikotik bir tablodur ve nadiren saf bir şekilde ortaya çıktığı, genelde şizofreni ya da organik psikozla birlikte görüldüğü belirtilmektedir. Burada sentetik kannabinoid kullanımı sonrasında gelişen Capgras sendromuyla başvuran bir ergen olgu sunularak sentetik kannabinoid kullanımı sonrasında gelişebilecek psikotik belirtilere ve nadir rastlanan bu psikotik tabloya dikkat çekmek amaçlanmıştır. Ailesi tarafından psikiyatri acil servisine getirilen ve yaklaşık 10 gündür hemen her gün "bonzai" kullandığı belirtilen 17 yaşında erkek hastada anne babasının değiştiği, yerlerine başkalarının geçtiği sanrısıyla belirli Capgras sendromu saptanmıştır. Psikotik belirtilerle başvuran ergenlerde laboratuar testleri negatif olsa dahi, sentetik kannabinoid kullanımı olasılığının göz önünde bulundurulması ve detaylı öykü alınması gerekmektedir. Hassas bir popülasyon olan ergenlerin ve onları yönlendirecek olan aile, okul gibi kurumların, "bitkisel", "doğal", "yasal" gibi söylemlerle pazarlanan ve kolaylıkla ulaşılabilir olan sentetik kannabinoidlerin olumsuz etkileri konusunda bilgilendirmesi, bu maddelerle tetiklenecek olan psikotik tabloların da önünde geçilmesinde yarar sağlayacaktır.

Anahtar kelimeler: Ergen, Capgras sendromu, kannabinoid, psikotik bozukluk

Address reprint requests to / Yazışma adresi:
Urun Ozer,
Acibadem Atakent Hospital, Department of Psychiatry, Halkali Merkez Mahallesi, Turgut Ozal Bulvari No: 16, 34303 Istanbul, Turkey

Phone / Telefon: +90-212-404-4444

E-mail address / Elektronik posta adresi:
urunozer@gmail.com

Date of receipt / Geliş tarihi:
January 6, 2016 / 6 Ocak 2016

Date of the first revision letter / İlk düzeltme öneri tarihi:
January 21, 2016 / 21 Ocak 2016

Date of acceptance / Kabul tarihi:
February 1, 2016 / 1 Şubat 2016

INTRODUCTION

Synthetic cannabinoids (SCs), which have been easily supplied in the markets since 2000s, and become more popular currently, are psychoactive substances with similar effects to Δ9-Tetrahydrokannabinol (Δ9-THC) (1-3). These substances which are named differently as "spice", "K2", "aroma", "dream", "Mr. Smiley", and "blaze" in foreign countries, are generally named as "bonsai" and "jamaica" in Turkey (4-6). It was also reported that these substances, which are generally prepared in laboratories by spraying chemical liquids on herbal mixtures, and drying, could contain other substances which might cause accompanying psychoactive effects (1,5,7).

Although it is known that SCs are stronger than natural cannabinoids, there are very limited data about effects of these substances because of their dynamic and unpredictable structures, and difficulties in detection by laboratory tests (8). Currently, number of studies investigating the effects of these substances on the body and also their psychoactive effects are increasing in number both in the world and in our country (2,5,9-11). The commonly observed psychoactive effects are anxiety, agitation, irritability, confusion, hallucinations, and delusions (2,10,11).

Cannabis use has been related to psychosis for many years. Various psychotic symptoms such as hallucinations, and paranoid delusions have been reported after cannabis use (12). It was reported in many studies that there was a correlation between cannabis use and both acute and chronic psychotic pictures (13,14). Similarly, number of case reports are increasing about psychotic pictures triggered by SC use (15-18).

Capgras syndrome is defined among delusional missidentification syndromes, and a rarely encountered psychotic picture, and it is characterized that patients believed that close and special individuals or subjects are replaced by identical individuals. It was also reported that Capgras syndrome was rarely encountered as a pure clinical picture, and generally accompanied by schizophrenia or organic psychosis (19,20).

We aimed to draw attention to psychotic symptoms which might be observed after SC use, and the psychotic picture by presenting an adolescent who developed Capgras syndrome after synthetic cannabinoid use.

CASE

The patient was a 17 years old male patient, who was living with his parents. His father was working as a mechanic at the auto-industry, and his mother was a housewife. The patient was working with his father, and he had an older sister who was 26 years old and university student.

He was brought to our emergency unit by his parents, because he was nervous, performed a hostile behavior as cutting his wrist superficially, and tried to jump out of the window. His parents told that he was changed a lot within the last 2 days, even his eyes looked differently, and told them "You are not my mother and father", and he tried to escape from home. He stayed too long in the bathroom in the morning, and did not respond, so they forced the door and they saw him that he had cut his left wrist. He could not sleep properly in the last 3 days, and ate nearly nothing.

During the first psychiatric interview, he was crying while telling his life that his father and mother were replaced by other individuals whose faces were identical, but hands were different, and he could understand this from their movements, and his mind was always occupied with his parents, because those individuals might harm or even kill them. He told that he realized this condition 4 days ago, and also mentioned that there were sounds recently like chopping wood, and screams to frighten him.

In his mental examination, he was conscious, cooperative, and oriented, his spontaneous speech was decreased, but he responded the questions. His associations were generally regular, and pointed to the target, his mood was irritable, and his affect was normal. He had persecutory delusions and auditory hallucinations. His thought content was intensely preoccupied with the condition of his mother and

father. His cognitive functions were adequate, but he did not have insight.

The patient had no history of alcohol abuse, but tried volatile substances a couple of times previously, and he started to take "bonsai" nearly every day via inhalation within the last 10 days, although he did not use it previously. His complaints were present for 4 days, and he did not apply to a psychiatrist previously. No medical history or familial psychiatric history was described. Normal findings were reported in routine laboratory and imaging examinations. Metabolites of substances which could not be diagnosed in the urine other than SC were negative.

Olanzapine 10mg/day treatment was started, and partial recovery was achieved in 10 days in psychotic symptoms, whereas complete recovery was achieved 2 weeks later. The patient was followed up by regular monthly visits, and at the end of 3-month follow up, it was observed that the patient did not use "bonsai" and there were no recurrence of psychotic symptoms.

DISCUSSION

In the literature, adolescent cases who applied to hospitals for SC use have been increasingly reported (6,17,21). Although it was known that SCs had stronger effects when compared with cannabis, there was no adequate information about pharmacokinetics, and pharmacodynamics of many of the SCs in humans (1,8). It was also believed that evolving symptoms were affected by factors such as duration of use and personal tendency in addition to substance content (22). Differently from Δ9-THC metabolites, it was reported that SCs might show agonistic, antagonistic or neutral agonistic effects with CB1 receptors. Therefore, use of SCs might cause marked changes in emotional and cognitive functions, and they might trigger psychotic symptoms in individuals who especially had a tendency (1,8). Psychotic pictures which were related to SCs were frequently reported in the studies (15-18). Although it was determined that psychotic symptoms might be triggered in individuals with previous psychotic disorder history while taking SCs (4,23), new onset psychotic symptoms were reported in individuals who had no previous psychotic disorder history (15-18). In the literature, a few adolescent cases who developed psychotic symptoms after SC use were reported (17,21).

Visual and auditory hallucinations, paranoid and grandiose delusions, disorganized and bizarre behaviors were commonly reported symptoms in psychotic pictures which were related to SC use (15-17). Hurst et al. (15) reported in their case serial of 10 patients that the most common signs were auditory and visual hallucinations, paranoid hallucinations, inappropriate or flat affect, alogia, thought block, disorganized speech and behavior, psychomotor agitation and retardation and suicidal thoughts. Van der Veer (24) reported an adult case who developed Capgras delusion related to SC use. He reported that psychotic symptoms triggered by SC use in individuals who did not have previous psychotic disorder were generally short term, and self-limited (12,15,17). It was reported that severe and persistent psychotic symptoms might be developed after SC use in some cases (24). Therefore, sometimes it may be very difficult to differentiate psychiatric pictures evolved after SC use from primary psychiatric diseases (25).

The case we presented here was an adolescent who developed psychotic signs after SC use, and similar to some cases in the literature (15-18) he did not have any previous psychiatric disease history or application to psychiatry clinic. In the literature, longer durations of SC use as weeks or years were reported in cases who developed SC related psychotic disorder (15,21). In our case, psychotic symptoms were developed after a short duration of SC use (10 days). It was reported that symptoms related to SC use in adolescent cases were similar to the ones in adults (21). Consistently with the literature, auditory hallucinations and persecution delusions were marked psychotic symptoms in our case, and also Capgras syndrome which was outlined with delusions that his mother and father were replaced by other individuals, was observed. According to our knowledge, development of psychotic picture after SC use was reported in one adult case previously. In the literature, presence of

familial psychotic disorder history was noted in some cases (15,17,23), but there was no previous psychiatric disease in the family history in our case. Castellanos et al. (21) reported previous cannabis and alcohol use in 10 out of 11 (91%) of adolescent cases who used SC. In our case, although there was no alcohol abuse history, previous volatile substance use was described. Again consistently with the literature, (12,15,17), psychotic symptoms triggered by SC use were recovered in a short-term with the treatment, and no SC use in the follow up, and no recurrence of psychotic symptoms were noteworthy in our case.

Our case is important, because Capgras syndrome which is presented by psychotic symptoms such as SC induced hallucinations, and delusions, and a rare psychotic picture, is diagnosed. It is crucial to consider the possibility of SC use and to obtain a detailed psychoactive substance use history in adolescent patients who apply for psychotic symptoms despite negative laboratory results. Adolescents, who constitute a vulnerable population, should be informed about negative effects of SCs which are easily accessible and distributed as "herbal", "natural" and "legal", as well as their parents and institutions, such as schools which may guide them. Thus, it might be possible to prevent psychotic disorders which will be induced by these substances.

Contribution Categories	Name of Author
Follow up of the case	V.C.
Literature review	U.O., V.C., C.E.
Manuscript writing	U.O., V.C., C.E.
Manuscript review and revisation	U.O., V.C., C.E.

Conflict of Interest: Authors declared no conflict of interest.

Financial Disclosure: Authors declared no financial support.

REFERENCES

1. Evren C, Bozkurt M. Synthetic cannabinoids: crisis of the decade. Dusunen Adam: Journal of Psychiatry and Neurological Sciences 2013; 26:1-11. **[CrossRef]**

2. Hermanns-Clausen M, Kneisel S, Szabo B, Auwarter V. Acute toxicity due to confirmed consumption of synthetic cannabinoids: clinical and laboratory findings. Addiction 2013; 108:534-544. **[CrossRef]**

3. Gunderson EW, Haughey HM, Ait-Daoud N, Joshi AS, Hart CL. "Spice" and "K2" herbal highs: a case series and systematic review of the clinical effects and biopsychosocial implications of synthetic cannabinoid use in humans. Am J Addict 2012; 21:320-326. **[CrossRef]**

4. Every-Palmer S. Synthetic cannabinoid JWH-018 and psychosis: an exploratory study. Drug Alcohol Depend 2011; 117:152-157. **[CrossRef]**

5. Bozkurt M, Umut G, Evren C, Karabulut V. Clinical characteristics and laboratory test results of patients admitted to outpatient clinic for synthetic cannabinoid usage. Dusunen Adam: Journal of Psychiatry and Neurological Sciences 2014; 27:328-334. **[CrossRef]**

6. Cohen J, Morrison S, Greenberg J, Saidinejad M. Clinical presentation of intoxication due to synthetic cannabinoids. Pediatrics 2012; 129:1064-1067. **[CrossRef]**

7. Auwarter V, Dresen S, Weinmann W, Müller M, Pütz M, Ferreiros N. 'Spice' and other herbal blends: harmless incense or cannabinoid designer drugs? J Mass Spectrom 2009; 44:832-837. **[CrossRef]**

8. Seely KA, Lapoint J, Moran JH, Fattore L. Spice drugs are more than harmless herbal blends: a review of the pharmacology and toxicology of synthetic cannabinoids. Prog Neuropsychopharmacol Biol Psychiatry 2012; 39:234-243. **[CrossRef]**

9. Vandrey R, Dunn KE, Fry JA, Girling ER. A survey study to characterize use of Spice products (synthetic cannabinoids). Drug Alcohol Depend 2012; 120:238-241. **[CrossRef]**

10. Kucuk E, Kucuk I, Kirazaldi YY. A new threat in the emergency department: Synthetic cannabinoids (Bonzai, Jameika). Genel Tip Dergisi 2015; 25:18-22. (Turkish)

11. Hoyte CO, Jacob J, Monte AA, Al-Jumaan M, Bronstein AC, Heard KJ. A characterization of synthetic cannabinoid exposures reported to the National Poison Data System in 2010. Ann Emerg Med 2012; 60:435-438. **[CrossRef]**

12. Pierre JM. Cannabis, synthetic cannabinoids, and psychosis risk: What the evidence says. Curr Psychiatr 2011; 10:49-58.

13. Moore TH, Zammit S, Lingford-Hughes A, Barnes TR, Jones PB, Burke M, Lewis G. Cannabis use and risk of psychotic or affective mental health outcomes: a systematic review. Lancet 2007; 370:319-328. **[CrossRef]**

14. Minozzi S, Davoli M, Bargagli AM, Amato L, Vecchi S, Perucci CA. An overview of systematic reviews on cannabis and psychosis: discussing apparently conflicting results. Drug Alcohol Rev 2010; 29:304-317. **[CrossRef]**

15. Hurst D, Loeffler G, McLay R. Psychosis associated with synthetic cannabinoid agonists: a case series. Am J Psychiatry 2011; 168:1119. **[CrossRef]**

16. Peglow S, Buchner J, Briscoe G. Synthetic cannabinoid induced psychosis in a previously nonpsychotic patient. Am J Addict 2012; 21:287-288. **[CrossRef]**

17. Oluwabusi OO, Lobach L, Akhtar U, Youngman B, Ambrosini PJ. Synthetic cannabinoid-induced psychosis: two adolescent cases. J Child Adolesc Psychopharmacol 2012; 22:393-395. **[CrossRef]**

18. Sonmez I, Kosger F. Synthetic cannabinoid receptor agonist-associated psychotic disorder: a case report. Turk Psikiyatri Derg 2016; 27:63-66. (Turkish)

19. Hocaoglu C. Paranoid symptoms and syndromes. Psikiyatri Dunyasi 2001; 5:97-104. (Turkish)

20. Ozten E, Tufan AE, Yalug I, Cerit C, Isik S. Delusional incorrect recognition: a case presentation with Capgras syndrome. Journal of Clinical Psychiatry 2006; 9:45-48. (Turkish)

21. Castellanos D, Singh S, Thornton G, Avila M, Moreno A. Synthetic cannabinoid use: a case series of adolescents. J Adolesc Health 2011; 49:347-349. **[CrossRef]**

22. Harris CR, Brown A. Synthetic cannabinoid intoxication: a case series and review. J Emerg Med 2013; 44:360-366. **[CrossRef]**

23. Müller H, Sperling W, Köhrmann M, Huttner HB, Kornhuber J, Maler JM. The synthetic cannabinoid Spice as a trigger for an acute exacerbation of cannabis induced recurrent psychotic episodes. Schizophr Res 2010; 118:309-310. **[CrossRef]**

24. Van Der Veer N, Friday J. Persistent psychosis following the use of Spice. Schizophr Res 2011; 130:285-286. **[CrossRef]**

25. Benford DM, Caplan JP. Psychiatric sequelae of Spice, K2, and synthetic cannabinoid receptor agonists. Psychosomatics 2011; 52:295. **[CrossRef]**