



Synthetic tobacco dependence: a *case report* from Bintang mountains, Papua, Indonesia

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Abstract

Background: Synthetic tobacco is a type of tobacco made from a mixture of chemicals. This mixture is then sprayed on pieces of leaves or tobacco cigarettes and then rolled like using marijuana by smoking. Its chemicals are deliberately artificially created to mimic the effects of marijuana or ecstasy. The effects of synthetic tobacco include excessive pleasure, hallucinations, confusion, anxiety, and dependence (addictive).

Method: We selected several references from textbooks and journals until 2023 containing information about *synthetic cannabinoids*.

Case report: An 18-year-old man used synthetic tobacco for one year and claimed to feel calm after consuming it, which caused a desire to continue consuming it every day until the last two weeks. The patient was known to consume this synthetic tobacco more often than usual, so the patient experienced hallucinations and continued to want to consume this type of tobacco. The patient experiences symptoms of auditory hallucinations. The patient also feels anxious, looks confused, and feels like a gorilla hit him because it made his body stiff, and he was unable to move.

Conclusion: Some signs and symptoms overlap between cannabis and synthetic cannabis. Doctors who confirmed the use of *synthetic cannabinoid receptor agonists* (SCRAs) need to be vigilant in providing supportive care and can perform supporting examinations to support diagnosis if needed.

Keyword(s): *Synthetic tobacco, SCRAs, hallucinations.*

Introduction

Tobacco is an agricultural plant that grows in tropical climates, with green leafy characteristics, broad and large leaves, and a distinctive odour. Usually, the leaves of this tree are used as raw material for processing various types of cigarettes.¹

Similar to cigarettes or marijuana in general, synthetic tobacco is used by rolling and then burning. Synthetic tobacco has a different physical form from marijuana. Marijuana has a slightly greenish and moist colour, while synthetic tobacco has a slightly brownish colour and dry leaves. Synthetic tobacco also does not have a distinctive odour, especially if burned, in contrast to marijuana, which has a distinctive odour, especially if burned.¹

Substance addiction is a condition in which a person will experience aggravation in terms of uncontrolled impulsivity for substance use that affects the individual's reward, motivation, and decision-making mechanisms. Substance addiction can have several negative psychological, sociological, economic, and health impacts on individuals and society¹. A study conducted by Barrett et al. revealed that in Australia, the average age for *synthetic cannabinoid* (SC) use is 27 years old, and 77% of the population is male; another study conducted by Hoyte et al. reported an average age of 22 years for SC users, 74.3% of whom were male.¹

Among the types of cannabinoids present in *cannabis sativa indica* include *delta-9-trans tetrahydrocannabinol* (-9- THC), Methyl 2-{{[1-(5-fluorophenyl)-1Hindazol3-carbonyl] amino}-3,3-dimethyl butanoate (5-fluoro ADB) and [(1-pentyl-1H-indole-3-yl) (2,2,3,3-tetramethylcyclopropyl)-methanone](UR-144), which is the ingredient of the formation of *synthetic cannabinoid*².

Synthetic tobacco is tobacco that we usually see then given a mixture of chemicals. Many types of chemicals are commonly mixed, but one of the types of chemical mixed is called *delta-9-trans tetrahydrocannabinol* (-9-THC), where the chemical, if mixed with tobacco and consumed, can cause hallucinatory effects just like the use of marijuana. These chemicals contain *cannabinoids*, which, if consumed, can cause laziness and dependence and can cause anxiety.³

This chemical of *delta-9-trans tetrahydrocannabinol* (-9-THC) is also an ingredient of the main psychoactive substance *tetrahydrocannabinol* itself, which is at the level of oxidative metabolism and liver microsomes leading to the formation of psychoactive metabolites *11-hydroxy-tetrahydrocannabinol* (11-OH-THC) and *11-nor-9-carboxy-9-tetrahydrocannabinol* (THC-COOH), with no apparent pharmacological activity. During this stage of distribution and metabolism of -9-THC, the concentration of THC-COOH in the blood increases while the concentration of -9-THC decreases. About 15-30% of THC in the blood is eliminated in urine examination as THC-COOH. Due to its strong tissue fixation, the elimination of urine is slow. The elimination half-life also varies significantly according to the dose used.³

Therefore, a positive result in the urine cannot be used as a reference to distinguish whether new use or old use. The THC-COOH test does not provide information on the route of administration, the amount used, the time of exposure, or the occurrence of behaviour changes. The -9-THC and 11-OH-THC tests can be used as a reference to determine when someone consumed these substances for the last time, but these tests have never been carried out in practice in the field.⁴

Case Report

An 18-year-old man was transported by his parents and friends to Oksibil General Hospital. He is from the Lepki tribe, which is one of the tribes who live in Papua's inaccessible Bintang Mountains. He presented with an agitated complaint, claiming that the onset of the symptoms occurred 2 hours earlier while he was hanging out with his friends; his friend admitted that in the previous year, he had tried cigarettes with a new type of tobacco given to him by one of his peers; his friend claimed he felt different things and the stress was gone after they smoked the cigarette. His companion also revealed that he smoked more that day than usual; he smoked three cigarettes and typically used the tobacco once every two days. Not long after smoking the cigarette, he became intoxicated and fell asleep on the ground; his companion attempted to wake him up and assist in moving him to a safe location. He regained consciousness for not too long and appeared restless, but he had difficulty controlling his movements; his body seemed stiff, and he fell asleep again. He then woke up with

the same complaint, and he also seemed to talk to himself, so he was escorted to his parent's house. His parents were taken aback when they discovered their son's behaviour had altered and rushed him to the hospital. His parents were labourers in a nearby gold mining firm in Papua. They spent much time in the company because they worked in the mine and had to be separated for several days. As a result, their 18-year-old son frequently communicates with his friends outside the home, and his parents admit that their son's relationship with them has become brittle because they rarely interact, and children's associations are not controlled. The patient is uneasy at home because he has no one to talk to about problems at school; for example, he is frequently admonished for being tired and belittled by his classmates because he consistently receives poor grades. He stated that he enjoys gathering with his friends outside of school since his stress dissipates, especially after being frequently provided with smoke, which instantaneously removes the mind's burden. He was detected using synthetic cigarettes by his parents about a month ago, and he was punished and instructed to quit. However, in the last two weeks, he admitted to frequently hallucinating by hearing someone mumbling something unclear what was said. He was uneasy because of the hallucinations. During the psychiatric assessment, the patient revealed that he had a sleep disorder and irritability issues over the previous two months. He smoked virtually daily, although he tried to quit for a month. He is currently attempting to repurpose synthetic cigarettes. They utilize a specific tobacco mainly manufactured with a unique component. He occasionally uses the tobacco his friend purchased, rolled using dried leaves and then burned and smoked. He explained that he felt satisfied when smoking the tobacco cigarette. During the interview, he was circumspect and only spoke when asked. He also displayed dysphoric mood, related symptoms appeared nervous, and no thought abnormalities, such as delayed and abstract thinking, orientation, or memory loss, were noted. However, his ability to concentrate was impaired, and vital signs revealed tachycardia, a reddened conjunctiva and a dry mouth on physical examination. He was diagnosed with a conduct disorder based on the F12 criterion of acute intoxication due to cannabinoid use in the International Classification of Diseases-10 (ICD-10). The ASSIST score for this patient is 24. Cognitive behavioural therapy (CBT), family counselling, psychosocial therapies, and administering second-generation antipsychotics or atypical antipsychotics are all options for these patients.

Discussion

Synthetic tobacco is a type of tobacco that is similar to tobacco in general used in cigarettes, but what makes it different and dangerous is the content contained in the tobacco. Synthetic tobacco is mixed with *methyl 2-([1-(5-fluorophenyl)-1Hindazol3-carbonyl]amino)-3,3 dimethyl butanoate (5-fluoro ADB)*, which is a type of synthetic cannabis liquid so that it causes almost the same effect as marijuana. Synthetic tobacco has a different physical form from marijuana; if marijuana is slightly greenish and somewhat moist, synthetic tobacco has a brownish colour with dried tobacco leaves. Synthetic tobacco also does not have a distinctive odour, especially if burned, in contrast to marijuana, which has a distinctive odour, especially when burned.⁵ The use of cannabinoids can interfere with short-term and long-term health. Some reports suggest that adverse reactions such as poisoning are much more common in *cannabinoids* than in cannabis.

Table 1. List of Synthetic Cannabinoid names commonly encountered

Angry Birds	K2	Skunk
Bhang	Mojo	Smacked
Bliss	Killa Gorilla	Smoking Santa
Black Mamba	Moon Rocks	Spice
Bombay Blue	Ninja	Synthetic Cannabis
Crazy Clown	Mr. Nice Guy	Synthetic Marijuana
Dr. Feel Good	Outer Space	Tomcat
FakeWeed	Scooby Snax	Wanted
Gangsta	Sexy Monkey	Yucatan

Source: *Top ten facts you need to know synthetic cannabinoids: not so nice spice*,
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Synthetic cannabinoids are not classified as cannabis. Synthetic cannabinoids are a collection of many laboratory chemicals which mimic cannabis by interacting with cannabinoid receptors in the brain. Synthetic chemicals designed to mimic cannabis bind to the same cannabinoid receptors in the brain as delta 9-tetrahydrocannabinol (Δ^9 -THC), the main psychoactive component of cannabis.⁷

Symptoms of psychiatric disorders themselves in the use of *synthetic cannabinoids* include symptoms of psychosis, anxiety, paranoia, and hallucinations. In the case study, the findings were 10 cases of new-onset psychosis; 2 involved using a single synthetic cannabinoid and the other with concomitant use of alcohol or cannabis.⁷

Cigarette filters are also made of a synthetic material made of cellulose acetate fibre. Some synthetic cigarettes also use filters that make the synthetic cigarettes increase the levels of chemicals in them.⁸

According to *the International Classification of Diseases-10* (ICD-10), Acute intoxication due to cannabinoid use must meet the criterion.⁹ The criteria are explained below:

1. There must be clear evidence of recent use of psychoactive substances at dose levels high enough to be consistent with poisoning.
2. There must be symptoms or signs of intoxication that correspond to the known action of a particular substance (or substances), as specified below, and are severe enough to produce disturbances at the level of consciousness, cognitive impairment, perceptual disorders, affects, or other behavioural disorders.
3. Existing symptoms or signs cannot be explained as part of a medical disorder unrelated to substance use and are not explained as other mental or behavioural disorders.

Acute intoxication due to cannabinoid use must also meet the following criteria:

- a. The above general criteria for acute poisoning must be met
- b. There must be dysfunctional behaviour or perceptual abnormalities, including at least one of the following:
 1. euphoria and disinhibition
 2. anxiety or agitation
 3. suspicion or paranoid ideas
 4. temporal slowdown (feeling that time passes very slowly and/or the person experiences a rapid flow of ideas)
 5. Impaired Judgment
 6. attention disorders
 7. Reaction time disruption
 8. Auditory, visual, or tactile hallucinations
 9. hallucinations with preserved orientation
 10. Derealization
 11. interfere with personal functioning

12. Depersonalization

According to the Guidelines for Classification and Diagnosis of Mental Disorders in Indonesia edition III (PPDGJ III) diagnostic guidelines for dependency syndrome, if 3 (three) or more of the following symptoms are found experienced within the previous year, namely

1. The presence of a strong desire or compulsion to use psychoactive substances.
2. Difficulty in controlling substance use behaviour, including from the start, cessation attempts, or at a moderate level of use.
3. The state of physiological withdrawal when stopping the use of substances or reduction is evidenced by the presence of cash withdrawal symptoms or the person using similar substances or classes of substances to eliminate or avoid the occurrence of withdrawal symptoms.
4. Proven tolerance, in the form of an increase in the dose of psychoactive substances needed to obtain the same effect usually obtained with lower doses.
5. Progressive neglect of enjoying pleasure or other interests is due to the use of psychoactive substances, the increasing amount of time necessary to obtain or use substances, or to recover from their consequences.
6. Continuing to use the substance even if he is aware of the adverse effects on his health, a depressive state as a result of a period of heavy substance use, efforts need to be made to ensure that the substance user is genuinely, or reliably, aware of the nature and magnitude of the danger.

The age of the patient presented in this case is 18, which belongs to the adolescent group. This aligns with the previous study, which states that adolescents are the community group most vulnerable to addiction. The critical age for starting drug use begins in adolescence, and maximum drug use occurs in the youth aged 18–25. During this period, adolescents have a strong tendency towards experimentation, curiosity, vulnerability to peer pressure, rebellion against authority, and low self-esteem, which makes the individual vulnerable to drug abuse. During adolescence, basic developmental processes generally involve changes in the relationships between the individual and the various levels of context to which the adolescent is accustomed.¹¹

The role of the government is crucial in controlling the use of this dangerous, addictive substance, such as developing programs to educate, for example, making public service advertisements in various forms of mass media about the dangers of synthetic marijuana use, based on research whose methodology has been scientifically tested and substantial evidence. This is done in the hope that people will no longer consume synthetic marijuana. The government must also monitor the circulation (both legally and illegally) of various chemicals strongly suspected as precursors of synthetic marijuana to make it difficult for home producers to make synthetic tobacco.¹²

With Law No. 35 of 2009 concerning Narcotics in force today, possession and consumption of marijuana are illegal, but in reality, people still seek and consume marijuana with various motivations. However, consumers do not know what substance is sprayed (or soaked) with the tobacco. Many complaints from synthetic tobacco consumers that long-term consumption results in tremors, sudden increases in blood pressure, sudden fever, psychotic attacks, and various other health problems that can lead to death.¹²

The emergence of a new draft law currently hotly discussed by the health ministry must be strictly controlled. Every article stipulated must be ensured to follow the wider community's interests. This includes related to community protection from the impact of tobacco products. There have been reports of synthetic cannabinoid use that worsens psychosis symptoms or causes the recurrence of psychosis in patients with psychiatric problems.¹²

In the Problem Inventory List of the Health Bill submitted by the Ministry of Health to the House of Representatives, topics related to cigarette advertising were not included in the submitted list. The rules regarding the restriction or prohibition of tobacco advertising, promotion, and sponsorship have not been regulated in the DIM Health Bill. It is expected that regulations related to tobacco control in the Health Bill must be a concern for many parties. The reason is that strengthening the promotive

and preventive efforts that the government wants to emphasize will not be achieved if tobacco control efforts in the community do not run optimally.¹³

Benzodiazepines are an excellent choice for treating the side effects of psychological disorders and seizures, but antipsychotic agents are not only necessary for the management of delirium or psychosis but can also lower the seizure threshold.¹⁴

This patient's treatment uses antipsychotics to reduce his hallucinatory symptoms. Other interventions are provided in the form of counselling for patients and patients' families. The patient's symptoms slowly disappeared after six months of intensive and comprehensive treatment in and outside the hospital. The Final Score of ASSIST is 3.

Conclusion

This case report describes the clinical features of acute intoxication due to cannabinoids, characterized by agitation and auditory hallucinations in an 18-year-old male patient. The patient was then treated with antipsychotics to reduce his hallucinatory symptoms. Other interventions are provided in the form of counselling for patients and patients' families.

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