

A RARE CASE: AYAHUASCA TEA INTOXICATION

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Abstract

Objective: Ayahuasca tea contains N, N-dimethyltryptamine (DMT) found in the leaves of the *Psychotria viridis* vine and β -carbolines found in *Banisteriopsis caapi*.

Case Report: A 59-year-old man was brought to the emergency department due to hallucinations, agitated behavior, aggression, nausea and vomiting developing 1.5 h after drinking approximately one tea glassful of Ayahuasca tea. Hypertension and mydriasis were determined, while blood, EKG and chest x-ray were normal. Symptomatic treatment was administered, and the patient was discharged following 24-h clinical observation in the emergency department.

Discussion: It has been suggested that DMT exhibits anxiolytic effects in low doses, but that hallucinogenic effects emerge when taken in large doses. In order to be effective when taken orally, DMT must be used with a monoamine oxidase inhibitor. Our case exhibited hallucinations and the majority of the autonomic symptoms associated with DMT use described in the literature. Ayahuasca tea is toxic. Uncontrolled use may even result in mortality.

Conclusion: Emergency physicians should consider Ayahuasca tea ingestion in patients presenting to the emergency department with agitation, hypertension, mydriasis and, particularly, hallucination.

Keywords: tea intoxication, Ayahuasca, hallucination

Objective

Ayahuasca tea is obtained from a mixture of *Psychotria viridis* plant leaves and an extract produced by boiling the bark of the *Banisteriopsis caapi* plant. The 5-hydroxytryptamine (5-HT)_{1A/2A/2C} receptor agonist and hallucinogen N, N-dimethyltryptamine (DMT) is found in the leaves of *P. viridis*, and powerful monoamine oxidase-A (MAO-A) inhibitor β -carbolines (harmine, tetrahydroharmine and harmaline) are found in *B. caapi*. These substances are largely responsible for the effect of the tea. In addition to psychoactive properties, β -carbolines also prevent the breakdown of ingested DMT in the intestines and peripheral breakdown. DMT thus enters the circulation and exhibits its effects by passing the blood-brain barrier (1). We report a case brought to our emergency department due to hallucinations, agitation and aggressive behavior resulting from Ayahuasca tea ingestion.

Case Report

A 59-year old male patient, from whom verbal consent for this case report was obtained, was brought to our emergency department due to hallucinations, agitated behavior, nausea and vomiting. Relatives informed us that the patient was a phytotherapist and that he had consumed approximately one tea glass-full of an Ayahuasca tea mixture he had received from overseas with various plants for experimental purposes. We learned that he had consumed this for the first time in his life approximately 1.5 h before being brought to our department. The patient had no history of disease or drug use. Blood pressure was 190/90 mmHg, respiration rate 16/min, heart rate 86/min, and body temperature from the tympanic membrane 37.1 C. At physical examination, he was conscious, but agitated. The pupils were isocoric and mydriatic, and bilateral light reflexes were present. Other system examinations were normal. Normal sinus rhythm was determined at electrocardiography (ECG). No pathological findings were observed at chest x-ray. At biochemical tests, urea,

creatinine, hepatic enzymes, CK, CK-MB, troponin I, INR, electrolyte and blood count values were within normal ranges. In arterial blood gasses, oxygen saturation was 93.7%, pH 7.370, and pCO₂ 44.1 mmHg. Blood specimens were collected for serum DMT level analysis; however, the technical means for doing this were unavailable. The patient was placed under observation and monitoring. Perlinganit infusion was started for hypertension. Sedation was established with intravenous (iv) administration of 0.1 mg/kg of midazolam as a benzodiazepine, while 10 mg metoclopramide was administered iv for the nausea and vomiting. Gastric lavage was performed, after which active charcoal was administered by nasal tube at a dosage of 1 g/kg. Blood pressure returned to normal after approximately 24 h, and the agitated state, aggressive behavior and hallucinations improved. At the sixth hour of emergency department observation and treatment no symptoms other than an anxious state remained. The patient was discharged in a healthy condition following 24-h clinical follow-up in the emergency department.

Discussion

DMT is a hallucinogenic and member of the triptamine family that has been potentially implicated in the etiology of schizophrenia (2). It has been suggested that it exhibits anxiolytic efficacy in low doses, but that hallucinogenic effects emerge when taken in large doses (3). In order to be effective when taken orally, DMT must be used with a MAO inhibitor (4). The patient's history and clinical findings showed that he had drunk a mixture made from specimens of both plants, and that the symptoms had commenced approximately 1.5 h subsequently. Users of Ayahuasca tea, which contains DMT and the MAO-A inhibitor β -carboline, have been reported to perceive their surroundings as trembling and brighter than usual, and to experience illusory images appearing before their eyes, a feeling that time has slowed down and a sense of 'infinity' (5). They have also reported visiting other worlds, speaking with other worldly/extraterrestrial beings, experiencing profound changes in their perception of being, and terrifying and compelling forces (6). Our patient was unable to lie still on the gurney in the emergency department, but wandered aggressively around it. His speech was incoherent and angry, as if there were individuals close by who wished him harm. He did not recognize relatives and was completely unable to cooperate with members of the

health team attempting to care for him. We attribute these reactions to the effect of verbal and auditory hallucinations reported in the literature. It has been reported that autonomous effects such as mydriasis, hyperthermia, tachycardia and hypertension may be seen in association with DMT use (7). Heise et al. reported, following their examination of reports made to the US National Poison Control Centers due to Ayahuasca intake between 2005 and 2015, that the majority of cases involved males, that exposure was most commonly due to acute ingestion, and that major or moderate clinical effects were observed in 63% of cases. Clinical findings included hallucination (35%), tachycardia (34%), hypertension (16%), mydriasis (13%), and vomiting (6%), with endotracheal intubation in 5%, respiratory arrest in 7 cases, cardiac arrest in four and mortality in three (8). Our patient may be regarded as suffering a moderate clinical effect. Reported median lethal doses in humans are 1.6 mg/kg in iv use and 8 mg/kg in oral use, and our patient's serum DMT level could not be investigated (5). In their scan of the literature in Turkey, Umut et al. reported that a 19-year-old man with chronic marijuana use in addition to DMT intake presented to the psychiatric clinic with long-term effects. However, we encountered no reported presentation with an acute manifestation (9). The effects of DMT on general mental health are controversial. Although the incidence of schizophrenia in communities that traditionally use Ayahuasca is as low as 1%, and general psychiatric symptoms decline with Ayahuasca use, and cognitive skills such as verbal reasoning, verbal memory and arithmetic are slightly better than in controls, Ayahuasca is nevertheless a toxic plant. Uncontrolled use may even result in mortality (1,9).

Conclusion

Our patient is the first case in Turkey presenting to the emergency department with an acute manifestation due to DMT intake resulting from Ayahuasca tea ingestion. Emergency physicians should consider Ayahuasca tea ingestion in patients presenting to the emergency department with agitation, hypertension, mydriasis and, particularly, hallucination, and should investigate this when taking histories.

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