Salvia Divinorum: A Case Report

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Abstract

Nowadays, narcotic and enjoyable substances threaten especially adolescents and young people. These substances are fairly common and various. This makes them easier to access. Their use is also closely associated with low socio-economic and socio-cultural conditions. It has been known psychoactive and hallucinogenic effects of Salvia divinorum for many years. It is abused for this purpose. In this study, we presented a patient who developed renal failure and rhabdomyolysis due to immobility after abuse of Salvia divinorum. It has been known that the patient remained immobility for four days after using Salvia divinorum and did not use any additional drugs. It has been discussed accompanied to the literature that the duration of action of Salvia divinorum used at high doses may be longer than usual and substance dependence is associated with low socio-economic status.

Keywords: Salvia divinorum; Rhabdomyolysis; Efficacy; Socio-economic status

Case Report

A 23-year-old male patient was found by emergency aid team and brought to our emergency department. According to the statement of the patient’s relatives and emergency aid teams, the patient remained for about immobility four days in the place where he was found located. On the physical examination of the patient, he was conscious, oriented and cooperative. Blood pressure was 130/76 mm Hg, heart rate was 80/min, respiratory rate was 16/min and oxygen saturation was 98%. Heart sounds were rhythmic and respiratory sounds were normal. On the abdominal examination of the patient, there were no defense and rebound signs and bowel sounds were normal. The bilateral lower limbs were edematous and the lower limb dimensions increased three fold. It was seen in the patient that an ecchymotic, hyperemic, erythematous, hot and edematous area measured approximately 40 cm x 15 cm in dimensions was extended from the left gluteal region to the left lumbar region. The laboratory results of our patient are shown in Table 1.

| Glucose | Ürea | Cr | AST | ALT | CK | LDH | Ca | Na | K | P | Hgb | WBC | Plt | CKMB | CRP | Sedimentation |
|---------|------|----|-----|-----|----|-----|----|----|----|----|-----|------|-----|-----|------|-----|---------------|
| First Day | 145 | 83 | 7.5 | 1606 | 709 | 264193 | 3963 | 6.2 | 124 | 5.1 | 6 | 7.5 | 12400 | 121000 | 300< | 162 | 60 |
| Last Day | 93 | 27 | 1.2 | 30 | 32 | 193 | 234 | 10.3 | 140 | 3.9 | 3 | 11.2 | 8200 | 243500 | 45 | 47 | 48 |

Table 1: Laboratory results of our patient.

He was hospitalized to the intensive care unit with pre-diagnosis of rhabdomyolysis and acute renal failure and underwent hemodialysis. There were findings of compartment syndrome in the hip MRI but surgical intervention was not considered (Figures 1 and 2). Superficial ultrasound imaging was taken to evaluate gluteal and lumbar necrotizing fasciitis. The skin and subcutaneous tissues were edematous. The operation was not considered. Ampicillin sulbactam 2 × 200 mg were intravenously started for the patient with high CRP values. On the 3rd day of hospitalization, all abdominal ultrasonography was taken. Pleural effusion was observed on the right hemithorax. On the 4th day of hospitalization, peripheral blood smear was made to evaluate anemia. Hemolysis was detected. The patient was transfused with a red cell suspension during hemodialysis. On the 7th day of hospitalization, the urinary output was 320 cc/day in the patient with anuria who underwent hemodialysis and ultrafiltration treatment. Mannitol and furosemide were added to the treatment. After two days, the urinary output was 2500 cc/day. Diuretic therapy was discontinued in the patient who had polyuric phase. Liquid and electrolyte support therapy was given. The patient was consulted to the psychiatry department for psychologic substance abuse. It was learned that the patient did not work in a regular job and never went to school. It was understood that the patient with a history of drug use sometimes exhibited aggressive behavior and had social cohesion issues. It was detected that the patient lived in a crowded family and in a low income area. After the discharge, the patient was referred to a psychologic substance abuse treatment center.
The psychoactive compound of Salvia divinorum was Salvinorin A. Salvinorin A was a potent agonist of the dopamine D2 receptor and the selective kappa opioid receptor. Its psychomimetic effects were found to be similar to effects of serotoninergic agonists and N methyl D aspartate glutamate receptor antagonists such as mescaline and lysergic acid diethylamide [10]. Its duration of effects was short and rapidly converts to the inactive metabolite salvinorin B [11].

When its leaves were taken by chewing, it was rapidly absorbed directly from the oral cavity for half an hour to one hour [12]. It was excreted by the urine and saliva. If its dried leaves were used in the form of cigarettes, a stronger dose was reached within 15 minutes and led to loss of control of the body similarly to ketamine and phencyclidine [13]. Our patient said that he used dried leaves through inhalation accompanied with cigarette. He could not give reliable information about the dosage. Immobilization of the patient was stayed for a long time suggests that the duration effect of Salvia divinorum might increased in a dose-dependent manner. There were few studies published in the literature about effects and duration of action of Salvia divinorum. It was seen in the literature that the sensory and cognitive effects of Salvia divinorum were deep but short and that its potential was lower than that of other drugs, including alcohol in terms of risks such as injury, interpersonal conflict and property damage. However, there were also studies that investigated the exposure to high doses [14]. It was emphasized in these studies that unusual mystical hallucinations characterized with orientation changes were seen and the pressure feeling in the body was significantly increased in a dose-dependent manner in participants taking high dose of Salvia divinorum [15].

A study conducted in Canada has also noted that the use of Salvia divinorum is more common among those who have lost their self-esteem and who have low ties with the school. In the same study, it was reported that use of Salvia divinorum showed regional differences [16]. Our patient came from low socio-cultural and economic region of the city we live in. It was noted that that the patient was depressed and anxious in bilateral talks. Our patient was not trained and was unemployed. In a study conducted in our province of Bursa, it has been determined that the majority of drug crime cases consisted of young and middle-aged men with lower socio-cultural and economic status and the majority of drug-related crimes were associated with cannabis [17].

Synthetic cannabinoids are known to cause rhabdomyolysis and renal failure [18]. However, some animal experiments have shown that salvinorin A, which is main active ingredient of Salvia divinorum, caused almost no histological changes in the spleen, blood, brain, liver, kidney, and bone marrow [19]. In our case, there were rhabdomyolysis and renal failure due to prolonged immobility after the use of Salvia divinorum. In the current studies the psychogenic and hallucinogenic effects of Salvia divinorum were more mentioned in the literature. It has been learned that the patient did not take any other substance or medication in addition to the use of Salvia divinorum on the day of the
event. This issue was especially emphasized in interviews performed with the patient and his family.

Consequently, the use of Salvia divinorum was led to deterioration in visual perception, mood and somatic sensations and even more importantly, to a very high rate of change in the external reality and self-perception. Our knowledge especially about complications developed after a high dose was not enough. The reduction in interaction with ourselves or around us, depending on social, cultural and economic reasons, was both the cause and the consequence of substance dependence.

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