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LETTER TO THE EDITOR

Ketamine use disorder: A case report

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Dear Editor,

Ketamine is a dissociative anesthetic that continues to be abused in many countries in Europe and the USA (1). A phencyclidine derivative, ketamine is used in both veterinary and human medicine. Its advantage in anesthesia lies in its ability to produce deep analgesia, amnesia, and sedation while preserving cardiopulmonary function and airway reflexes (2). Ketamine abuse is frequently associated with its use as a club drug (3). It is likely that many chronic users self-medicate with ketamine due to its antidepressant effects (4). The psychotropic effects of ketamine include dissociation (such as depersonalization or derealization) and psychotic experiences (such as delusions, auditory or visual hallucinations). Common experiences also include body distortion, loss of sense of time, feelings of cosmic oneness, and out-of-body experiences. These effects vary depending on mood, environment, and dosage, typically lasting up to 30 minutes (5, 6). Ketamine can become a drug of choice for abuse and can lead to dependence. It acts as an antagonist at the N-methyl-D-aspartate (NMDA) receptor, inhibits muscarinic acetylcholine receptors, and potentiates GABAergic (gamma-aminobutyric acid-mediated) inhibition. It also affects the dopaminergic system, increasing extracellular dopamine levels in the striatum and prefrontal cortex, and has affinity for μ-opioid and sigma receptors. These interactions form the neurobiological basis for the rewarding and reinforcing effects of ketamine (7–9). Evidence regarding ketamine withdrawal is inconsistent; however, cravings are commonly reported among frequent users. Although there is no defined withdrawal syndrome specific to ketamine, symptoms such as anxiety, tremors, sweating, and palpitations have been observed in some individuals (3, 7, 10). In Türkiye, there is insufficient data on the prevalence of ketamine abuse or ketamine use disorder.

The case presented in this study is that of a 52-year-old male patient with ketamine use disorder (written informed consent was obtained from the participant). The patient is divorced and has one child. He completed primary school and reported being the owner of a company that supplies drugs to the veterinary field. The patient has no known chronic medical illnesses, no history of psychiatric treatment, and no forensic history. He does not take any medication on a regular basis. He reported smoking three packs of cigarettes per day and consuming alcohol socially, typically three servings of beer once a week, with the most recent use two days prior to admission. Based on this information, the patient does not meet the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) diagnostic criteria for alcohol use disorder, as he does not experience problems related to intoxication or withdrawal, nor is there any alcohol-related impairment in functioning. He also reported short-term, irregular cannabis use in his thirties.

The patient stated that he had been using ketamine for the past four years. Initially, he used

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it once every 3–4 days for recreational purposes, but both the frequency and dosage increased significantly in the past year. He reported using an average of 3–4 grams of ketamine daily. He stated that he had easy access to the drug through the veterinary company he owns; he boiled ketamine in ampoule form into a solid, then converted it into powder and administered it intranasally. The patient's family noticed his recent substance use, which the patient himself interpreted as a loss of control. Following this realization, he sought help at the Research, Treatment, and Training Center for Alcohol and Substance Dependence at our hospital, and the inpatient treatment process was initiated.

The patient stated that he had not used ketamine for two days at the time of admission and described restlessness, anxiety, and intense craving for ketamine. Mild agitation, tremor, and diaphoresis were observed on objective examination. Vital signs and electrocardiogram (ECG) results were within normal limits, and no significant abnormalities were found in blood tests. Urine toxicology revealed no notable findings except for ethyl glucuronide positivity. Psychiatric evaluation showed that the patient was conscious, oriented, and cooperative. His mood was mildly depressed, and his affect was sad. Thought processes were coherent, speech content was appropriate for his sociocultural background, and no psychotic symptoms were observed. The patient stated that while under the influence of ketamine, he felt an increase in cognitive capacity, believed his mental power had reached extraordinary levels, thought he could read others' minds, and felt happy and energetic. These entactogen experiences were considered related to the psychotomimetic effects of ketamine.

Due to the lack of a specific pharmacologic treatment protocol for ketamine use disorder, a supportive approach was adopted. A review of the literature shows that previous case reports have used agents such as diazepam or carbamazepine to treat withdrawal symptoms like restlessness, anxiety, and insomnia (11, 12). In our case, extended-release quetiapine was initiated at a dose of 150 mg/day to manage anxiety and stabilize mood. On the second day, when the patient reported difficulty falling asleep, 50 mg/day of normal-release quetiapine was added to the treatment. By the third day, withdrawal symptoms had subsided, and the patient reported no active complaints. He stated that his general condition was good, expressed a desire to continue treatment as an outpatient, and was subsequently discharged.

Ketamine affects dopaminergic, GABAergic, and opioidergic systems, particularly through NMDA receptor antagonism, and has addictive potential due to these properties (7, 8). In the case presented, recreational ketamine use escalated to high daily doses over time, resulting in a clinical picture consistent with substance use disorder. Although there is no defined withdrawal syndrome specific to ketamine, symptoms such as restlessness, craving, tremor, and diaphoresis support this possibility.

The patient's experiences of cognitive enhancement, boundary dissolution, and "mind reading" while under the influence of ketamine suggest that its psychotomimetic effects may be reinforcing on an individual level. As there is no specific pharmacological protocol for treating ketamine abuse, a supportive, symptom-focused approach was adopted, and significant clinical improvement was achieved with quetiapine.

This case demonstrates that ketamine abuse can evolve into a use disorder, may be accompanied by withdrawal symptoms, and can be associated with psychotic-like experiences. It should be noted that the risk is particularly elevated in occupational groups with easy access to the substance. More clinical data are needed in this area.

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