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Ketamine Crisis: Case Report on the Complications of Ketamine Usage and Its Rise in the United States

Shika Veera

Rowan University

Vajreshwari Shivaprakash

Kaiser Permanente Division of Research

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Ketamine Crisis: Case report on the complications of Ketamine usage and its rise in the United States

Authors: Shika Veera, Vajreshwari Shivaprakash, MD

Institution: Rowan-Virtua School of Osteopathic Medicine

Introduction

Ketamine is a drug originally developed as an anesthetic for both humans and animals, first used in medicine in the 1970s. Due to its nature of analgesia with altered mental status, it has become a substance of abuse. Ketamine has gained popularity as a recreational drug for several reasons: psychedelic effects, increased availability, use in the club and party scene, social media influence, treatment-resistant depression and off-label use. Similar to MDMA and amphetamines, in events of acute toxicity, the person can experience agitation, hallucinations, and psychosis.

Currently, ketamine has been approved for use in cases of anxiety, depression, pain management, and PTSD. This is due to its hypnotic, analgesic, and amnesic effects. It's prescription usage in psychiatry has been increasing in recent years, particularly in treatment-resistant depression. The legality of ketamine varies by jurisdiction in the United States and misuse can have legal consequences. Despite the classification as a schedule 3 drug in the United States, the prevalence and spread of misuse has increased over the past 20 years. Unfortunately, it is difficult to determine the precise prevalence of non-medical recreational abuse.

The recreational use of ketamine poses various health risks, including addiction, cognitive impairments, and physical harm. Long term toxicity is still being studied and has been associated with neuropsychological and urological complications.

Current UDS screening tests for amphetamines, methamphetamines, benzodiazepines, barbiturates, marijuana, cocaine, PCP, methadone, opioids (narcotics). Ketamine is not presently included in the average urine drug screen and can be missed without direct questioning.

Substance	Length of detection
Amphetamines	48 hours
Methamphetamines	48 hours
Benzodiazepines	3 days (short-acting), 30 days (long-acting)
Marijuana	5-7 days
Cocaine	2-4 days
Opioids/Opiates	48 hours
Phencyclidine	8 days

Figure 1. Substances tested in urine drug screen (UDS) and timeframe

Case

The patient is a 24-year-old female who presented to with 30 lbs. unintentional weight loss over three months, generalized weakness, gait instability, and urinary incontinence and frequency for four months. She reported worsening nocturia that has required her to wear diapers at night. She endorses right upper quadrant and suprapubic pain with occasional gross hematuria. The patient denied recreational drug use. Urine drug screen was negative. Patient had no current medications. Patient is sexually active with her boyfriend. Urine pregnancy test was negative. Gynecologic exam and STI testing were without concerns. On exam, she had generalized weakness, cachectic appearance, euvolemic, without acute distress. Skin is dry, and there is no evidence of enamel loss in teeth or parotid gland enlargement. Positive right lower quadrant tenderness, suprapubic tenderness, and costovertebral angle tenderness bilaterally. The patient was admitted to the ICU due to weakness and significant hyponatremia at 115. Urinalysis was positive, and patient self-reported recurrent *E. coli* UTI history. She was started on Zosyn for UTI, normal saline for hyponatremia, calcium bicarbonate and insulin for hyperkalemia. CT abdomen and pelvis showed striated perinephric fat stranding, cholangitis, and pyelonephritis with right sided hydronephrosis. Anemia was determined to be a mixed iron deficiency and chronic disease picture. On day 6 of 9, admission of intranasal ketamine use was documented. Upon finding bacteria in the bloodstream and history of recreational drug use, the team also recommended transthoracic echocardiogram to rule out possible infective endocarditis. TTE was negative for vegetations and revealed a normal ejection fraction.

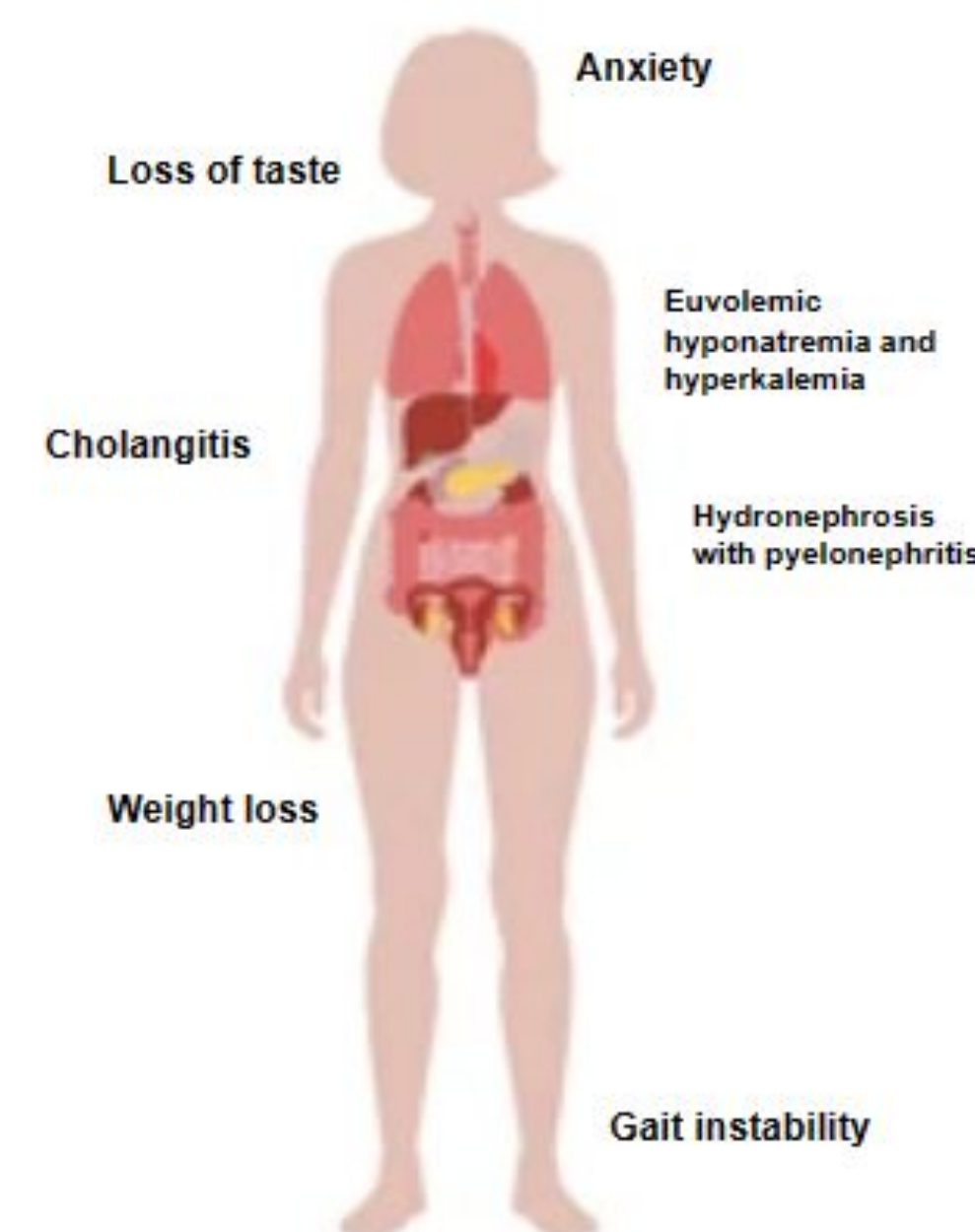


Figure 2. Complications caused by Ketamine

Outcomes

Patient was appropriately treated for UTI with *Pseudomonas* with antibiotics, fluids, pain and symptom control. Patient declined foley catheter despite urinary incontinence. Papillary necrosis associated with ketamine usage can be associated with tract obstruction resulting in urinary incontinence. Papillary necrosis associated with ketamine usage can be associated with tract obstruction resulting in urinary incontinence. With monitoring and appropriate symptomatic management, the patient was able to tolerate PO intake and lab values returned to normal. Unfortunately, urinary function has delayed recovery after stopping ketamine use. The patient was first exposed to ketamine over two years ago at a rave. She reported that the urinary symptoms started four months prior. The patient was counseled to discontinue ketamine use in order to resolve the ongoing issues. Ketamine toxicity has historically been associated with individual incidence of SIADH, urinary incontinence, cholangitis, loss of taste, and chronic anorexia. It is unusual to see this collection of symptoms present in one person. The full constellation of symptoms that are associated with ketamine usage in this case are: anxiety, cholangitis, hydronephrosis with pyelonephritis and urinary incontinence, loss of taste, weight loss, euvolemic hyponatremia, hyperkalemia.

Discussion

This case illustrates the importance of appropriate testing in the circumstance of an unreliable narrator and the resulting delay in patient care. Initially, the patient was treated symptomatically based on complaints until the patient eventually admitted to one of the providers that she had used ketamine for years prior. This complex case could have been streamlined if the urine drug screen tested for ketamine usage. There are no current established guidelines regarding ketamine toxicity management. As the use of ketamine and other recreational drugs increase, the ability to test for these drugs should be prioritized as well.

References

