

# Ketamine

## A Cause of Urinary Tract Dysfunction



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### KEYWORDS

• Ketamine • Urology • Urinary Tract Dysfunction • Inflammation • Bladder • Illicit

### KEY POINTS

- Lower urinary tract symptoms such as urgency, frequency, dysuria, and hematuria are common urologic complaints in men and women and the differential remains broad.
- Illicit ketamine abuse is a growing problem and can lead to a cystitis symptom complex that mimics common genitourinary complaints.
- Ketamine abuse induces complex changes to the environment of the urinary tract, specifically the bladder, that can be observed clinically and at the molecular level.
- Currently, there is no standard for diagnosing and treating ketamine induced cystitis, however, treatment currently involves symptom management.
- More investigations should be done to develop standard and/or individually targeted diagnostic and treatment protocols for this emerging cause of cystitis.

### INTRODUCTION

According to the 2014 national survey on drug use and health, approximately hundreds of thousands of people in the United States aged 12 and over have used illicit substances of varying types.<sup>1</sup> Drug addiction is a chronic relapsing disorder, and people who suffer with it tend to demonstrate binge use, intoxication, withdrawal associated with a negative emotional state, and anticipation of substance use that modifies the brain reward and stress systems.<sup>2</sup> The association between reward and stress has been demonstrated previously. For example, using a mouse model, Piazza and colleagues<sup>3</sup> found that when mice were injected with corticosterone, self-administration frequency increased, particularly at higher doses. Interestingly, in

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