

DEPRESSION NEED TO BE CONSIDERED WHEN MANAGING THE LOWER URINARY TRACT SYMPTOMS AMONG KETAMINE ABUSERS

Hypothesis / aims of study

Previous study showed that the prevalence of ketamine induced urological complication was around 25%–50%. Higher typical doses and more frequent use were also associated with significantly higher rates of developed lower urinary tract symptoms (LUTS). Moreover, female ketamine users self-reported significantly greater (2.7 ORs) levels of severity in urinary discomforts compared with male users. However, there was no discussion with risk factors which had casual effect on developing LUTS, such as multiple drug use and comorbidities. The aim of our study was to investigate the association between ketamine induced LUTS and dosage, duration, comorbidities, depression and multiple drug abuse.

Study design, materials and methods

This study was a cross-sectional survey. Of 143 patients due to recreational ketamine abuse history more than one year were included. The definition of LUTS was diagnosed by using O'Leary symptom and problem index (ICSI+ICPI ≥ 12). According to LUTS definition, we divided ketamine patients to two groups, ketamine with LUTS and ketamine without LUTS. Face-to-face interview was conducted to collect their demographics, ketamine abuse duration, dosage and multiple drug-use of ketamine. The comorbidities included irritable bowel syndrome, migraine, fibromyalgia, Sicca syndrome and generalized allergic constitution. Depression was defined from the diagnostic criteria in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition. These data were analyzed using univariate and multivariate logistic regression model to estimate the odds ratio (OR).

Results

Of 143 ketamine users, 25 ketamine abusers had LUTS and other 118 patients had no LUTS. There was no difference in age, smoking status, alcoholic use, and marital status between non-LUTS and LUTS group. However, the proportion of female was significantly different between LUTS group and non-LUTS group (56.0% Vs. 17.8%, $P < 0.001$) (Table 1). The mean duration of ketamine use in LUTS group was statistically significant longer than non-LUTS group (79.6 ± 37.8 v.s. 38.2 ± 40.9 months) in the univariate and multivariate analysis. However, there was no difference between ketamine dosage and multiple drug abuse (MDMA, marijuana, and hypnotics use) between non-LUTS and LUTS group in multivariate analysis. Compared with ketamine users without LUTS, depression was 14.6 times higher in ketamine users with LUTS (Table 2).

Interpretation of results

The duration of ketamine use was significantly associative with the development of LUTS in ketamine users. The finding implicated that mean duration of ketamine use in LUTS group (79.6 ± 37.8 months), for more than 6.5 years, might cause lower urinary tract destruction. However, MDMA, marijuana, and hypnotics use was significantly associated with LUTS in the univariate analysis, but not statistically-significant in multivariate regression analysis. The 14.6-times higher of depression in LUTS than non-LUTS ketamine users implicated the association between depression and ketamine-induced LUTS. Ketamine had fast-acting anti-depressant effect, which might be the reason for ketamine users to self-medicate, and LUTS would cause the deterioration of quality of life such as depression. At this time, the causal relationship could not be defined from our study.

Concluding message

Depression and duration of ketamine-use are associated with the development of LUTS. When we manage the LUT in the ketamine users, depression may need to be considered and treated.

[Table 1] Baseline characteristics of 143 ketamine users

Characteristics	LUTS (n = 25)	No LUTS (n=118)	P-value
Age(years \pm SD)	27.9 \pm 4.9	26.9 \pm 6.2	0.46
Female	14	21	<0.001
Not married	20	100	0.54
Tobacco smoking ≥ 11 cigarettes/day	13	66	0.60
Alcohol use ≥ 2 days/week	7	42	0.42

[Table 2] Odds ratios of risk factors of LUTS in 143 ketamine users



	LUTS(n=25)	No LUTS (n=118)	Adjusted OR ¹ (95%CI)
	Mean ± SD		
Duration of ketamine-use (month)	79.6±37.8	38.2±40.9	1.02(1.01-1.03)**
Ketamine dose (gram/day)	2.2±3.5	2.2±4.8	1.00 (0.91–1.10)
Cumulative dose ² (gram)	2004.9±3334.7	1571.5 ±11356.2	
	n		
MDMA	15	42	1.35(0.32-5.67)
Marijuana	15	49	2.85(0.35-22.82)
Hypnotics	9	11	1.41(0.21-9.41)
Comorbidities	16	43	2.08(0.55-7.93)
Depression	17	8	14.62(3.87-55.20)**

¹Adjusted odds ratios are adjusted by sex, duration of ketamine use, use of MDMA, marijuana, and hypnotics, comorbidities as well as depression.

²Cumulative dose is calculated as the ketamine dosage X frequency of use X duration of ketamine use (months). The frequency of ketamine use is defined as three times per week according to a definition of “frequent users”. The result reveals no statistically-significant difference cumulative dose in two groups.

** P < .05

Disclosures

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