

URINARY CYTOKINES/CHEMOKINES IN KETAMINE ABUSERS

Hypothesis / aims of study

Urinary cytokines has been investigated as a biomarker for overactive bladder (OAB) syndrome (1). Lower urinary tract symptoms caused by ketamine abuse shared similar symptomatology of irritative and obstructive symptoms as OAB. Therefore, studying the relationship of urinary cytokines in ketamine abusers may benefit our understanding in the pathophysiology of ketamine cystitis. This study aimed to study the cytokine and chemokine levels in urine of ketamine abuser compared to age matched controls.

Study design, materials and methods

Midstream urine specimens were collected from a prospective study from 23 ketamine abusers and 27 control adolescents who had never on ketamine. The urine was analyzed by a multiplex panel screen for 19 cytokines/chemokines, including EGF, GM-CSF, GRO, IL-1ra, IL-5, IL-6, IL-7, IL-8, IL-10, IL-12p40, IL-12p70, IP-10, MCP-1, MIP-1b, sCD40L, sIL-2Ra, VEGF, MCP-4, and TARC using Luminex™ xMAP® technology. Protein concentration values were normalized to the levels of urine creatinine. Their urinary symptoms were compared by using Urinary distress inventory-short form (UDI-6). Ethics approval was obtained from the institute.

Results

The mean age of the control group was 21.1 ± 4.3 years (n = 27) and the mean age of the ketamine group was 20.6 ± 3.7 years (n = 23). All the subjects were females in both groups. The cytokine/chemokine analysis showed a significant elevation in EGF levels in the ketamine group as compared with the control group (18058 (SD 11642) vs 28184 (SD 10970) p<0.005). The levels of the remaining 18 proteins tested were not statistically significantly different from control values. The irritative and obstructive sub-scores and total score of UDI-6 were significantly higher in ketamine group. (Table 1)

Interpretation of results

EGF was found to be elevated in OAB women and may act as an inflammatory marker. In this study, EGF was found to be increased in women with history of ketamine abuse and with significant more irritative and obstructive urinary symptoms when compared with age-matched control group.

Concluding message

The urine levels of EGF were increased among ketamine abusers. This study demonstrated that urine excreted kidney cytokine EGF may be biomarker of lower urinary tract irritation and obstruction in ketamine abuser. Therefore, it merits a more thorough analysis to determine its role in ketamine abuser.

Table 1. Results of Urinary Distress Inventory-short form (UDI-6) in ketamine abusers and control group

	Control group N= 27	Ketamine group N=23	P value
Irritative score	4.5 (7.9)	27.8 (17.2)	<0.001
Stress score	3.6 (7.6)	10.8 (15.1)	0.11
Obstructive score	2.7 (5.3)	29.0 (23.9)	<0.001
Total score	10.7 (15.4)	67.4 (48.3)	0.01

Data is presented in mean (Standard Deviation)

References

1. Urine cytokines suggest an inflammatory response in the overactive bladder: a pilot study. Tyagi P, Barclay D, Zamora R, Yoshimura N, Peters K, Vodovotz Y, Chancellor M. *Int Urol Nephrol*. 2010 Sep; 42:629-35.

Disclosures

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