

PATIENT CHARACTERISTICS FOR DIFFERENT THERAPEUTIC STRATEGIES IN THE MANAGEMENT KETAMINE CYSTITIS

Hypothesis / aims of study

Long-term ketamine abuse results in severely inflamed bladder and intractable bladder pain. Currently there is no guideline for clinician to follow how to manage patients with ketamine cystitis (KC). This study analyzed the KC patient characteristics between who received conservative management and augmentation enterocystoplasty (AE).

Study design, materials and methods

A total of 53 patients with chronic ketamine abuse and lower urinary tract symptoms were included in this study. All of the patients have been initially treated conservatively but fail. They were admitted for detailed urological examinations. Patients were classified according to their maximal bladder capacity (MBC). The patients with extremely small MBC (<100 mL) with or without upper urinary tract damage and very small MBC with upper urinary tract damage were recommended to receive AE. The patient characteristics and treatment outcome are compared between patients with AE and conservative treatment.

Results

Among them, 28 patients underwent AE and 25 were managed with conservative treatment. The only significant difference between groups was more patients with urgency urinary incontinence underwent AE. Patients underwent AE had significantly smaller MBC, thicker bladder wall, and higher incidence of vesicoureteral reflux. Patients underwent AE reported a good outcome. Most of patients received conservative treatment had a fair result.

Interpretation of results

The results of this study revealed that between KC patients undergoing conservative treatment and AE, the bladder capacity and upper urinary tract damage are two major factors. Cessation of ketamine use is the mainstay of control lower urinary tract symptoms in KC patients. However, for the patients who already developed a contracted bladder with extremely small bladder capacity (<100 mL) or very small capacity (100-300 mL) with irreversible urinary tract change such as thickened bladder wall and hydronephrosis, partial cystectomy and AE seems necessary for early restoration of a normal lower urinary tract function. The treatment outcome of AE is better than patients with conservative treatment. However, education and absolute cessation of ketamine use is still strongly recommended after AE.

Concluding message

KC patients who already developed a contracted bladder with extremely small bladder capacity (<300 mL) with irreversible urinary tract change, partial cystectomy and AE seems necessary for early restoration of a normal lower urinary tract function. The treatment outcome of AE is better than patients with conservative treatment.

Table 1. Causes of patient selection for conservative treatment and augmentation enterocystoplasty

Conservative treatment	Augmentation enterocystoplasty
MBC>300 mL	MBC<100 mL with or without upper urinary tract damage
Normal upper urinary tract	MBC<300 mL with upper urinary tract damage
Improved bladder symptoms after treatment	Intractable bladder symptoms after treatment
Patients is afraid of surgery	Urge to change bladder condition
Doctor's opinion	Small functional bladder capacity persists

Table 2. The baseline patient characteristics between patients undergoing augmentation enterocystoplasty (AE) and conservative treatment

	Non-AE (n=25)	AE (n=28)	P value
Sex (Male/female)	14/11	11/17	0.224
Ketamine abuse	4.56 ± 2.53	4.54 ± 2.72	0.973
Frequency	100%	100%	1.0
Urgency	100%	100%	1.0
UUI	5/25 (20%)	17/28 (60.7%)	0.003
Bladder pain	17/25 (68%)	23/28 (82.1%)	0.232
Hematuria	12/25 (48%)	9/28 (32.1%)	0.239
Quit ketamine	20/25 (80%)	20/28 (71.4%)	0.469

AE: augmentation enterocystoplasty, UUI: urgency urinary incontinence

Table 3. The baseline patient urinary tract characteristics between patients undergoing AE and conservative treatment

	Non-AE (n=25)	AE (n=28)	P value
FBC (mL)	84.5 ± 59.6	37.0 ± 15.4	0.001
MBC (mL)	225.2 ± 142.7	169.3 ± 133.2	0.001
Bladder wall thickness (mm)	6.51 ± 2.59	9.52 ± 3.48	0.001
Hydronephrosis	3/22 (12%)	8/28 (28.6%)	0.138
VUR	3/25 (12%)	12/28 (42.9%)	0.013
Follow-up duration (month)	28.3 ± 19.7	31.6 ± 15.3	0.761
Outcome			<0.0001
Good	8 (32%)	24 (85.7%)	
Fair	13 (52%)	3 (10.7%)	
Poor	4 (16%)	1 (3.6%)	

FBC: functional bladder capacity, MBC: maximal bladder capacity, VUR: vesicoureteral reflux

Table 4. The changes of bladder parameters in 28 patients after AE

	Baseline	Post-AE	P value
Bladder capacity (mL)	52.7 ± 29.7	327.0 ± 69.4	<0.0001
Voided volume (mL)	44.2 ± 28.3	250.7 ± 133.4	<0.0001
Qmax (mL/s)	6.94 ± 4.32	13.7 ± 4.96	<0.0001
PVR (mL)	8.08 ± 19.2	82.6 ± 91.5	<0.0001
Compliance (mL/cmH ₂ O)	11.2 ± 11.9	54.0 ± 43.0	<0.0001

Table 5. The changes of symptom and urinary tract dysfunction at baseline and after AE

	Baseline	Post -AE	Remarks
Frequency urgency	28/28 (100%)	18/28 (64.3%)	
Bladder pain	23/28 (82.1%)	3/28 (10.7%)	Reuse ketamine
UUI	17/28 (60.7%)	1/28 (3.6%)	Nighttime UI
Hydronephrosis	8/28 (28.6%)	0	
UTI	18 (64.3%)	10 (35.7%)	Asymptomatic
APN	3 (10.7%)	1 (3.6%)	
VUR	12/28 (42.9%)	1 (3.6%)	No implantation
Dysuria	0	9/28 (32.1%)	
Large PVR	0	2 (7.2%)	
CUR	0	1 (3.6%)	Needing CISC

AE: augmentation enterocystoplasty, APN: acute pyelonephritis, CISC: clean intermittent self-catheterization, CUR: chronic urinary retention, PVR: post-void residual, UTI: urinary tract infection, VUR: vesicoureteral reflux

Disclosures

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