Volume 3, Issue 11, November 2025 ISSN (E): 2938-3765

IMPACT OF EXPULSIVE MEDICATION THERAPY ON THE PASSAGE OF URETERAL STONES

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Abstract

Objective: To assess the effectiveness of expulsive drug therapy in managing patients with ureteral stones.

Materials and Methods: A total of 50 patients with ureteral calculi received a standardized regimen of expulsive medication.

Results: Standard expulsive drug treatment led to spontaneous passage of ureteral stones in 40 patients (80%).

Conclusions: Given its high success rate, conservative drug-based management can be considered a viable option for treating uncomplicated ureteral stones.

Keywords: Ureteral calculi, pharmacologic therapy, treatment efficacy.

Introduction

The high prevalence of urolithiasis (kidney stones), affecting at least 5% of the population in industrialized nations, has driven ongoing efforts to identify effective preventive measures, improve diagnostic techniques, and develop advanced surgical treatments over the past several decades. It is well-established that men are more frequently affected by urolithiasis than women. Since the kidneys of both sexes are anatomically identical, sex hormones likely play a significant role in the formation of kidney stones. Interestingly, the incidence of kidney stones prior to puberty is equal between males and females. In Uzbekistan, urolithiasis prevalence varies by region, with rates reaching up to 8%. Ureteral stones account for 20 to 50% of all urolithiasis cases. These stones are a major cause of blockages that heighten the risk of severe complications. Ureteral stones typically cause significant pain, including severe renal colic attacks. While modern treatments such as extracorporeal shock wave lithotripsy (ESWL) and ureteroscopy are effective in managing most cases of ureteral stones, the role of pharmacological therapy in their treatment remains underexplored. Despite the clinical demand, an optimal drug regimen for ureteral stone management has yet to be established.

Purpose of the study

Assessment of the potential of expulsive drug therapy for treating ureteral stones in male patients.

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Material and Methods

From February 2022 to April 2025, 50 male patients with ureteral stones (diameter ≤ 8mm) were examined and treated at the State Institution "Republican Specialized Scientific and Practical Medical Center of Urology." The patients, aged between 20 and 75 years (average age 39.3±2.5), all presented with stones ranging in size from 3.5 mm to 8.0 mm (mean size 5.7±0.3). Patients with acute urinary tract infections, diabetes mellitus, a history of spontaneous stone passage or prior ureteral surgery, and those under 20 years of age were excluded from the study. Conservative treatment was discontinued if the patient requested it, if pain became unmanageable, if hyperthermia developed, or if the stone did not pass within 3 weeks of observation. The treatment protocol also included cessation of monitoring if the stone was passed independently.

The clinical protocol for urolithiasis patients included assessing complaints and taking medical history, physical examination, ultrasound of the kidneys and urinary tract, X-ray imaging, and urine analysis (qualitative and quantitative). Bacteriological culture of urine was performed when indicated, and, if necessary, biochemical and hematological tests were conducted. An integral part of the treatment strategy was expulsive drug therapy, which involved promoting fluid intake to achieve a daily diuresis of up to 2 liters, regardless of the type of fluid consumed. Additionally, ketoprofen (50 mg intramuscularly) was administered for pain relief.

Effectiveness was assessed based on several criteria: the frequency of stone passage from the ureter, the time taken for the stone to pass, the quantity of ketoprofen administered, the need for hospitalization, and the intensity of pain, which was evaluated using the Visual Analog Scale (VAS).

Results and Discussion

When expulsive drug therapy was employed, the rate of stone passage was 80%. The stones that passed had an average size of 6.0 ± 0.4 mm, and the mean duration for stone passage was 7.3 ± 0.5 days. On average, each patient used 200 ± 10.5 mg of ketoprofen for pain relief during the observation period. No patients required hospitalization. Mild side effects related to the expulsive therapy were reported in 10 (20%) patients, but none discontinued treatment. Among these, 5 patients experienced nausea and vomiting, while 2 reported general weakness, both associated with recurrent renal colic attacks. Pain severity, measured by the Visual Analog Scale (VAS), averaged 6.1 ± 0.3 (ranging from 2 to 9 points). Throughout treatment, pain intensity gradually decreased ($p<0.05$).

Of the 10 patients (20%) who did not pass stones during the observation period, 8 underwent extracorporeal shock wave lithotripsy (ESWL), 1 had ureterolithotripsy, and 1 required relocation of the stone into the kidney followed by percutaneous nephrolithotripsy.

An analysis of the results based on stone localization showed that patients with stones in the lower third of the ureter had a 16.4% higher stone passage rate than those with stones in the upper or middle third of the ureter. The time required for stone passage was slightly longer in the lower third group, but this difference was not statistically significant (Table 1). The initial size of the stones, as determined by imaging, did not significantly differ between the groups. Additionally, there were no significant differences in the size of stones passed between the two groups (Table 1).

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Pain intensity at admission and the frequency of renal colic before treatment were comparable between the groups (Table 2). Throughout treatment, both pain intensity and renal colic episodes significantly decreased in patients from both groups. Similarly, during treatment, the total amount of ketoprofen required for pain management was lower in the group with stones in the lower third of the ureter compared to those with stones in the upper or middle third, although the mean total dose of ketoprofen per patient did not differ significantly.

Conclusions

1. A conservative treatment approach should be considered a viable option for managing uncomplicated ureteral stones.
2. While the ideal pharmacological regimen for expulsive therapy has not yet been established, its use is recommended due to its high effectiveness, minimal side effects, and good patient tolerance.
3. Additional multicenter clinical trials are necessary to further investigate and clarify all aspects of expulsive therapy in the treatment of ureteral stones.

References

1. Akilov F.A. Mamatkulov B.M., Khudaibergenov U.A. et al. Prevalence of urological diseases in the Aral Sea region // Expert. and wedge. urol. - 2012. - No. 2. - P. 13-17.
2. Akilov F.A., Nurullaev R.B., Khudaibergenov U.A. and other Modern aspects of the prevalence of urolithiasis // Zhurn. theoret. and wedge. medicine. - 2013. - No. 3. - S. 53-56.
3. Knoll T. Epidemiology, Pathogenesis and Pathophysiology of Urolithiasis // Europ. Urol. - 2010. - Suppl. 9. - P. 802-806.
4. Kupeli B., Irkilata L., Gurocak S. et al. Does tamsulosin en hance lower ureteral stone clearance with or without shock wave lithotripsy? // Urology. - 2014. - Vol. 64. - R. 1111-1115.
5. Segura J.W., Preminger G.M., Assimos D.G. et al. Ureteral Stones Clinical Guidelines Panel Summary Report on the Management of Ureteral Calculi // J. Urol. - 2012. - Vol.158. - R.1915-1921.
6. Sowter S.J., Tolley D.A. The management of ureteric colic // Curr. Opin. Urol. - 2016. - Vol. 16, no. 2. – P. 71-76.
7. Tiselius H.G., Ackermann D., Alken P. et al. European Association of Urology. – Guidelines on Urolithiasis, 2015.

Table 1 Effect of expulsive drug therapy on ureteral stone passage depending on its location, n=50

Parameter	Localization of the ureteral stone		P
	in the upper or middle third of the ureter, n=24	in the lower third of the ureter, n=26	
Stone size at admission, mm	8,0 (4,0-8,0)	5,0 (3,5-8,0)	0,10
Stone evacuation rate, n (%)	14 (60,9) 40,8 –77,8	17 (77,3) 56,6 – 89,9	< 0,2
Time to stone evacuation, days	7,3 (5,0 – 20,0)	6,8 (3,0-15,0)	0,18
The size of the departed stone, mm	5,0 (3,5-5,0)	6,0 (3,5-6,0)	0,95

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Table 2 The effectiveness of expulsive drug therapy in the treatment of pain, depending on the localization of the stone, n=50

Parameter	Localization of the ureteral stone		P
	in the upper or middle third of the ureter, n=24	in the lower third of the ureter, n=26	
Pain intensity on admission, VAS score	9,0 (8,0-9,0)	9,0 (7,0-10,0)	0,85
Pain intensity after 1 week, VAS score	6,0 (5,0-7,0)	6,0 (4,8-7,0)	0,95
Number of episodes of renal colic before treatment	5,0 (3,0-7,0)	3,0 (2,0-7,3)	0,46
Number of episodes of renal colic during follow-up	4,0 (3,0-7,0)	3,5 (1,8-5,3)	0,53
Need for analgesics: ketoprofen mg	200,0 (100,0-200,0)	150 (50,0-150)	0,21

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