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Research Article

TAMSULOSIN EFFICACY IN CLEARANCE OF LOWER
URETERIC STONESDr Raheel Sheikh¹, Dr. Kashif Iqbal², Khursheed Anwar³¹ Consultant General Surgeon, Surgical Specialist, Margalla Hospital PMO Taxila² Consultant Medical Specialist, Margalla Hospital PMO Taxila³ Professor of Urology, PAEC General Hospital, Islamabad**Abstract:**

Objective: To compare the frequency of lower ureteric stones clearance with and without tamsulosin in patients admitted in urology department.

Study Design: A randomized controlled trial study.

Place and Duration: In the department of Urology PAEC General Hospital, Islamabad for one year duration from January 2018 to December 2018.

Methods: 60 lower ureteric stones cases were selected for the study according to inclusion criteria. The demographic data of these cases were recorded as name, age and gender. The subjects who met the criteria of inclusion were divided randomly into two groups with a random number table. Group I (control) analgesia (diclofenac sodium 50 mg 12 hours) was given. Group II (study) was given 0.4 mg tamsulosin once a day for 28 days or until the spontaneous passage of the stone (the first one).

Results: Stone excretion was observed in 11 of 30 patients in group I, and in group II, stone excretion was noted in 23 of 30 patients. The treatment in the 2nd group showed significant results when compared to the stone extraction, group I, ie $p = 0.0026$. In group II; mean evacuation time was also lower significantly related to group I.

Conclusion: The small distal ureteral stones were spontaneously excreted by the Alpha 1 antagonist (tamsulosin).

Key words: Lower ureteric stone, efficacy, ureteroscopy, shock wave lithotripsy.

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INTRODUCTION:

Urolithiasis is a global health problem. Ureteral stones results in urolithiasis in 20% of cases and in the lower third of the ureter, 70% of ureteral stones are present. Urethral stones have a great relationship with the patient's health and quality of life [1-3]. The range of diseases in a developing country such as ours differs from that of industrialised countries, mainly due to delays in conclusion, research and lack of knowledge that result in alter results in ureteral stones or cases, or in fact any disease [4]. Moreover, advanced intervention opportunities in this part of the world are not ready. In general, it is supposed that conventional medical management should be recommended for ureteral stones at first. If conventional treatment fails, ureteroscopy (URS) or shock wave lithotripsy (SWL) may be used [5]. The utmost significant factor in predicting the probability of a spontaneous stone formation is the size and location of the stones. Spontaneous penetration rate for lower ureteric stones less than 5 mm is 73.3% compared to 23.1% for stones larger than 5 mm [6]. Recently, selective alpha-1 adrenergic receptor antagonists are operative, easy to use and well tolerated in the treatment of patients with low UT symptoms resulting from bladder neck obstruction⁷. In hospitals; Urolithiasis accounts for 40-50% of urological workload and occurs in 12% in Pakistan [8]. It is repeated at an average rate of 75% in 20 years after the initial diagnosis. 20% of all urinary tract calculations are ureteral stones and distal ureteric stones are in most of the cases almost 70%. Symptoms may contain abdominal pain, hematuria and groin pain. The pain is often unadorned and rickety. The ureteral stones originate from the kidney and then spontaneously pass through the ureter due to gravity and peristalsis [9]. Stones in the lower part of the ureter are often painful to the groin or in male's pain in tested or in

women at labia majora. Stones in the ureter intramural part may impersonator urethritis, prostatitis or cystitis, causing urinary frequency, suprapubic discomfort, dysuria, hematuria and urgency¹⁰. Diagnosis in men can be disorganised with epididymitis, testicular torsion and in women, diagnosis can be mistaken for pelvic inflammatory disease, menstrual pain or ovarian cyst. The most important finding in patients of ureteral stones confirmed on images is temperature.

MATERIALS AND METHODS:

This randomized controlled trial study was held in the Urology department of PAEC General Hospital, Islamabad for one year duration from January 2018 to December 2018. Sixty lower ureter stone cases were included in the study of outpatient urology department according to inclusion criteria. The demographic data of these cases were recorded as name, age and gender. The subjects who met the criteria of inclusion were divided randomly into two groups. Group I (control) analgesia (diclofenac sodium 50 mg 12 hours) was given. Group II (study) received 0.4 mg tamsulosin once daily for 28 days or until the spontaneous passage of stones (the first one).

Patients with lower ureter stone less than 1 cm in sterile urine and asymptomatic patients were included. Patients with obstruction, stone size > 1 cm and UI were excluded from the study. Data were analyzed using SPSS-18.

RESULTS:

The mean age of all patients was 33.15 ± 8.97 , with the lowest and highest age being 18-49 years. The mean age was 33.87 ± 9.61 years in I group and in group II was 32.43 ± 8.33 (Table 1).

Table 1: Frequency and percentage of ages

Age (years)	Group I (n = 30)		Group II (n = 30)	
	No.	%	No.	%
18 – 30	15	50.0	14	46.7
31 – 40	10	33.3	12	40.0
41 – 50	5	16.7	4	13.3

P = 0.3842 (Not significant)

In Group I, 19 (31.67%) were male and 11 (18.18%) were female. In the second group, 18 (32%) and 12 (18%) were female (Table 2).

Table 2: Frequency and percentage of genders

Gender	Group I (n = 30)		Group II (n = 30)	
	No.	%	No.	%
Male	19	63.2	18	60.0
Female	11	36.8	12	40.0

The mean size of the stone was 6.63 ± 1.45 mm in I group and in group II was 6.93 ± 1.39 mm. The stone size range in I group was 04 to 9 mm and 4 to 10 mm in group II (Table 3).

Table 3: Frequency and percentage of stone size

Stone size (mm)	Group I (n = 30)		Group II (n = 30)	
	No.	%	No.	%
4 – 6	10	33.3	8	26.7
7 – 8	12	40.0	14	46.6
9 – 10	8	26.7	8	26.7

P = 0.4748 (Not significant)

In Group I; 11 of 30 patients, the stone was discharged and in Group II discharged in 23 of 30 patients. Treatment group II showed significant results in stone discharge compared with group I [P = 0.0027] (Table 4).

Table 4: Frequency and percentage of expulsion of stone

Expulsion of stone	Group I (n = 30)		Group II (n = 30)	
	No.	%	No.	%
Yes	11	36.7	23	76.7
No	19	63.3	7	23.3

P = 0.002687 (Significant)

The mean expulsion time was 20.93 ± 3.43 days in group I and 15.7 ± 3.72 days in group II. Mean expulsion time was lower significantly in group II than in I group [P = 0.001] (Table 5).

Table 5: Frequency and %age of expulsion time (days)

Expulsion time (days)	Group I (n = 30)		Group II (n = 30)	
	No.	%	No.	%
15 – 18	17	56.7	18	60.0
19 – 22	8	26.7	9	30.0
23 – 26	5	16.6	3	10.0

P = 0.001 (Significant)

DISCUSSION:

Significant progress has been made in all medical fields in recent years and ESWL and ureterorenoscopy have been used widely in the ureteral stones treatment¹¹. Though, these measures are not much safe. The major features related with stone obstruction are the ureter smooth muscle spasm, pain, infection and mucosal edema¹². Medical treatment needed in these factors. Several combinations of drugs have been defined. Steroids and Calcium channel blockers are used widely to reduce inflammation and decrease muscle spasms¹³. In a randomized, double-blind study, Borghi et al. Used patients treated with evacuation therapy of ureteral stones up to 5 cm in methyl prednisolone and nifedipine. They reported that from distal ureteric stones spontaneous passage rate during treatment was 71.1% with doxazosin and renal colic treatment frequency was reduced. More recently, specific subtypes of adrenergic receptors ($\alpha 1a / \alpha 1d$) have been shown to be common in the distal part of the ureter. Cervenakov and colleagues conducted a randomized trial that provided tamsulosin (alpha blocker) to the standard treatment, providing a significant advantage in stone evacuating rates¹⁴. Dellabella et al. Found an increase in the efficacy of tamsulosin compared with fluoroglucinol, a popular antispasmodic drug in Italy. Reported a higher excretion rate of 97.1% in the tamsulosin group, 77.1% in the nifedipine group, and 64.3% in the fluoroglycinol group. In addition, tamsulosin has been shown to result in significantly shorter expulsion of stones and less hospitalization, fewer seizures, and less need for endoscopic procedures.

Later, these researchers advocated the use of tamsulosin as the first-line agent for the treatment of distal ureteric stones. Dellabella et al. In addition, we tried to observe why the patient receiving tamsulosin was less painful compared to nifedipine alone. Tamsulosin is postulated to have a double effect of post-ganglion sympathetic neurons in the control of pain associated with ureteric colic, one in the smooth muscle, which prevents spasm and the second in inhibition of conduction of the C fibers. In different studies, patients were taken with different stone sizes, maximum stone size up to 10 mm and observation period up to 28 days. Prolonged use may cause impaired renal function. Diclofenac sodium is a non-steroidal anti-inflammatory drug that is recommended for use in painful conditions. It has a rapid onset of action and strong, long-lasting analgesic properties. The patients in the group showed a greater crossover than 23 of the 30 (76.6%) of the control group compared to I group. In Group II, the average expulsion period was 15.69 days and in Group I, 20.90 days. Stone ejection rate was significantly higher in group II (alpha blocker group)¹⁵. The duration of evacuation was significantly shorter in group II. Pain episodes were also significantly lower in the tamsulosin group (group II). During the follow-up, side effects were observed in tamsulosin group in only 3 cases. Side effects were headaches. Regarding retrograde ejaculation, none of the male patients reported abnormalities. Therefore, our results can be compared with international studies on the role of medical therapy in the treatment of uncomplicated distal ureteric stones.

CONCLUSION:

A conventional approach must be well-thought-out as a choice in the uncomplicated treatment of small distal ureteric stones. We perceived that patients managed with tamsulosin (alpha 1 blocker) have increased spontaneous excretion rate of stones and distal expulsion of ureteral stones from the beginning of treatment compared to the control group. Pain episodes have also decreased, so the use of alpha 1 blockers is suggested for the small distal ureteric stones treatment due to excellent patient satisfaction, profitability and most importantly their high efficacy.

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