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ORIGINAL ARTICLE

Comparison of tamsulosin with placebo in relieving ureteral stent related lower urinary tract symptoms.

Ghulam Abbas[1], Muhammad Adeel Basharat[2], Asma Sadia[3], Aamir Imtiaz Khan[4], Muhammad Sheraz Javed[5], Muhammad Irfan Munir[6]

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ABSTRACT… Objective: To compare efficacy of tamsulosin verses placebo in relieving ureteral stent related lower urinary tract symptoms. **Study Design:** Randomized Control study. **Setting:** Department of Urology and Renal Transplant, Allied Hospital I/ Faisalabad Medical University, Faisalabad. **Period:** 1st June 2024 to 30th November 2024. **Methods:** Total number of 60 patients who underwent ureteroscopy and DJ stenting for ureteric stones were selected, and divided into 2 groups. Group A (administered with tamsulosin) and Group B (with placebo). IPSS score calculated at 21th day after procedure. Scores of both groups were compared. **Results:** Patient of group A who were given tamsulosin had less lower urinary tract symptoms as compared to patient who received placebo drug. **Conclusion:** Tamsulosin significantly improved lower urinary tract symptoms caused by DJ stents.

Key words: Lower Urinary Tract Symptoms, Tamsulosin, Ureteral Stent.

INTRODUCTION

Urolithiasis mean stones anywhere in the urinary tract that can be kidney, ureter, bladder or urethra and it is a major problem worldwide and its prevalence in Asia is 1-5 % causing significant burden on health care system.[1] Pakistan is also among the stone forming belts because stones disease is more prevalent in areas with high temperatures likely due to more water loss by perspiration and resultantly concentrated urine especially when there is inadequate water intake. Stone disease is increasing globally from the last 30 years although its exact cause is not well known.[2] There are different methods for treatment of stones ranging from medical therapy to extra-shock wave lithotripsy and endourological procedure like percutaneous nephrolithotomy (PCNL) and Ureteroscopy (URS) etc and some patients may need open surgery like pyololithotomy and ureterolithomy also. Ureteral stents are placed in 80% patients treated for renal stones and 60% patients treated for ureteral stones.[3]

Double J stents have been used for more than 25 years and are used as auxiliary component of the urological endoscopic procedures. They provide drainage to upper urinary tract that is either obstructed, extravesting urine, or strictured. They are at time inserted in patients with stone disease preemptively before extracorporeal shockwave lithotripsy to minimize blockage from stone fragments.[4]

According to international continence society (ICS) Lower urinary tract symptoms (LUTS) are divided into storage and voiding LUTS. Storage LUTS are symptoms experienced by patient, his attendant or partner during storage phase and these include frequency; he/she voids too often during day time, nocturia; he/she has to wake one or more time at night to void, and urgency which is sudden compelling desire to void which he/she is unable to defer. Others are voiding symptoms which are experienced during voiding phase.

1. MBBS, FCPS (Urology), Post graduate Resident Urology, AHF-I, Faisalabad.
2. MBBS, FCPS (Urology), Post graduate Resident Urology, AHF-I, Faisalabad.
3. MBBS, FCPS (Diagnostic Radiology), Post graduate Radiology, AHF-I, Faisalabad.
4. MBBS, FCPS (Urology), Assistant Professor Urology, AHF-I, Faisalabad.
5. MBBS, FCPS (Urology), Assistant Professor Urology, FMU/AHF-I, Faisalabad.
6. MBBS, FCPS (Urology & Surgery), Associate Professor Urology, FMU/AHF-II, Faisalabad.

Correspondence Address:
Dr. Ghulam Abbas
AHF-I, Faisalabad.
abbaskalyar0@gmail.com

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These include slow stream which is reduced urine flow, intermittency which patient describe as urine flow stops and starts during micturition, straining which is use of abdominal muscles to improve voiding and incomplete emptying of bladder at the end of micturition.[5]

LUTS following D-J placement procedure are still common and include frequency (50%–60%), urgency (57%–60%), dysuria (40%), incomplete emptying (76%), and urge incontinence (25%).[6]

In a study, irritative (storage) symptoms score in group with tamsulosin had mean 2.33±0.47 and in group without tamsulosin showed mean of 8.93±1.596 with p value of 0.001 and obstructive (voiding) symptom score mean in group with tamsulosin was 2.63±0.615 and mean of group without tamsulosin was 4.53±0.776 with p value of 0.001 showing significant improvement in irritative as well as obstructive symptoms in patients taking tamsulosin after ureteral stents placement.[6]

Rationale of this study to evaluate the effectiveness of tamsulosin in relieving ureteral stent-related lower urinary tract symptoms as it is crucial for optimizing patient care and improving treatment outcomes. Successful symptoms management can enhance patient comfort, compliance, and overall satisfaction with ureteral stent placement, ultimately leading to better clinical outcomes and quality of life for urological patients. However, no such study is available from our part of country which can evaluate efficiency of tamsulosin for relieving LUTS after DJ stents placement.

OBJECTIVE

To compare the mean irritative and mean obstructive scores of patients in group A(with tamsulosin) versus patients in group B(with placebo) underwent ureterorenoscopy and DJ stenting for ureteric stones, in relieving ureteral stent related lower urinary track symptoms.

METHODS

Patients of either gender of age 20-50 years admitted in indoor facility of Department of Urology and Renal Transplant Allied Hospital I, Faisalabad who underwent ureteroscopy (URS) for ureteric stones of less than 1cm and DJ stenting were enrolled in the study. Patients with symptomatic Urinary Tract Infection (UTI), or growth in urine culture, having bladder outlet obstruction, with history of chronic or recent use of alpha blockers or analgesic drugs use, were not enrolled in this study. All the patients were asked for informed consent.

After institutional ethical clearance (48-ERC/FMU/2022-23/347) 25-10-23, a total of 60 patients divided into two groups, group A (given Tamsulosin 0.4mg once a day at bed time) and group B (given tablet of vit.C 500mg once a day at bed time). History and examination done for all patient after which laboratory and radiological investigation done for evaluation of ureteric stones. All these patients underwent URS and DJ stenting by consultant Urologist and a questionnaire. Both group patients started having medication on first post operative day. Performa based on IPSS filled at 21th day at time of DJ stent removal, collected data was analyzed through computer software SPSS v- 25.0. Mean SD ± calculated for all quantitative variables like age, voiding and storage scores. Frequency and percentage calculated for gender. Independent sample t-test used to compare voiding and storage scores between two groups. Effect modifiers like age and gender controlled by stratification. Post stratification independent sample t-test applied. p-value ≤ 0.05 taken as significant.

RESULTS

Age range in this study was from 20 to 50 years with mean age of 36.3 ± 1.16 years. Majority of the patients 38(63.33%) were between 20 to 40 years of age. Out of these 60 patients, 32(53.33%) were male and 28(46.66%) were females. 30 patients of group A taken tamsulosin and 30 patients of group B received placebo drug. Mean storage score of group A patients was 5.23±3.126 and 9.97±7.522 of group B patients with p value 0.001. Mean voiding score of group A patients was 0.67±2.537 in group A patients

and 3.10±2.325 in group B patients with p value ≤0.001 as shown in Table-I.

Stratification of mean storage score and mean voiding score with respect to age and gender shows no statistically significant difference as shown in Table-II and III.

	N	Mean Storage Score	Mean Voiding Score
Group A	30	5.23±3.126	0.67±2.537
Group B	30	9.97±7.522	3.10±2.325
P. Value		0.001	≤0.001

Table-I. Effect of tamsulosin on storage and voiding scores

Age (years)	N	Mean Storage Score	Mean Voiding Score
20-40	38	8.18	1.97
41-50	22	6.59	1.73
P. Value		0.341	0.737

Table-II. Effect of age on storage and voiding scores

Gender	N	Mean Storage Score	Mean Voiding Score
Male	32	8.41	1.91
Female	28	6.68	1.86
P. Value		0.285	0.945

Table-III. Effect of gender on storage and voiding scores

DISCUSSION

Ureteroscopy is the procedure commonly performed for management of ureteric stones but it can also be used for evaluating upper tract pathology like tumor also.[7] Use of ureteral stents is not uncommon in endourological procedures. They are many indications for placement of ureteral stents during procedure. After ureteroscopy for ureteric stones, ureteral stents are placed to prevent obstruction of ureter due to stone fragments, blood clots and edema after intracorporeal lithotripsy during ureteroscopy for ureteric stones. Although in uncomplicated URS, placement of ureteral stents can be omitted but most of the surgeons prefer to in place the stents.[8]

Ureteral stents relieve pain and improve renal drainage. Role of ureteric stent in renal transplant recipients is also appreciated to prevent urine leakage and stenosis.[9] In case of a strictured ureter DJ stents are also used for passive dilatation of ureter, in which case URS is performed at times later.[10] Ureteral Stents can cause severe discomfort to patients and disturb the quality of life possibly due to its lower end causing irritation of bladder mucosa at trigone and bladder neck and by reflux of urine. The stent related symptoms have a high prevalence and may affect over 80% of patients.[11]

Tamsulosin is selective α1 receptor antagonist mainly acting on α1a and α1d subtypes. Its role in relieving stent related LUTS is because it relaxes smooth muscle spasm caused by ureteral stents by acting on α1d receptors present in detrusor muscles especially at trigonal area. Tamsulosin improves urinary symptoms due to stents and decrease the need for analgesia.[12]

There are many studies ongoing to on the pharmacological management of these symptoms to improve enhance postoperative recovery, to improve quality of life of these patients and minimize the need of analgesia required for these symptoms.

Several studies have been conducted for optimal management of ureteral stent related symptoms. Abdulmecit Yavuz et.al.[12] concluded in their study that tamsulosin 0.4mg has positive effect in relieving ureteral stent related symptoms and decrease the need of analgesia as compared to Beta-3 agonist.

In our study it is found that tamsulosin causes statistically significant decrease in mean storage and mean voiding scores in post-operative patients who underwent ureterorenoscopy and DJ stenting was done. So it is recommended to prescribe tamsulosin 0.4mg to all patients in which we put DJ stenting intra-operatively until we remove that

stent or patient had contraindication to drug.

Tamsulosin decreases these symptoms and not completely eliminate these symptoms. So further studies are required for optimal management of these patient for better post-operative recovery, less hospital stay, decrease analgesic need and better tolerability.

CONCLUSION

This study concludes that Tamsulosin is an effective drug in relieving ureteral stent related symptoms.

LIMITATIONS

Limitations to this study is that this is single center study. Further studies with other drugs are necessary for better management of these bothersome symptoms.

RECOMMENDATION

Tamsulosin should be prescribed in post op patients in which DJ stents are placed for better patient's tolerability to these stents.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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AUTHORSHIP AND CONTRIBUTION DECLARATION	
1	**Ghulam Abbas:** Researcher.
2	**Muhammad Adeel Basharat:** Acquisition of data.
3	**Asma Sadia:** Data analysis.
4	**Aamir Imtiaz Khan:** Statistical analysis of result.
5	**Muhammad Sheraz Javed:** Interpretation of literature review.
6	**Muhammad Irfan Munir:** Proof reading.