Original Article

**COMPARISON OF THE EFFICACY (IN TERMS OF STONE EXPULSION) OF TAMSULOSIN VERSUS NIFEDIPINE IN DISTAL URETERIC STONE**

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**ABSTRACT:**

**INTRODUCTION:** In western prosperous countries, a great research has been done on these two medicines in urolithiasis. Extent of disease is varying from developing countries to developed countries, specially due to late identification of diseases, late in examination which enhances the consequences of disease in ureteral stone or in any other disease.

**OBJECTIVES:** To compare the efficacy (in terms of stone expulsion) of tamsulosin versus nifedipine in victims with distal ureteral stone.

**MATERIAL AND METHOD:** All of 86 patients with distal ureteric stone, 20 to 50 years of both genders were included. Patients with proximal ureteric stricture, gross hydronephrosis, previous ureteral surgery and solitary kidney were excluded. After informed, written consent, all selected cases were divided in two groups by lottery method. In group A patients, tamsulosin was given while in group B patients, nifedipine was given. All patients were followed weekly by the researcher till 4 weeks and ultrasonography in both groups was done by the one consultant radiologist for evaluation of efficacy.

**RESULTS:** Mean age was 32.29 ± 6.81 years. Out of these 86 patients, 53 (61.63%) were male and 33 (38.37%) were females with. Mean size of stone was 6.69±1.49 mm. Stone expulsion was seen in 37 (86.05%) patients in group A (tamsulosin group) and 25 (58.14%) patients in group B (nifedipine group) with p-value of 0.004.

**CONCLUSION:** This survey concluded that efficacy (in terms of stone expulsion) of tamsulosin is better as compared to nifedipine in distal ureteric stone.

**KEYWORDS:** Distal Ureter Stone, Tamsulosin, Nifedipine, Expulsion.

**INTRODUCTION:**

The third most frequent disease of urinary tract in whole world is urolithiasis, which effect usually two-percent population with almost fifty percent recurring rate. Ureteric stone occupies a main place in routine medical practices and experts are demanded to recommend appropriate treatments. Recently, by using the therapies of pharmacology, use of perceptive wait approaches have been expanded. Medical expulsive therapy [MET] is suggested to elevate stone crossing and decrease the requirement of extracorporeal shock wave lithotripsy. Most of the patients with urolithiasis contain stones of small size that are present in distal ureter and able to cross continuously. Removal of stone and time to move the stones depends upon size of stone and it's location. Two categories of therapy are present, alpha adrenergic receptor antagonist and calcium. Recently, for distal ureteral calculi, good consequences have been shown by MET, related to stone removal and lessen the ureteral colic.

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Selected patients were allowed to choose a slip from all confounded slips [half with letter A, half with letter B] and the patient was allowed in that respective category. In category A patients, 0.4 mg Tamsulosin was given daily at bed time for 4 weeks while in category B patients, 30mg nifedipine was given daily for 4 weeks. Both categories were given Tab. Ciprofloxacin 500mg 12 hourly and tab diclofenac Sodium 50mg. Compliance in both groups was noted by subjective assessment. All patients were followed weekly by the researcher till 4 weeks and ultrasonography in both categories was done by the one consultant radiologist for evaluation of efficacy (in terms of stone expulsion from ureter).

All the data was entered and inspected by the use of SPSS version 20.0. The numeric variables were represented as mean deviation and variance. Consistency and proportions were calculated for numeric variables. Chi square was used to contrast the efficency and p-value ≤ 0.05 was regarded as significant.

RESULT:

The mean age of patients in category A was 32.19 ± 7.15 years and in category B was 32.40 ± 6.54 years. Majority of the patients 58 (67.44%) were between 20-35 years of age and expressed in table I.

Out of these 86 patients, 53 (61.63%) were male and 33 (38.37%) were females. Mean size of stone was 6.69±1.49 mm. Mean size of stone in category A was 6.81±1.33 mm and in category B was 6.75±1.56 mm as shown in Table II. Mean BMI was 28.77±5.62 kg/m². Stone expulsion was seen in 37 (86.05%) patients in category A (tamsulosin group) and 25 (58.14%) patients in category B (nifedipine group) with p-value of 0.004 as shown in Table III.
DISCUSSION:

Intercessional treatment includes medical expulsive therapy (MET), extracorporeal shock wave lithotripsy (ESWL), percutaneous nephrolithotomy, ureteroscopy, laparoscopic techniques. With the help of researches, it has been confirmed that the potential of medical treatments to aid stone removal has increased. Related studies have modernized our comprehension of the capacity of MET in aiding stone removal. MET decreases hospital costs, stops unimportant operations, integrated risks, and problems. In recent practices, MET either with nifedipine or tamsulosin has revealed too increase stones passing chances of normal size LUS, although, European urological associations revealed that they are two drugs that are affordable therapy option to help ureteral stone removal compared to nifedipine. Micali et al. described that in patients having higher-mid ureteral stones, nifedipine drug was effective and acceptable than that of tamsulosin for stone removal. Picozzi et al. issued systematic review and meta-analysis of medical expulsive technology for LUS and suggested that there are no differences between tamsulosin and nifedipine categories regarding to stone removal rate. In particular Morita T et al. elaborated effective result in acceleration of lower tract ureteral stone passing by use of alpha-1 blocker. Cao D et al. In a randomly controlled study, suggested a remarkable differences in

| Table-I: Age distribution for both categories (n=86). |
|-----------------------------|-----------------------------|-----------------------------|
| **Age (years)** | **category A (n=43)** | **Category B (n=43)** | **Total (n=86)** |
| | No. of patients | %age | No. of patients | %age | No. of patients | %age |
| 20-35 | 30 | 69.77 | 28 | 65.12 | 58 | 67.44 |
| 36-50 | 13 | 30.23 | 15 | 34.88 | 28 | 32.56 |
| Mean ± SD | 32.19 ± 7.15 | 32.40 ± 6.54 | 32.29 ± 6.81 |

| Table-II: Distribution of patients according to stone size. |
|-----------------------------|-----------------------------|-----------------------------|
| **Stone size** | **category A (n=43)** | **category B (n=43)** | **Total (n=86)** |
| | Frequency | %age | Frequency | %age | Frequency | %age |
| 1-5 mm | 11 | 25.58 | 10 | 23.26 | 21 | 24.42 |
| 6-10 mm | 32 | 74.42 | 33 | 76.74 | 65 | 75.58 |
| Mean ± SD | 6.81 ± 1.33 | 6.75 ± 1.56 | 6.69 ± 1.49 |

| Table-III: Comparison of Efficiency (in terms of stone removal) between both categories (n=86). |
|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| **Efficacy** | **category A (n=43)** | **category B (n=43)** | **Chi square values** | **p-value** |
| | Frequency | %age | Frequency | %age | | |
| Yes | 37 | 76.67 | 25 | 40.0 | 8.32 | 0.004 |
| No | 06 | 23.33 | 18 | 60.0 | |

It was expressed by meta-analysis that tamsulosin can enhance the stone removal rate comparative to nifedipine in victims with LUS. Subgroup analysis expressed no remarkable distinction in the two medicines regarding to high or low side effects. Picozzi et al. issued systematic review and meta-analysis of medical expulsive technology for LUS and suggested that there are no differences between tamsulosin and nifedipine categories regarding to stone removal rate. In particular Morita T et al. elaborated effective result in acceleration of lower tract ureteral stone passing by use of alpha-1 blocker. Cao D et al. In a randomly controlled study, suggested a remarkable differences in
removal rate of stone between the groups dosed with tamsulosin and controlled category. Same result were shown by Dellabella et al.\textsuperscript{[20]} Trial by Vincendeau et al.\textsuperscript{[21]} (n=130) and Hermanns et al.\textsuperscript{[21]} (n=100) comprises mean stone size of 3-4mm, stone removal rate of 76% and 85%, respectively, with tamsulosin contrasted with 70% and 88%, respectively, with placebo, that had no importance. Trail by Ferre et al.\textsuperscript{[23]} Confirmed advantage was assessed with stone removal in 76% of the tamsulosin category contrasted with 64% in the accurate care category (\(P=.50\)). In a meta-analysis\textsuperscript{[24]}, there was no differences between active therapy and placebo (\(p=0.77\)), or between tamsulosin and nifedipine (\(p=0.76\))\textsuperscript{[14]}. On the whole, it is concluded that efficacy (in terms of stone expulsion) of tamsulosin is better as compared to nifedipine in distal ureteric stone.

**CONCLUSION:**

This study concluded that efficacy (in terms of stone expulsion) of tamsulosin is better as compared to nifedipine in distal ureteric stone. So, we recommend that tamsulosin should be used routinely in our general practice to avoid invasive procedures in such patients.

**CONFLICT OF INTEREST:**

There is no declared conflict of interest.

**ETHICAL REVIEW COMMITTEE:**

Ethical review committee of the said institute has reviewed and approved this article.

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Failures are often the results of timidity and fears; disappointments are the results of bashfulness; hours of leisure pass away like summer-clouds, therefore, do not waste opportunity of doing good

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