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Urology

COMPARISON BETWEEN TAMSULOSIN VS TAMSULOSIN+ DEFLAZACORT IN EXPULSION OF LOWER URETERIC CALCULI

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ABSTRACT

BACKGROUND: Medical Expulsive Therapy (MET) has become an established part of the protocol for treatment of ureteric stones of 5-10 mm size in the lower 1/3rd of the ureter.
α-1 adrenergic blockers with or without corticosteroid along with IV fluid therapy are in use to facilitate expulsion of stones.
AIMS & OBJECTIVE: In this study comparison of α-1 adrenergic blocker Tamsulosin alone and in combination with corticosteroid deflazacort have been compared.
MATERIALS AND METHODS: Total of 50 symptomatic patients of lower ureteric stones, who presented in the OPD in MIMER Medical College Hospital were selected for our study. Patients were randomly divided in group 1 and group 2 viz. Group 1 (Tamsulosin Group) & Group 2 (Tamsulosin + deflazacort Group).
RESULTS: It was found that with Tamsulosin + deflazacort offers better stone clearance rate with in shorter period. There was minimum discomfort to the patients during stone expulsion. Success rate was comparable in both groups up to 10 mm stone size.
CONCLUSION: MET using Tamsulosin + Deflazacort has clear advantage over Tamsolusin alone therapy.

KEYWORDS : Ureteric Stones; Alpha Blockers; Corticosteroids

INTRODUCTION

The patients of ureteric stones are increasing all over the world. This increase is seen across age, sex and race. Lifestyle changes in diet pattern and global warming seems to influence these trends.[1] Recent reviews of published papers suggest that 90% stones of less than 5mm and 15% stones of sizes between 5mm-8mm will pass spontaneously.[3] For stones less than 5mm size recommended management includes analgesics, antibiotics and hydration therapy. With medical expulsive therapy, in which Tamsulosin is the main stay, spontaneous passage of stone upto 10mm has been reported.[2]

The presence of stone in the ureter causes inflammation and edema, Corticosteroid decreases edema and when prescribed with α-1 adrenergic receptor antagonists facilitates the early passage of stone.[6] Cortesteroids are used for short duration to avoid the side effects. Deflazacort is used because of lesser side effects. There is some evidence that Deflazacort in combination with alpha-blockers antagonist is more effective in expulsion of stones upto 10mm size.[8]

Among our patients ureteric colic account for 35% of urolithiasis and 75% of ureteral stones which are located in the lower third of the ureter. Similar results have been observed by other authors also.[1]

Since some decades ureteral stones treatment modalities have changed and MET is a standard protocol for treatment of small stones in the lower third of the ureter. It increases the expulsion rate and reduces the expulsion time, thereby reducing the cost and lost working days.[7] Stones up to 4mm size are expelled in almost all cases. Spontaneous expulsion rate for 4-6mm stones is about 25% and over 8mm size are rarely expelled.[7] Different procedures have been recommended for stone of greater than 5mm size. Stones upto 9.5mm have been successfully expelled with MET, the largest size stone being 1.4 cm.[5] The time required for stone expulsion depends on the size of the stone. Smaller the stone faster the expulsion and clearance.

Extra corporeal shock wave lithotripsy [ESWL] is the first line of management for ureteric stones of less than 20mm size. Success rate with ESWL in stones of over 8mm size in distal ureter varies from 49.9% to 91.1% and decreases as stones size increases.[5]

Few centres use ureteroscopy [URS] as first line treatment to achieve better stone free rate.[10]

MET is easy and cheap procedure and can be preferred as first line treatment before ESWL or URS.

Hancock reported presence of α adrenergic and β adrenergic receptors in human ureter.[13]

Additional studies showed that there is presence of α-1d adrenergic receptors in the human ureter, and α-1 blocker can facilitate the passage of ureteric stones in 80.4% of cases (Cervinakov et al.[2]

Tamsulosin- an alpha 1 antagonist, inhibits basal-tone and decreases peristaltic frequency resulting in increased fluid transport and decreased intra ureteral pressure and they also block the conduction of Visceral referred pain.[12]

Stone in ureter causes ureteral muscle spasm, infection leading to inflammation and oedema.

In the pioneering work of Borghi, methyl prednisolone with other drugs was shown to increase the rate of stone passage.[9] This has led to the aim of our study of MET. There is some evidence that a combination of α –blocker and Corticosteroid might be more effective than treatment with α-blocker alone. Among the Glucocorticoid's, Deflazacort, a synthetic Oxazoline derivative of prednisolone have shown equivalent anti-inflammatory potency with less side effect.

MATERIALS AND METHODS

Total of 50 symptomatic patients of lower ureteric stones presenting in the OPD of MIMER Medical College and Hospital between Jan 2011 – May 2013, were selected for the study. There were 29 male and 21 female patients, Age was between 15-55 years. Renal function tests were normal in all patients.

Patients were randomly divided in two groups [group 1 & group 2]. Both groups had equal number of patients.

Antibiotics were prescribed based on culture and sensitivity.

Group 1 patients were given Tamsolusin 0.4 mg OD and Tab Deflazacort , till the 18 mg OD for 3 days 12 mg OD for 2 days and 6mg on the 6th day. stones are expelled or upto 30 days maximum.

Patient was advised to take at least 3 to 4 L of oral fluid daily.

Group 2 patients were given Tab Tamsolusin OD.

Treatment was considered successful when stone was expelled within 30 days and patients had fewer and milder symptoms.


RESULT

Stone size 6-7mm in group 1, out of 9 patients, stone clearance was achieved in 8 patients within 6 days, (SR-88%); and in group 2, out of 8 patients stone clearance was achieved in 6 patients within 5 days, (SR 75%).

Stone size 7-8mm in group 1, out of 7 patients, stone clearance was achieved in 7 patients within 6 days (SR-100%); and in group 2, out of 9 patients stone clearance was achieved in 8 patients within 8 days, (SR-88.8%).

Stone size 8-9mm size in group 1, out of 5 patients, stone clearance was achieved in 4 patients within 5 days (SR-80%); and in group 2, out of 5 patients stone clearance was achieved in 3 patients within 11 days, (SR-60%).

Stone size 9-10 mm size stone in group 1, out of 4 patients, stone clearance was achieved in 4 patients within 10 days (SR- 100%); and in group 2, out of 3 patients stone clearance was achieved in 1 patients within 14 days, (SR-33.3%).

Table-1: Success rate of stone expulsion

Size of the Stone	Group	Total Patients	stones cleared	Stone cleared in days	Success Rate
6-7 mm	1	9	8	6	88.8%
	2	8	6	5	75%
7-8 mm	1	7	7	6	100%
	2	9	8	8	88.8%
8-9 mm	1	5	4	5	80%
	2	5	3	11	60%
9-10 mm	1	4	4	10	100%
	2	3	1	14	33.3%

DISCUSSION

Nephrolithiasis is a very common problem. Patients often stones of different sizes. Small stones pass spontaneous usually but patients experience severe ureteric colic during passage of stone. Spontaneous passage of ureteric stone depends on stone size, site, anatomy of ureter and past history of stone passage.(11)

Median probability of stone passage is 68% for stone < 5 mm size and 47% for stones of 5 mm – 10 mm.(9)The MET aims at passage of stone with minimum discomfort to the patient.

Number of drugs have been used for the same purpose like corticosteroids, hormones, NSAIDs, calcium channel blockers and α–1 adrenergic blockers. Corticosteroids decrease the inflammation around the ureter.[8] Calcium channel blockers suppress smooth muscle contraction and reduce ureteral spasm, α-1 adrenergic blockers act by decreasing ureteral muscle tone and frequency and force of peristalsis.[7]

We have compared the effectiveness of α-1 blockers with α-1 blockers + corticosteroids. Group 1 was given only α-1 blocker+corticosteroid and Group 2 was given α-1 blocker alone. α-1 blocker used was Tamsulosin and Corticosteroid used was Deflazacort. Deflazacort is a good anti edemic drug[10], well tolerated with limited side effects. In our study we consistently found better stone clearance rate and earlier passage of stone across all stone sizes in Group1 i.e Tamsulosin + Deflazacort group. Range of Stone size in our study varied from 6-10 mm.

CONCLUSION

MET using Tamsulosin has definite role in passage of smaller size ureteric stone of less than 10mm size. It has acceptable success rate in bigger size stone in our study upto 17 mm size, when Tamsulosin was combined with Deflazacort.

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