

# Role of Alfuzosin in Ureteral Stent Related Urinary Symptoms Score: A Comparative Study

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## Keywords

Alfuzosin, Alpha blocker, Ureteral stent, Urinary symptoms.

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## ABSTRACT

**Background:** Ureteral stent placement is a routine urological procedure. However, patients inserted with ureteral stent exhibited increased urinary symptoms that compromise patients' quality of life.

**Objective:** To assess the efficacy of alpha blockers (Alfuzosin) in the management of ureteral stent related urinary symptoms.

**Methods:** Total of 60 patients after ureteral stent insertion was randomly divided into two equal groups; 30 in alfuzosin group and the remaining 30 in control group. Urinary symptoms questionnaire was filled after two weeks and results were statistically analyzed.

**Results:** Urinary symptoms like urgency, frequency and flank pain were significantly less in the alfuzosin group when compared with control group.

**Conclusion:** Alpha blocker (Alfuzosin) was found to be effective in reducing ureteral stent related urinary symptoms.

## INTRODUCTION

Ureteral stent was first introduced by Zimskind in 1967<sup>1</sup>. With the development of double J (DJ) stent and pigtail stent by Finney<sup>2</sup> and Hepperlen<sup>3</sup> in 1978, placement of ureteral stent emerged as one of the most common procedures in urology. However, its placement results in different symptoms resulting in poor quality of patients' life. DJ stent is associated with different ureteral stent related symptoms like frequency, urgency, flank pain, suprapubic pain and hematuria<sup>4,5</sup>. The incidence varies from 19 - 76%<sup>6-8</sup>.

The exact mechanism of DJ stent related symptoms have yet to be elucidated. It has been postulated that frequency

is due to mechanical stimulation from bladder coil while urgency is due to direct presence of stent<sup>9</sup>. Ureteral stent cause a rise in intrapelvic pressure that might give rise to flank pain during vesicle filling or voiding<sup>10,11</sup>. Suprapubic pain was postulated to be due to local irritation of trigonal mucosa by the stent<sup>12</sup>. Hematuria results from insertion of the stent itself<sup>12</sup>.

Various approaches were taken to reduce ureteral stent related urinary symptoms in patients. Size, length and position of the stent play vital role in minimizing stent related urinary symptoms. Generally, alpha blockers ( $\alpha$ -blockers) were used and found to be effective in reducing urinary symptoms in patients after ureteral stent insertion. However, the efficacy of alfuzosin, an

alpha blocker in the management of ureteral stent related urinary symptoms in our setting needs to be determined.

## METHODS

### Study subjects

A randomized, prospective, comparative and experimental clinical trial was conducted between March 1, 2015 to November 30, 2016 at Western Regional Hospital, Pokhara, Kaski, Nepal. All the patients who underwent open surgery for renal stones, pyeloplasty, ureteric stones and after URSL with DJ stent placement were included in the study; while all the patients of pediatric age group were excluded. A total of 60 patients were divided into 2 equal groups; control group, and alfuzosin group those receiving alfuzosin 10 mg OD. Antibiotics were given to both groups. Patients in alfuzosin group received alfuzosin (10 mg OD) on second day of surgery and continued for two weeks. All the patients were called on 14<sup>th</sup> day of surgery and were asked to fill up a questionnaire addressing ureteral stent related urinary symptoms like frequency, urgency, flank pain, suprapubic pain and hematuria. The study protocol was evaluated and approved by the Department of Surgery, Western Regional Hospital, Pokhara, Kaski, Nepal.

### Statistical analysis

Data were plotted using Graph Pad Prism version 5.0 (Graph Pad software Inc., La Jolla, CA). Chi-square test was used to analyze the data set. A P-value <0.05 was considered statistically significant.

## RESULTS

Total 60 patients were recruited in this study (30 in each group; alfuzosin group and control group). Ureteral stent related symptoms are summarized in Table 1. Symptoms were compared between the alfuzosin and control groups for all 60 study subjects. Total five urinary symptoms were measured. It was found that the symptoms were reduced in alfuzosin group compared with control groups. In particular, use of alfuzosin significantly reduced three of the five urinary symptoms; specifically frequency (58.35%,  $P= 0.044$ ), urgency (69.99%,  $P= 0.028$ ) and flank pain (87.51%,  $P= 0.011$ ) (Table 1). This suggested that alfuzosin helps in reducing urinary stent related symptoms in patients.

**Table 1:** Urinary stent related symptom scores in patients

Urinary symptoms	Alfuzosin group (n= 30)	Control group (n= 30)	Percent reduction (Alfuzosin vs control)	P value
Frequency	5 (16.66%)	12 (40%)	58.35	0.044*
Urgency	3 (10%)	10 (33.33%)	69.99	0.028*
Flank Pain	1 (3.33%)	8 (26.66%)	87.51	0.011*
Suprapubic pain	4 (13.33%)	6 (20%)	33.35	0.488
Hematuria	0	2 (6.66%)	100	0.158

\*Statistically significant using chi-Square test ( $P < 0.05$ )

## DISCUSSION

In management of ureteral stent related urinary symptoms  $\alpha$ -blockers were used and found to be effective. Herein, we assessed the efficacy of  $\alpha$ -blocker, alfuzosin in our setting. To judge the therapeutic benefit of alfuzosin, patients (alfuzosin group or control group) inserted with DJ stent were asked to fill a questionnaire addressing five ureteral stent related urinary symptoms.

It has been shown that DJ stent insertion is associated with increased urinary symptoms. This study showed that DJ stent insertion has increased the frequency, flank pain and suprapubic pain to 40, 33.33 and 20%, respectively. This is in agreement with previous meta-analysis wherein frequency, urgency and suprapubic pain has been shown to be 50 - 60%, 57 - 60% and 30%, respectively<sup>7,13</sup>.

Moreover, this study showed that urgency and hematuria has been experienced by 33 and 7% of cases, respectively. This is lower than what had been observed previously, i.e. 57 - 60% and 25% of cases experienced urgency and hematuria, respectively<sup>6,7</sup>. The discrepancy might be due to limited number of cases in the present study (60) compared with >1,500 cases in those study<sup>6,7</sup>. Also, the questionnaires were filled at two weeks in the present study compared with six weeks in the other study<sup>6</sup>.

Although the use of  $\alpha$ -blocker significantly reduced most of the ureteral stent related urinary symptoms compared with control groups, robust study that recruits a large number of cases needs to be studied for a better conclusion. Moreover, other factors like size, length and position of the stent that were shown to affect patients' quality of life after ureteral stent insertion should be considered along with use of  $\alpha$ -blockers in the management of ureteral

stent related urinary symptoms.

### Conflict of interest

No conflict of interest to declare

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