

Comparison of transurethral incision of the prostate and silodosin in patients having benign prostatic obstruction in terms of retrograde ejaculation

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Summary *Background: To compare the functional outcomes and retrograde ejaculation (RE) after transurethral incision of the prostate (TUIP) or silodosin in bladder outlet obstruction (BOO) secondary to a small prostate.*

Methods: Prospectively collected data from December 2011 through December 2014 of 192 LUTS patients having fertility concerns with prostate volume smaller than 40 ml receiving either TUIP or silodosin treatment were prospectively reviewed. The treatment outcomes were evaluated and compared.

Results: TUIP was performed in 96 cases and silodosin 8 mg was prescribed in 96 cases. At 12th months after TUIP or continuous silodosin treatment, the decrease in mean International Prostate Symptom Score (IPSS) and postvoiding residual urine (PVR) and the improvement of mean maximal flow rate (Q_{max}) were significant ($p = 0.000$). The improvement in IPSS and Q_{max} was significantly higher in TUIP group compared to silodosin group ($p = 0.005$, $p = 0.000$) with a lower rate of retrograde ejaculation (RE) in TUIP group. (11/96 vs 33/96) ($p = 0.000$)

Conclusions: Both TUIP and silodosin ensures comparable improvement in PVR, IPSS and Q_{max} with a lower rate of RE on the TUIP group in prostates weighing less than 40 grams suggesting that TUIP is a better choice in younger patients seeking preservation of ejaculation with fertility concerns.

KEY WORDS: Prostate; Retrograde ejaculation; Silodosin; Transurethral incision prostate.

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INTRODUCTION

Lower urinary tract symptoms (LUTS) due to bladder outlet obstruction (BOO) are a common problem in aging males. Benign prostatic hyperplasia (BPH) is the most common cause of LUTS (1).

The treatment of symptomatic BPH is to relieve the BOO due to enlarged portion of the prostate. This can be ensured with surgery definitively or with medications providing symptomatic relief. However, the invasive treatment modalities are not free of complications, including permanent urinary incontinence, retrograde ejaculation (RE) as well as erectile dysfunction (ED) (2). Therefore, to avoid invasive methods, two main categories of drugs are used for the treatment of sympto-

matic BPH; one blocks the $\alpha 1$ -adrenoreceptors, the other inhibits the enzyme 5α -reductase. The former category is expected to provide relatively rapid symptom relief starting within 2-6 weeks (3).

Silodosin, is an adrenergic blocker considered to be highly selective for $\alpha 1a$ receptor subtype and confirmed to be highly effective in patients with BPH. However, almost 70% of patients report either anejaculation or hypospermia, with a concomitant orgasmic function (OF) impairment in 17% of the patients. Younger patients claimed higher rates of ejaculatory dysfunction (4).

Transurethral resection of the prostate (TURP) is the gold standard for surgical treatment of BPH. Like many invasive modalities, this procedure is associated with significant morbidity such as bleeding requiring blood transfusion (3%), and hyponatremia (TUR syndrome, 1%) as well as long-term complications such as stricture (7%), surgical revision (6%), significant urinary tract infection (4%), bleeding incontinence (3%), erectile dysfunction (10%), and ejaculatory dysfunction (65%) (5, 6).

Furthermore, it may be an over-treatment for small size prostate in younger patients seeking protection of ejaculatory function. In this context, transurethral incision of the prostate (TUIP) became an established treatment for BOO secondary to small-size BPH (7). TUIP has been reported to be an equivalent symptomatic improvement for men with prostate volume < 30 mL, with the advantages of less hemorrhage and less sexual dysfunction such as ED or RE than TURP (7, 8).

In the present study, our objective is to compare the outcomes of TUIP and silodosin treatment in men with LUTS due to BPH seeking protection of fertility in terms of antegrade ejaculation.

MATERIALS AND METHODS

A review of prospectively collected data of patients having LUTS due to BPH with ejaculatory concerns receiving silodosin 8 mg or undergoing TUIP. Inclusion criteria were patients with mild-moderate LUTS, seeking preservation of fertility, age ≤ 60 years prostate volume ≤ 40 cc and pre-operative cystoscopic evaluation. All patients signed an informed consent agreeing to supply their own anonymous

information for the study. Patients included in the alpha blocker treatment arm were prescribed to receive daily dosing silodosin 8 mg for a 12-months course. For TUIP procedure and silodosin treatment, prostate volume > 40 cc, the presence of middle lobe, a history of prostate surgery or history of concomitant urethral stricture and hypersensitivity to alpha blockers, orthostatic hypertension, other drug interaction were exclusion criteria, respectively. All TUIP procedures were performed or supervised by a single surgeon with a continuous flow 26 Ch resectoscope and a video camera. The bladder neck was deeply incised at 5 and 7 o'clock positions just distal to each ureteral orifice to create a groove down to the true capsule to both side of the verumontanum. A 3-way 20Ch Foley catheter was inserted and connected to drainage and minimal saline irrigation. The patient was discharged once the urine was clear and the patient was able to void without a catheter. The follow-up visits were at 1, 6, and 12 months and then annually. Baseline and follow-up data were compared both subjectively and objectively in terms of the International Prostate Symptoms Score (IPSS), International Index of Erectile Function (IIEF), post-void residual urine volume (PVR) (mL), peak flow rate (Q_{max}). Only baseline and post treatment 12th month data were then collected and analyzed.

Statistics

The SPSS 16.0 (Statistical Package for Social Sciences, Chicago, USA) software was used for all statistical evaluations. Changes from baseline data for the same group were compared using the paired t-test while between groups comparison was done by the Fisher exact test for categorical variables and Mann Whitney-U test for continuous variables. P value of less than 0.05 was considered statistically significant.

RESULTS

Ninety six patients underwent TUIP and 96 patients received silodosin 8 mg. The differences in baseline parameters of treatment groups were not statistically significant; mean age, IPSS, prostate volume, IIEF, PVR, Q_{max} and PSA were 48.8 ± 7.6 vs 48.3 ± 6.8 , 12.9 ± 4.0 vs 11.9 ± 3.9 , 30.1 ± 6.2 vs 31.5 ± 4.6 , 24.9 ± 3.2 vs 25 ± 3.2 , 68.2 ± 29.6 vs 68.0 ± 26.2 , 12 ± 3.5 vs 12 ± 2.4 and, 1.3 ± 0.8 vs 1.4 ± 0.7 in TUIP and silodosin groups, respectively (Table 1). Both groups were comparable in subjective and objective voiding parameters within follow up period at 3th, 6th and 9th month. At 12th months after TUIP and continuous silodosin 8 mg treatment, the decrease in mean IPSS, and PVR and the improvement of mean maximal flow rate (Q_{max}) were significant in both groups ($p = 0.000$). No significant change occurred in IIEF scores of either groups. The improvement in IPSS and Q_{max} was significantly higher in TUIP group compared to silodosin group (4.7 ± 2.0 vs 5.7 ± 2.6 and 20.8 ± 23.2 vs $26.5 \pm$

26.8) ($p = 0.005$, $p = 0.000$) (Table 2) with a lower rate of RE in TUIP group ($11/96$ vs $33/96$) ($p = 0.000$) (Table 3). IIEF scores in TUIP and silodosin groups at 12th month were 24.9 ± 3.1 vs 25.3 ± 3.2 ($p = 0.389$).

DISCUSSION

The management of BOO in BPH patients is divided into medical and surgical treatment modalities. Medical therapy for the common condition of BPH consists of alpha blockers and/or 5-alpha-reductase inhibitors, which can both lead to sexual dysfunction and declines in ejaculatory function (9).

According to clinical experience, the younger patients are more likely to encounter ejaculatory and orgasmic problems when using alpha blockers, so the physicians should be more careful when prescribing medicines.

Additionally, medical treatment options including alpha blockers for BPH are only for relieving or palliating symptoms of LUTS, on the other hand the surgery is the definitive method to eliminate BOO due to prostatic enlargement. Among surgical treatment modalities open prostatectomy and TURP are the leading entities. With the presence of gold standard TURP, the minimally invasive procedure, TUIP, in patients with small prostates has not gained enough popularity. In fact, the risk of blood transfusion and retrograde ejaculation are significantly lower with TUIP when compared to TURP. The reintervention rate is lower for TURP, but this is compensated with decreased morbidity of TUIP (10). TUIP is comparable to TURP in terms of functional outcomes within the first 12

Table 1.
Preoperative parameters of patients in treatment groups.

	Age	IPSS	Volume	IIEF	PVR	Q_{max}	PSA
TUIP (#96)	48.8 ± 7.6	12.9 ± 4.0	30.1 ± 6.2	24.9 ± 3.2	68.2 ± 29.6	12 ± 3.5	1.3 ± 0.8
Silodosin (#96)	48.3 ± 6.8	11.9 ± 3.9	31.5 ± 4.6	25.0 ± 3.2	68.0 ± 26.2	12 ± 2.4	1.4 ± 0.7
P value	0.66	0.97	0.07	0.74	0.96	0.98	0.44

TUIP: Transurethral incision of the prostate, IPSS: International prostate symptom score, IIEF: International index of erectile function, PVR: Post voiding residue, Q_{max} : Maximum flow rate, PSA: Prostate specific antigen.
Student T test

Table 2.
Postoperative parameters of patients in treatment groups.

	IPSS	IIEF	PVR	Q_{max}
TUIP (#96)	4.7 ± 2.0	24.9 ± 3.1	20.8 ± 23.24	19.6 ± 3.9
Silodosin (#96)	5.7 ± 2.6	25.3 ± 3.2	26.5 ± 26.8	15.0 ± 4.7
P value	0.005	0.389	0.123	0.000

TUIP: Transurethral incision of the prostate, IPSS: International prostate symptom score, IIEF: International index of erectile function, PVR: Post voiding residue, Q_{max} : Maximum flow rate.
Student T test

Table 3.
Retrograde ejaculation (RE) status according to treatment modality.

	RE (-)	RE (+)	Total
TUIP	85 (88.5%)	11 (11.5%)	96 (100%)
Silodosin	63 (65.6%)	33 (34.4%)	96 (100%)
Total	148 (77.1%)	44 (22.9%)	192 (100%)

TUIP: Transurethral incision of the prostate, $p = 0.000$.
Chi square test

months postoperatively, except Q_{max} that was more significantly improved with TURP (11).

The operative time and hospital stay is shorter in the TUIP procedure (12). In the present study, we compared silodosin with the invasive procedure, TUIP. Prostate volume < 40 cc was the inclusion criteria in contrast to the majority of previous reports suggesting that prostate volume should be taken < 30 cc in order to obtain successful results. However, there is little evidence on long-term effectiveness and there is no clear cutoff prostate size that achieves long-term favourable outcomes after TUIP (13). In our series, the improvement in IPSS, Q_{max} and IIEF was significantly higher in TUIP group compared to silodosin group whereas RE rate was significantly lower in TUIP group compared to silodosin group. To our knowledge, this is the first study comparing RE status in terms of alpha blocker treatment and TUIP procedure. There are comparative reports only among different surgical methods in this regard. In the present study, RE rates in silodosin vs TUIP were 34.4% and 11.5%, respectively. A systematic review comparing TURP and TUIP procedures reported that RE rates were 65.4% and 18.2% respectively (14). The major adverse events of silodosin are ejaculatory dysfunction, dizziness, diarrhea or loose stools, skin rash, nasal congestion, abnormal liver function and thrombocytopenia. Patients underwent TUIP avoid all these adverse events additionally (15). Lastly, in terms of TUIP complications in our series, there were not any short term complication such as bleeding and long term complication such as urethral stricture or bladder neck contracture. Of interest, reoperation after TUIP for the management of LUTS secondary to BPH was needed after 12 months in 1 patient. There were limitations to our study. First, it was prospective in nature, and second, only the 12 month follow up data after initial treatment were compared. Lack of urodynamic studies may be considered as another limitation.

CONCLUSIONS

Young patients with LUTS due to BPH using highly uroselective alpha blockers experience quite often anejaculation, aspermia and reduced orgasm feeling. Therefore, TUIP remains as an alternative, safe and efficient procedure to treat BOO secondary to a small-sized prostate in young BPH patients seeking preservation of ejaculatory and orgasmic function with both infertility and sexual dissatisfaction concerns.

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