Factors Associated With Continuing Medical Therapy After Transurethral Resection of Prostate

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OBJECTIVE To report the clinical characteristics of patients who have persistent lower urinary tract symptoms (LUTS) after surgery for benign prostatic hyperplasia (BPH) and continue their medical therapy postoperatively.

MATERIALS AND METHODS We retrospectively studied 372 patients who underwent transurethral resection of prostate for LUTS/BPH in 8 institutions to determine the differences between patients who continued LUTS/BPH medications for >3 months after surgery and those who did not. Preoperative, intraoperative, and postoperative clinical parameters were assessed. The Student *t* test and chi square test were used to compare each parameter between patient groups. Multivariate logistic regression analysis was performed to identify risk factors for persistent LUTS and continuing medical therapy after surgery.

RESULTS There were 205 patients (55.1%) who continued their LUTS/BPH medications for >3 months postoperatively. They reported poorer International Prostate Symptom Scores and uroflowmetry results after surgery. Multivariate analysis showed that age >70 years (odds ratio [OR], 2.474; $P = .001$), history of diabetes (OR, 1.949; $P = .040$), history of cerebrovascular accident (OR, 5.932; $P = .001$), any previous LUTS/BPH medication use (OR, 5.384; $P = <0.001$), and previous antimuscarinic drug use (OR, 2.962; $P = .016$) were significantly associated with symptom persistency and continuing medical therapy.

CONCLUSION Many patients have persistent voiding dysfunction after surgical treatment for LUTS/BPH. Older age, history of diabetes, history of cerebrovascular accidents, and preoperative antimuscarinic drug uses are possible risk factors. UROLOGY 84: 675–680, 2014. © 2014 Elsevier Inc.

Lower urinary tract symptoms (LUTS) are common in middle-aged men and tend to become worse in older age groups.[1,2] LUTS are usually accompanied by benign prostatic hyperplasia (BPH), and the relationship between LUTS and BPH is quite complex. Consequently, treatment options for LUTS and BPH are diverse, and it is often difficult to determine which to choose. To help clinicians, urology communities have proposed guidelines for LUTS/BPH treatment that are mainly divided into 2 categories: medicine and surgery.[3,4] However, some patients have persistent or even worse urinary symptoms after endoscopic surgery. Apparently, this patient group requires more sophisticated approaches but little is known about their clinical characteristics. It may be interpreted simply as a surgical failure or as a situation in which both medical and surgical treatments have distinct roles. That is, some patients may benefit from medical therapy even after successful surgical therapy. Therefore, it would be valuable to know the characteristics of those patients who have persistent urinary symptoms after endoscopic surgery. In this regard, we analyze the results of endoscopic prostate surgery for LUTS/BPH patients and report the differences between patients who continue medical therapy after surgery and those who stop their medications.

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Table 1. Postoperative outcomes across patient groups

Outcome Variables, Postoperative	Medication Group (n = 205)	Medication-free Group (n = 167)	*P* Value
Operation time, min, mean ± SD	80.0 ± 39.3	75.5 ± 40.0	.280
Operation-related complications, n of pts (%)			
Bladder neck stenosis	1 (0.5)	3 (1.8)	.224
Urethral stricture	13 (6.3)	8 (4.8)	.519
Stress urinary incontinence	4 (2.0)	2 (1.2)	.566
Postoperative IPSS, points, mean ± SD			
Total	15.6 ± 6.9	8.9 ± 6.0	<.001*
Nocturia	2.1 ± 1.3	1.3 ± 1.2	<.001*
Urgency	1.9 ± 1.5	0.9 ± 1.1	<.001*
Frequency	2.5 ± 1.4	2.6 ± 1.3	<.001*
Quality of life	3.1 ± 1.1	2.1 ± 1.3	<.001*
Postoperative uroflowmetry			
Qmax, mL/s, mean ± SD	14.5 ± 8.7	16.9 ± 7.8	.021*
Voided volume, mL, mean ± SD	194.8 ± 112.9	220.0 ± 106.3	.061
Residual volume, mL, mean ± SD	46.6 ± 67.7	22.1 ± 32.1	<.001*

IPSS, International Prostate Symptom Score; pts, patients; SD, standard deviation.
* Student *t* test.

MATERIALS AND METHODS

We retrospectively studied the medical records of 493 men with a diagnosis of BPH who underwent endoscopic prostate surgery from January 2009 to December 2011 in 8 different institutions. The study was approved by the institutional review board of each hospital. All patients had postoperative follow-up records for at least 3 months. To reduce population heterogeneity, we analyzed transurethral resection of prostate (TURP) cases only, excluding 121 patients from the study who had the other types of surgery. The surgeons of all institutions used same surgical indications. Briefly, (1) recurrent events of urinary retention that are unresponsive to medical therapy, (2) recurrent growth hematuria or urinary infections with coexisting large prostate, (3) coexisting bladder calculi, (4) renal insufficiency with bladder outlet obstruction (BOO), and (5) unsatisfactory medical therapy (persistent symptoms and/or adverse effects of drugs).

We divided these patients into 2 categories: "medication group" and "medication-free group." The medication group was defined as those who continued to use LUTS/BPH medications during the follow-up periods, at least >3 months postoperatively. The patients who stopped medical therapy initially but restarted it due to recurrent symptoms were also included in "medication group." The medication-free group was defined as those who either did not take any medications after surgery or who initially continued their medications but stopped them in the first 3 postoperative months as symptoms improved over time. We set this time interval of 3 months because several months of recovery period are needed to measure the outcomes of TURP accurately.[5] We compared preoperative, intraoperative, and postoperative factors between the 2 groups.

Preoperative Factors

- Age at the time of surgery (years)
- Comorbidities (diabetes mellitus [DM], hypertension, hyperlipidemia, cerebrovascular accident [CVA])
- International Prostate Symptom Score (IPSS)
- History of acute urinary retention
- Uroflowmetry (Qmax, voided urine volume, postvoid residual urine volume [PVR])
- Serum prostate-specific antigen level
- Prostate volume (measured by transrectal ultrasonography)
- LUTS/BPH medication history (duration and types: α_1-adrenoceptor antagonists [α_1-blockers], 5α-reductase inhibitors, antimuscarinics, muscarinics, desmopressin, and so forth)
- History of prostate operation(s)

Intraoperative Factors

- Operation time (minutes)

Postoperative Factors

- IPSS
- Uroflowmetry
- Surgical complications (urethral stricture, bladder neck contracture, stress incontinence)
- LUTS/BPH medication use

Data were analyzed using IBM SPSS Statistics, version 20.0 (IBM Corp., Armonk, NY). The chi square test and Student *t* test were used to compare patient groups. Binary logistic regression was used to assess the influence on postoperative medication use of the individual factors identified by univariate analysis. Statistical significance was set at $P < .05$. All reported *P* values are 2-sided. The data are presented as mean ± standard deviation, unless otherwise stated.

RESULTS

Of our 372 patients, 205 (55.1%) used LUTS/BPH medications >3 months postoperatively. They were categorized as the "medication group." The other 167 patients (44.9%) were categorized as the "medication-free group." There was no difference in operation time and the frequency of surgical complication between the groups (Table 1). The medication group had higher postoperative total IPSS (15.6 ± 6.9 vs 8.9 ± 6.0; $P < .001$), lower Qmax (14.5 ± 8.7 mL/s vs 16.9