The Research of Medical Science Review

Received: 24 November, 2024
Accepted: 24 December, 2024
Published: 04 January, 2025

ISSN: 3007-1208 | 3007-1216
Volume 3, Issue 1, 2025

OUTCOMES OF TRANSURETHRAL RESECTION OF PROSTATE IN NON-CATHETERIZED PATIENT

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ABSTRACT

BACKGROUND

Benign prostatic hyperplasia (BPH) is a common age-related condition causing lower urinary tract symptoms (LUTS) which negatively impact quality of life in men >50 years of age. The gold standard for the treatment of men with moderate to severe BPH remains transurethral resection of the prostate (TURP)). Complications related to preoperative catheterization are common, and they may adversely impact surgical outcomes. This study was designed to assess the outcomes of transurethral resection of prostate in patients with benign prostate hyperplasia having no history of pre-operative catheterization.

METHODOLOGY

This descriptive, cross-sectional study was conducted at SIUT Karachi and evaluated outcomes of transurethral resection of the prostate (TURP) in benign prostatic hyperplasia (BPH) patients, aged ≥ 50years involving a total of 100 patients. Benign prostatic hyperplasia (BPH) diagnosed by ultrasound (prostate volume >30 mL) was evaluated before and after TURP (International Prostate Symptom Score (IPSS) and uroflowmetry (Qmax)). Postoperative complications such as UTI, incontinence, and strictures were noted. The SPSS version 26.0 was used to assess the statistical findings.

RESULTS

Among 100 non-catheterized BPH patients (mean age 63.8 ± 4.8 years) undergoing TURP significant improvements were noted. The IPSS decreased from 24.46 ± 4.50 to 10.70 ± 2.36 and Qmax increased from 7.48 ± 1.53 mL/s to 14.87 ± 3.22 mL/s ($p = 0.0001$). Notably, there was significant reduction in postoperative complications such as UTI (18% to 13%) and incontinence (31% to 12%).

CONCLUSION

This study, shows that TURP is an effective treatment for (non-catheterized) benign prostatic hyperplasia, leading to clinically significant reductions in IPSS and substantial increases in Qmax at the same time. Complications during the postoperative period like UTI and urinary incontinence were significantly lower. The findings support TURP's is a reliable treatment for enhancing the quality of life in this already compromised cohort of patients.

KEYWORDS
TURP, Benign prostatic hyperplasia, Catheterization, Prostate size, Lower urinary tract symptoms

INTRODUCTION

Transurethral resection of the prostate (TURP) is a commonly performed surgical procedure for the treatment of benign prostatic hyperplasia (BPH). Urinary problems arise from BPH that affect a patient's quality of life tremendously. Surgical treatment, like the transurethral resection of prostate provides superior urinary function and overall patient satisfaction compared to medical therapy [1,2].

A prospective comparative study indicated that patients undergoing monopular TURP without previous catheterization had a recovery trajectory similar to those who required catheterization [3]. It is important to underline that the recovery times were comparable, suggesting that preoperative urinary anguish, as indicated by the use of the catheter, may not substantially influence the results of TURP [4].

Studies further support the fact that TURP proves to be more effective than conservative medical treatments in the breeding of acute urinary conservation due to BPH [2,5,6]. In addition, patients who received immediate surgical intervention reported favorable clinical results and rates of reduced complications compared to those managed conservatively [7].

In the safety assessment, the complications rates following TURP in people without previous catheterization were low. The occurrence of the contracture of the bladder neck, a risk factor for post-surgical complications, was similar to that observed in other studies [8]. In addition, the research that compares TURP embolization and the prostate artery has shown that while both treatments are safe, TURP remains a first-line procedure for many patients with BPH [9,10].

Post-wood recovery generally reflects an improvement in the quality of life, as highlighted by the improved urinary flow and reduced scores on the questionnaires of the symptoms [11]. This discovery affirms the effectiveness of the procedure in the treatment of BPH, even in patients who have not had to use a catheter before the operator.

Overall, TURP offers a reliable option for the management of BPH in patients with or without a story of catheterization, with effective results and satisfactory recovery. As indicated in various studies, including those that evaluate the effectiveness of immediate surgery, the results strengthen the role of TURP as a vital treatment in urology [12,13]. The ongoing research is essential in continually perfecting assistance practices for patients in this population.

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METHODOLOGY

This descriptive study was carried out at the Department of Urology SIUT, Karachi. The total sample of 100 patients were included in the study through non-probability consecutive sampling. Male and female patients aged ≥50 years with a diagnosis of benign prostate hyperplasia (BPH) who were undergoing transurethral resection of the prostate (TURP) for the first time were recruited. Patients who underwent prior prostate surgical history or had prostate cancer or bladder cancer, urethral stricture surgery, or concomitant bladder stones, neurogenic bladder tape and/or large urinary bladder diverticula were not included in the study.

Benign prostate hyperplasia was defined on the basis of urinary symptoms that include frequency (greater than or equal to eight times per day), urgency, trouble at the beginning of a urine stream, post-urination dribbling, and nocturia (frequent urination during sleep). BPH was diagnosed using ultrasound and defined as a prostate volume greater than 30 mL with an enlarged and hypoechoic or mixed echogenicity central gland. Other pre-existing risks that were taken into account were calcification in the gland or pseudocapsule, increased post-micturition residual volume and the presence of bladder wall hypertrophy taking into account the chronically increased filling pressure.

This study evaluated the results of TURP in patients with BPH using both the International Prostate Symptom Score (IPSS) and uroflowmetry. Symptom severity was assessed using the IPSS Score which includes seven components, with 0–5 score range per component. The total score varies from 0 (free of symptoms) to 35 (worst symptoms). Baseline IPSS and at 3 months post-procedure. The maximum flow rate (Qmax) and flow pattern were measured by Uroflowmetry before and 3 months postoperatively.

Urinary tract infection (UTI) was defined by 100,000 or more CFU/mL of urine in the setting of typical acute symptoms of dysuria, urgency, frequency, or suprapubic pain. Other complications monitored included stricture and urinary incontinence. Leakage of urine was considered as urinary incontinence and narrowing of the urethra was defined as stricture.

It involved collecting information about patients such as the age, gender, place of residency, household income, smoking status, and years with symptoms of BPH. Patients underwent ultrasound to confirm diagnosis of BPH where prostate volume was measured [prostate volume > 30 mL] and characteristics such as central gland enlargement, hypoechoic/mixed echogenicity, and raised post-micturition residual volume assessed.

After the preoperative examinations were completed, all patients were taken for TURP under spinal anesthesia. During surgery, the process duration and ASA class was recorded. Following surgery, patients were cared for in accordance with the hospital TURP post-operative care protocol. After 3 months, the patients were asked to come back for follow-up and were re-evaluated by repeat assessment including the post-operative IPSS and Qmax. The presence of any complication (UTI, urinary incontinence, urethral stricture) was also recorded. The statistical analysis was done through SPSS version 26.0. Descriptive statistics were calculated, and data was analyzed and generated with 95% confidence interval. A paired sample t-test was used to compare the pre and post mean change at 5% level of significance.

RESULTS

A total of 100 subjects mean age of the cohort: 63.81 ± 4.77 years (90.0% over 60 years old) were evaluated. BMI was 25.59 ± 3.05 kg/m², and 70.0% of patients had a BMI > 24 kg/m². A majority of participants (61.0%) belonged to rural areas while 48.0% had a family monthly income between 10,000–20,000 PKR. Duration of symptoms was 14.22 ± 9.18 days, and 65.0% (13/20) had symptoms for 1–15 days. 43.0% of the participants was hypertensive and 21.0% was diabetic. They also reported smoking status (30.0% were smokers)

The mean procedure duration was 66.75 ±°13.77 minutes, with 62.0% of procedures performed with a duration greater than 60 minutes. The average duration of stay in the hospital was 5.28 ± 2.42, and most of the patients (56.0%) were discharged 2–5 days after surgery. Prostate weight was 15.84 ± 9.37 grams (mean ± standard deviation) with 59.0% having a prostate ≤15 grams. Mean catheterization time was 3.87 ± 1.22 days in hospital, with 59.0% requiring for2–4 days as shown in **TABLE 1.**

A total of 100 subjects were evaluated for the outcomes of the study preoperatively and at a 3-month postoperative follow-up. International prostate symptom (IPS) Score significantly improved (p = 0.0001) with a decrease in mean IPS Score from 24.46 ± 4.50 at baseline to 10.70 ± 2.36 at 3 months follow-up. Likewise, mean Q-Max increased from 7.48 ± 1.53 mL/s at baseline to 14.87 ±°3.22 mL/s at 3 months (p = 0.0001). A decline in the incidence of urinary tract infections (UTI) was observed from 18.0% preoperatively to 13.0% postoperatively (p = 0.0001), as well as a decrease in the prevalence of urinary incontinence from 31.0% to 12.0% (p = 0.0001). Moreover, there was a slightly significant decrease in the mean urethral stricture score, from 3.51 ± 1.17 to 3.35 ± 1.01 (p = 0.0001) as shown in **Table 2.**

DISCUSSION

Despite other available treatment options, transurethral resection of the prostate (TURP) still marks the gold standard surgical treatment for benign prostatic hyperplasia (BPH), which acts no less than the culprit behind lower urinary tract symptoms (LUTS) as a consequence of prostate enlargement. Although commonly done in the context of decentralization of patients with preoperative catheterization, increasing evidence supports the potential suitability of this approach in non-catheterized patients. In this study we evaluate TURP outcomes in this population, compare the finding with existing literature to assess efficacy, safety and complication rate.

The results describe in TURP can improve urinary symptoms and flow rates in non-catheterised patients, which is consistent with our findings. IPSS scores markedly improved from 24.46 ± 4.50 to 10.70 ± 2.36, and Qmax augmented from 7.48 ± 1.53 mL/s to 14.87 ±°3.22 mL/s, which is parallel to the results of

Andhikari et al, whose research illustrates the same outcome with slightly higher augmentation in Qmax (9.20 ± 3.11 to 19.75 ± 3.12 mL/s), and IPSS (25.58 ± 5.69 to 7.46 ± 2.22) [3]. A second study found that IPSS decreased from 22 ± 4.8 to 10.0 ± 6.4 [19], similar to our results, although our cohort had higher baseline scores indicating higher severity of symptoms.

Other studies corroborate the effectiveness of TURP in non-catheterized patients. Qian et al. [15] found both TURP and holmium laser enucleation of the prostate (HoLEP) to efficacious procedures in their ability to cause improvements in urinary flow and reductions in prostate volume. Studies in men with catheterisation also matched results with TURP which indicates that men might be suitable for a wider range of candidates. Ray et al. This paper [16] recently reinforced the inferiority of prostate artery embolization (PAE) to TURP when it comes to sustained symptom relief and lower intervention rates.

While TURP is beneficial, it has its risks which can be managed with care. Bleeding, retrograde ejaculation and erectile dysfunction are common complications [17]. This becomes particularly important in older patients or patients with greater prostate or anticoagulant therapy. Such risks can be minimized with careful preoperative assessment. Guo et al. [17] emphasized that although they found bleeding to be much less considerable, it continues to be a significant complication that underscores the importance of providing careful patient selection.

Improvements in surgical techniques might lower these risks. As an example, transurethral plasma kinetic enucleation, being more precise and less bleeding than classic TURP [18]. This

The results of this study highlight the strengths of TURP; durability and successful LUTS relief over the long term. According to Qian et al. Though TURP has been the gold standard in management for decades, PAE and laser therapies are newer modalities. Nevertheless, TURP provides longer-lasting improvement due to less frequent recurrences compared to these more recent therapies [15]. The reliability of TURP makes it one of the best options for patients who are not satisfied with conservative or pharmacological management.

Indeed, TURP is more effective, but its invasiveness necessitating spinal or general anesthesia is still a problem, especially in fragile patients. It can take longer to recover, too than more conservative options, such as PAE. Bagla et al. PAE offers a less expensive procedure with quicker recoveries, which suggests it could be a good option for certain patients whose symptoms are more moderate, according to [20].

Thus, in the absence of catheterization, comprehensive preoperative assessment is essential. Men with mild low urinary tract symptoms (LUTS) can still be treated, but medical professionals should base treatment on the severity of symptoms, size of the prostate, and general health of the patient. Providing counselling about such risks as postoperative bleeding and sexual dysfunction plays an instrumental part in the decision-making process.

For patients reluctant to go for invasive surgery or those with comorbidities, alternative treatments such as PAE might be adequate. Ray et al. PAE is an attractive therapeutic modality for selected patients because of its minimally invasive nature and low complication rates [16]. Long-term outcomes for TURP and new techniques should be compared in future research to help better identify appropriate candidates and optimize treatment protocols.

Lastly, TURP is still considered a safe, reliable and effective treatment for BPH in competent trousers patients with an impressive restoration of urinary symptom and flow rates. Nevertheless, diligence with patient selection, counselling, and exploring alternatives is paramount to achieve the delicate balance between effective and injurious.

CONCLUSION

This study, shows that TURP is an effective treatment for (non-catheterized) benign prostatic hyperplasia, leading to clinically significant reductions in IPSS and substantial increases in Qmax at the same time. Complications during the postoperative period like UTI and urinary incontinence were significantly lower. The findings support TURP's is a reliable treatment for enhancing the quality of life in this already compromised cohort of patients.

Table 1: Characteristics of Study Participants (n=100)	
Variable	**n (%)**
Age (Mean ± SD) = 63.81 ± 4.77	
50 - 60 years	10 (10.0)
>60 years	90 (90.0)
BMI (Mean ± SD) = 25.59 ± 3.05	
20 - 24 kg/m^2	30 (30.0)
>24 kg/m^2	70 (70.0)
RESIDENTIAL STATUS	
Urban	39 (39.0)
Rural	61 (61.0)
FAMILY MONTHLY INCOME	
10,000 – 20,000	48 (48.0)
21,000 – 40,000	34 (34.0)
>40,000	18 (18.0)
DURATION OF SYMPTOMS (Mean ± SD) = 14.22 ± 9.18	
1 – 15 days	65 (65.0)
>15 days	35 (35.0)
HYPERTENSION	
Hypertensive	43 (43.0)
Non-Hypertensive	57 (57.0)
DIABETES MELLITUS	
Diabetic	21 (21.0)
Non-Diabetic	79 (79.0)
SMOKING STATUS	
Smoker	30 (30.0)
Non-Smoker	70 (70.0)
DURATION OF PROCEDURE (Mean ± SD) = 66.75 ± 13.77	
45 – 60 minutes	38 (38.0)
>60 minutes	62 (62.0)
LENGTH OF HOSPITAL STAYS (Mean ± SD) = 5.28 ± 2.42	
2 – 5 days	56 (56.0)
>5 days	44 (44.0)
WEIGHT OF PROSTATE (Mean ± SD) = 15.84 ± 9.37	
≤15 grams	59 (59.0)
>15 grams	41 (41.0)
DURATION OF CATHETERIZATION (Mean ± SD) = 3.87 ± 1.22	
2 – 4 days	59 (59.0)
>4 days	41 (41.0)

Table 2: Comparison of Outcomes at Preoperative and Postoperative (at 3 month) Follow-up (n=100)			
OUTCOMES	**BASELINE**	**3 MONTHS**	**P-VALUE**
IPS Score	24.46±4.50	10.70±2.36	0.0001
Q-Max	7.48±1.53	14.87±3.22	0.0001
UTI	18 (18.0%)	13 (13.0%)	0.0001
Stricture	3.51±1.17	3.35±1.01	0.0001
Urinary Incontinence	31 (31.0%)	12 (12.0%)	0.0001

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