



Original Article

Post Transurethral Resection of the Prostate Improvement in IPSS at Two Weeks and Four Weeks

Article History:

Name of Author:

Saifullah¹, Noorul Hayat^{2*}, Samiullah³,
Naemud Din⁴, Faiz ur Rahman⁵, Isar
Ahmad⁶

Affiliation: ¹Post Graduate Resident,
Urology Department, Saidu Group of
Teaching Hospitals, Swat, Pakistan

²Assistant Professor, Urology
Department, Saidu Group of Teaching
Hospitals, Swat, Pakistan

³Associate Professor, Nephrology
Department, Saidu Group of Teaching
Hospitals, Swat, Pakistan

⁴Registrar, City Medical Complex, Swat,
Pakistan

⁵Post Graduate Resident, Institute of
Kidney Diseases, Hayatabad Medical
Complex, Hayatabad, Peshawar, Pakistan

⁶Registrar, Musharraf Medical Complex,
Abbottabad, Pakistan

Corresponding Author:

Noorul Hayat

Email: drnoorulath@gmail.com

Received: 11-11-2025

Revised: 12-12-2025

Accepted: 18-12-2025

Published: 26-12-2025

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-Noncommercial-Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Abstract: Background: Benign prostate hyperplasia (BPH) is a frequent disease among male patients in old age that leads to lower urinary tract symptoms (LUTS) that greatly impact the quality of life. The gold standard surgical treatment is transurethral resection of the prostate (TURP). The purpose of the study was to compare early postoperative outcome of International Prostate Symptom Score (IPSS) at two and four weeks after TURP. **Methods:** The study was a quasi-experimental study that was carried out at the Department of Urology, Saidu Group of Teaching Hospitals, Swat, from 25 June 2025 to 25 October 2025. Consecutive sampling was used to sample 121 patients aged 45-85 years undergoing TURP because of BPH. Preoperative baseline IPSS was measured and at two and four weeks postoperative follow-ups were conducted. The definition of efficacy was IPSS <6. The SPSS version 30 was used to analyze data. **Results:** The average IPSS preoperative was 21.6 ± 4.3 . A significant reduction in IPSS was observed at two weeks (10.8 ± 3.9) and four weeks (6.2 ± 2.8) ($p < 0.001$). In 74.4 and 91.7 percent of patients, efficacy was attained at two weeks and four weeks respectively. There was significant association of baseline IPSS with early improvement ($p = 0.03$). **Conclusion:** TURP gives a considerable early LUTS improvement and most patients have satisfactory results after four weeks. Postoperative monitoring is useful during early assessment to monitor the progress of recovery and counsel patients.

Keywords: BPH, TURP, IPSS, lower urinary tract symptoms, early outcome

INTRODUCTION

One of the most prevalent urological diseases in aging men across the globe, benign prostatic hyperplasia (BPH) is a leading cause of lower urinary tract symptoms (LUTS). BPH is more common as men grow older, and it is a leading cause of morbidity and poor quality of life especially among men over the age of 50 years [1]. Bladder outlet obstruction is caused by progressive enlargement of the prostate, and causes

both storage and voiding symptoms.

Symptoms that are common in patients with BPH include urinary frequency, urgency, nocturia, weak urinary stream, hesitancy, and incomplete emptying of the bladder. These symptoms do not only deteriorate functioning in daily life but also influence the quality of sleep and mental health. The intensity of these symptoms is typically measured with the help of the International Prostate Symptom Score (IPSS),

which is a validated and a common indicator of not only diagnosing but also monitoring the outcomes of treatment [2].

Treatment of BPH varies with the extent of the symptoms and can be conservative, medical or surgical. Though pharmacological therapy is usually effective in mild to moderate cases, surgery is required in patients with severe symptoms, complications or failure of the medical treatment. Transurethral resection of the prostate (TURP) is the gold standard surgical therapy of BPH because of its efficacy and long-term results [3].

TURP is performed by using a transurethral method to clear the obstructing prostate tissue, and in the process, bladder outlet obstruction is relieved, and urinary flow is improved. There is substantial evidence that TURP results in improvements in the quality of life and urinary symptoms. Nonetheless, the extent and speed of symptom remediation may differ across patients, and this is why objective measures are imperative in measuring the outcomes [4].

The early postoperative assessment is especially crucial, as it gives the understanding of the effectiveness of the surgical intervention in the short term and aids in the process of postoperative care. Whilst the long-term effects of IPSS are well-reported, the initial effects within the first few weeks of surgery are not as well investigated. Patients are prone to temporary irritative symptoms during this period when they have postoperative edema, inflammation or bladder instability and this can affect the symptom scores [5].

METHODOLOGY

Study design, setting and duration

It was a quasi-experiment study that was carried out in the department of urology at Saidu Group of Teaching Hospitals Swat from 25 June 2025 to 25 October 2025.

Sample Size and Sampling Method

A total of 121 patients were included in the study. The calculation of the sample size relied on WHO sample size calculation software with a confidence level of 95% and 8 percent margin of error and the anticipated efficacy of 72.2% [8]. Non-probability consecutive sampling was used to recruit patients.

Sample Selection

Male patients aged 45-85 years and with a diagnosis of benign prostatic hyperplasia according to operational definition and with transurethral resection of the prostate were included. Patients who had a history of urethral surgery or stricture, prostate cancer, neurogenic bladder, active urinary tract infection or bladder stones were excluded.

Data Collection Procedure

Patients who met the inclusion criteria were recruited

There are various factors that may influence the early postoperative improvement in IPSS, among them being the severity of symptoms at baseline, size of the prostate, the existence of comorbid conditions, and the surgical method. There are patients who exhibit fast symptomatic improvement within the initial two weeks whereas others might exhibit a progressive improvement over time. Knowing these differences is critical in making realistic expectations and maximizing the patient management [6].

Previous studies have reported varying rates of early improvement following TURP. According to Bansal et al., an efficacy of about 72.2% at two weeks, means that a substantial percentage of patients experience early symptomatic relief [7]. On the same note, Ahmad et al. reported an up to 90 percent efficacy at four weeks, with further improvement of the improvement rate in the early postoperative period [8].

The evidence available on the global basis is insufficient as far as local data on early postoperative improvement in IPSS after TURP in our population are concerned. Variations in patient factors, healthcare facilities, postoperative care practices can affect outcomes. Consequently, the research will determine early alterations of IPSS at two and four weeks post TURP which will be of great benefit in patient counseling and postoperative care in the area.

Objective

To determine the efficacy of transurethral resection of the prostate in improving IPSS at two weeks and four weeks postoperatively.

after obtaining the institutional ethical committee approval. Prior to inclusion, informed consent was provided. Demographic and clinical information such as age, BMI, socioeconomic status and preoperative IPSS score were noted. Each patient was subjected to transurethral resection of the prostate under a common technique under the guidance of a consultant urologist. Two weeks and four weeks postoperative follow up were done in the outpatient department, where IPSS scores were measured using a structured proforma. The operational definition of improvement in IPSS was the basis of determining the efficacy of the procedure.

Data Analysis

The analysis and data entry were done with SPSS version 30. Normality presented quantitative variables in the form of mean $\pm$ standard deviation or median (IQR). Qualitative variables have been expressed in terms of frequencies and percentages. The effect modifiers that were stratified included age, BMI, and baseline IPSS. Chi-square test or Fisher exact test was used after stratification and a p-value of 0.05 was taken as statistically significant.

RESULTS

A total of 121 patients were included in the study. The average age of the patients was 63.4 ± 8.7 years. The largest proportion of patients was in the 56-70 years range. The average IPSS preoperative score was 21.6 with a standard deviation of 4.3, which represents mostly severe symptoms. Two weeks postoperatively, a considerable decrease in IPSS was observed, and it further improved at four weeks. The overall effectiveness of TURP was 74.4 and 91.7 percent at two and four weeks respectively.

Table 1 shows that baseline demographic and clinical data reflected that most patients were in moderate to high BMI with a significant proportion of the patients in middle socioeconomic status and rural background.

The comparison of mean IPSS scores before and after the operation and at the follow-up intervals are demonstrated in Table 2. Both at two and four weeks statistically significant IPSS improvement was observed ($p < 0.001$).

Table 3 illustrates the frequency of efficacy two and four weeks where success rate is significantly higher with time. The connection of efficacy with the chosen variables is presented in Table 4. There was significant association between the baseline IPSS and efficacy at two weeks ($p = 0.03$), and no statistically significant association was found between other variables.

Table 1: Baseline Demographic and Clinical Characteristics (n = 121)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	45–55	28	23.1
	56–70	64	52.9
	>70	29	24.0
BMI (kg/m ²)	Normal	32	26.4
	Overweight	58	47.9
	Obese	31	25.6
Socioeconomic Status	Low	36	29.8
	Middle	63	52.1
	High	22	18.2
Residence	Rural	72	59.5
	Urban	49	40.5
Mean Preoperative IPSS	—	21.6 ± 4.3	—

Table 2: Comparison of IPSS Scores (Preoperative vs Postoperative)

Time Interval	Mean IPSS $\pm$ SD	p-value
Preoperative	21.6 ± 4.3	—
2 Weeks	10.8 ± 3.9	<0.001
4 Weeks	6.2 ± 2.8	<0.001

(Paired t-test applied)

Table 3: Efficacy of TURP at 2 and 4 Weeks (n = 121)

Time Interval	Efficacy (Yes)	Efficacy (No)
2 Weeks	90 (74.4%)	31 (25.6%)
4 Weeks	111 (91.7%)	10 (8.3%)

Table 4: Association of Efficacy (2 Weeks) with Selected Variables (n = 121)

Variable	Category	Efficacy Yes n (%)	Efficacy No n (%)	p-value
Age	≤60 years	38 (76.0)	12 (24.0)	0.72
	>60 years	52 (73.2)	19 (26.8)	
BMI	≤25	26 (81.3)	6 (18.7)	0.21
	>25	64 (71.9)	25 (28.1)	
Pre-op IPSS	≤20	41 (82.0)	9 (18.0)	0.03
	>20	49 (69.0)	22 (31.0)	

(Chi-square test applied; $p \leq 0.05$ considered significant)

DISCUSSION

The current research tested the early postoperative gains in International Prostate Symptom Score (IPSS)

at two and four weeks after transurethral resection of the prostate (TURP). The results showed that there was a drastic decrease in average IPSS between the

baseline and follow-up periods and the improvement of the same over time. This emphasizes the significance of TURP in long-term management of the symptoms as well as the early postoperative stage, which holds clinical implications to assure the patient and to manage the postoperative care.

In this research, the average preoperative IPSS was 21.6 with a standard deviation of 4.3 years that means that majority of the patients had severe lower urinary tract symptoms (LUTS). This is aligned with the literature of the past where patients undergoing TURP usually experience moderate to severe symptom scores before surgery [9]. The notable decrease in IPSS at two (10.8 ± 3.9) and four weeks (6.2 ± 2.8) in our study goes hand-in-hand with already known evidence that TURP can result in a marked symptomatic improvement through the elimination of bladder outlet obstruction [10].

TURP effectiveness in our trial was noted to be effective in 74.4 percent of the patients at two weeks and 91.7 percent at four weeks. The present results can be compared to the prior research, which has documented initial success rates of about 70 to 90 percent during the initial one month of the surgery [7,8]. This gradual healing is the normal process of healing after TURP, as initial postoperative inflammation and edema slowly improve, leading to an increase in urinary flow and relief of symptoms [11].

Urgentia, frequency and dysuria are temporary irritative symptoms that may be involved in improving early postoperative. These symptoms can have a temporary influence on the IPSS scores during the immediate postoperative period. Other previous studies have reported similar findings and in this case patients have reported an incomplete symptom relief at two weeks with a significant improvement at four weeks as tissue healing advances [12]. This is why the efficacy rate was low at two weeks than four weeks in the present study.

The present research had a statistically significant correlation between preoperative IPSS and efficacy at the two weeks ($p = 0.03$), which also means that patients who had lower scores on preoperative symptom scores had better outcomes in the early stages. The latter observation is supported by the past studies that indicate that the patients with mild baseline obstruction can exhibit faster symptomatic recovery following surgery [13]. Yet after four weeks, the difference is likely to decrease the majority of patients receive significant relief despite their initial severity.

This study did not indicate a significant relationship between other factors like age and BMI with early efficacy. This agrees with a number of studies which have found both little effect of demographic factors on short-term outcomes after TURP [14]. Nevertheless,

certain literature indicates the possibility of comorbidities and prostate size influencing recovery patterns, which were not examined in-depth in this study and could be the focus of new research [15,16].

The results of this paper support the use of TURP as a helpful surgery to treat BPH with early symptomatic gains. The gradual refinement of IPSS in a relatively brief time encourages the use of the latter as the gold standard intervention. Furthermore, recording of early results is especially beneficial in clinical practice, as it assists in patient education about the anticipated recovery periods and dealing with the postoperative expectations [17,18].

This research also offers a useful local data, which is necessary due to the differences in patient properties, as well as healthcare environments. The findings are consistent with the world evidence and underscore the significance of follow-up at an early age. The patients whose improvement is less than ideal can be identified early on to implement timely intervention, which in turn can also improve outcomes and patient satisfaction [19,20].

Limitations

This study had certain limitations. It was also carried out at one center and its sample size is relatively small, which can be a limitation to generalization. The duration of the follow-up was brief and only four weeks, so it was not possible to evaluate the long-term results. Also, certain potentially affecting variables like the size of the prostate, the length of operation and comorbidities were not examined in detail. It is suggested that future studies involving larger samples with a longer follow-up be conducted in multi-centers to confirm these results.

CONCLUSION

Transurethral resection of the prostate (TURP) is a good procedure to treat benign prostatic hyperplasia and it has been shown to produce good early results of lower urinary tract symptoms in terms of IPSS. In this research a significant drop in the severity of the symptoms was noted at two and four weeks after surgery and they improved gradually as time went by. By four weeks, most patients had satisfactory outcomes, and this indicates the swift symptomatic response of the procedure. These results substantiate the use of TURP as the gold standard intervention and underline the significance of the early postoperative evaluation to counsel patients and optimally manage them.

REFERENCES

1. Shim M, Bang WJ, Oh CY, Lee YS, Cho JS. Correlation between prostatic urethral angulation and symptomatic improvement after surgery in patients with lower urinary tract symptoms according to prostate size. *World Journal of*

- Urology. 2020 Aug;38(8):1997-2003. <https://doi.org/10.1007/s00345-019-02990-6>
2. Dange J, Patil HN, masum Tamboli I, Ponaganti SM, Khyalappa R. Study the outcome of Transurethral Resection of Prostate with pre-operative and post-operative International Prostate Symptom Score. *Journal of Contemporary Clinical Practice*. 2025 Jul 22;11:602-9. 10.61336/jccp/25-07-84
3. Mani V, Korrapati B, Palaniyandi V, Sekar H, Krishnamoorthy S. Effectiveness of Transurethral Resection of the Prostate in Managing Lower Urinary Tract Symptoms and Enhancing Quality of Life: A Prospective South Indian Study. *Cureus*. 2025 Aug 25;17(8). <https://doi.org/10.7759/cureus.90945>
4. Thomson A, Yim A, Qin K, Bolton D, Liodakis P. Natural history of lower urinary tract symptoms following transurethral resection of prostate: a prospective observational study. *BJU Int*. 2026 Mar 8. doi: 10.1111/bju.70219
5. Parvez M, Kalal N, Singh DM, Sharma MK. Educational intervention to prevent postoperative complications and improve functional outcomes in patients with transurethral resection of the prostate. *Invest Educ Enferm*. 2025 Jul 23;43(2):e05. doi: 10.17533/udea.ice.v43n2e05.
6. Rath A, Nayyar R, Rath N, Jain S, Seth A, Ghorai RP, Aggarwal V. Outcomes of transurethral resection of prostate for benign prostatic obstruction stratified as per duration of prior medical therapy. *World J Urol*. 2025 Apr 25;43(1):251. doi: 10.1007/s00345-025-05639-9.
7. Hsu YH, Hou CP, Weng SC, Tsai HY, Tsao SH, Juang HH, Lin YH, Chen CL, Chang PL, Lin KJ. Analysis of urinary retention after endoscopic prostate enucleation and its subsequent impact on surgical outcomes. *World J Urol*. 2024 May 9;42(1):305. doi: 10.1007/s00345-024-04918-1.
8. Whaib M, Daraji SD, KHUDHAIR M. The relationship between weight and volume of resected prostate tissue and Postoperative improvement of IPSS for patients with benign prostatic hyperplasia. *INTERNATIONAL JOURNAL OF NEPHROLOGY*. 2025;7(1):08-12. <https://doi.org/10.33545/26646692.2025.v7.i1a.17>
9. Zhou J, Peng ZF, Song P, Yang LC, Liu ZH, Shi SK, Wang LC, Chen JH, Liu LR, Dong Q. Enhanced recovery after surgery in transurethral surgery for benign prostatic hyperplasia. *Asian journal of andrology*. 2023 May 1;25(3):356-60. <https://doi.org/10.4103/aja202267>
10. Sipal T, Akdere H. The relation between the storage symptoms before and after transurethral resection of the prostate, analysis of the risk factors and the prevention of the symptoms with solifenacin. *International braz j urol*. 2020 Jun 1;46(4):575-84. <https://doi.org/10.1590/s1677-5538.ibju.2019.0227>
11. Porto JG, Bhatia AM, Bhat A, Suarez Arbelaez MC, Blachman-Braun R, Shah K, Malpani A, Lopategui D, Herrmann TR, Marcovich R, Shah HN. Evaluating transurethral resection of the prostate over twenty years: a systematic review and meta-analysis of randomized clinical trials. *World journal of urology*. 2024 Nov 15;42(1):639. <https://doi.org/10.1007/s00345-024-05332-3>
12. Chen KY, Chen YS, Yang MH, Huang YH, Chen SL. Autonomic Modulation and Symptomatic Efficacy of Transurethral Resection of the Prostate in Benign Prostatic Hyperplasia. *Life*. 2025 Sep 26;15(10):1520. <https://doi.org/10.3390/life15101520>
13. Mohammed AM, Abd Elhamed AM, Mahmoud AS, Mahmoud TA, Hammady AR, Badawy AA. Ejaculation preserving vs. standard transurethral resection of the prostate: a randomized controlled clinical trial. *African Journal of Urology*. 2026 Mar 31;32(1):13. <https://doi.org/10.1089/end.2024.0460>
14. Annese P, d'Altilia N, Mancini V, Falagario UG, Del Giudice F, Ferro M, de Cobelli O, Porreca A, Busetto GM, Carrieri G. Preserving ejaculatory function in young patients with lower urinary tract symptoms: medium-to long-term follow-up of prostatic urethral lift at a single center. *Therapeutic Advances in Urology*. 2021 Jul;13:17562872211037109. <https://doi.org/10.1177/17562872211037109>
15. Bang WJ, Kim H, Oh CY, Jo JK, Cho JS, Shim M. Clinical significance of prostate volume and testosterone reduction on lower urinary tract symptoms in patients with prostate cancer undergoing androgen deprivation therapy. *Scientific Reports*. 2022 Nov 2;12(1):18535. <https://doi.org/10.1038/s41598-022-21963-1>
16. He BM, Shi ZK, Chen R, Wang HF. Study protocol for a single-centre non-inferior double-blinded randomised controlled trial in China comparing the efficacy and safety of high-frequency irreversible electroporation with transurethral resection of the prostate in treating lower urinary tract symptoms and benign prostatic obstruction (the GIANT trial). *BMJ open*. 2025 Jan 1;15(1):e092489. <https://doi.org/10.1136/bmjopen-2024-092489>
17. Radwan A, Farouk A, Higazy A, Samir YR, Tawfeek AM, Gamal MA. Prostatic artery embolization versus transurethral resection of the prostate in management of benign prostatic hyperplasia. *Prostate international*. 2020 Sep 1;8(3):130-3. <https://doi.org/10.1016/j.prnil.2020.04.001>
18. Al Demour SH, Abuhamad M, Santarisi AN, Al-Zubi M, Al-Rawashdah SF, Halalsheh O, Carbone A, Pastore AL, Ahmad MM. The effect

-
- of transurethral resection of the prostate on erectile and ejaculatory functions in patients with benign prostatic hyperplasia. *Urologia internationalis*. 2022 Oct 17;106(10):997-1004. <https://doi.org/10.1159/000524957>
19. Luan J, Song C, Li D, Chen L, Cui D, Zhao Y, Ruan Y, Wang X, Jing Y, Guo W, Xia S. Short-term postoperative recovery for patients after Thulium Laser Vapoenucleation of Prostate: evaluation of the impact of lower urinary tract symptoms on quality of life. *World Journal of Urology*. 2024 Oct 23;42(1):587. <https://doi.org/10.1007/s00345-024-05293-7>
20. Li J, Chen ZY, Chen B, Huang Y, Liao DZ, Wang PZ, Cao DH, Ai JZ, Liu LR. The effect of bladder function on the efficacy of transurethral prostatectomy in patients with benign prostatic hyperplasia: a retrospective, single-center study. *Asian Journal of Andrology*. 2024 Jan 1;26(1):112-8. <https://doi.org/10.4103/aja202327>