

THE RESULT TREATMENT OF LARGE BENIGN PROSTATIC HYPERPLASIA BY BIPOLAR TRANSURETHRAL RESECTION OF THE PROSTATE AT THAI NGUYEN CENTRAL HOSPITAL

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ABSTRACT

Objectives: To evaluate the changes in IPSS scores, QoL scores, and early complications in patients with large benign prostatic hyperplasia (BPH) treated with bipolar transurethral resection of the prostate (B-TURP).

Subjects and Methods: A cross-sectional descriptive study involving 50 patients with large benign prostatic hyperplasia who underwent TURP with bipolar electro-surgical resection at Thai Nguyen Central Hospital from January 2020 to October 2024.

Results: The mean of age was 75.82 ± 8.72 (50-95). The IPSS scores preoperative and postoperative were 22.42 ± 6.45 and 8.26 ± 2.20 . The QoL scores preoperative and postoperative were 4.58 ± 0.61 and 1.86 ± 0.70 . The mean of time for operative 67.84 ± 18.64 minutes, the mean of postoperative time 6.54 ± 2.56 days. No surgical complications were observed.

Conclusion: Bipolar transurethral resection of the prostate (B-TURP) is a safe and effective method for improving lower urinary tract symptoms in patients with large benign prostatic hyperplasia.

Keywords: Benign prostatic hyperplasia, transurethral resection of the prostate, bipolar electro-surgical resection, International Prostate Symptom Score (IPSS), Quality of Life (QoL).

1. INTRODUCTION

Benign Prostatic Hyperplasia (BPH) is the benign proliferation of smooth muscle and epithelial cells, primarily in the transition zone of the prostate. According to Langan, R.C. (2019), the prevalence of BPH increases with age. It is rarely observed in individuals under 30, with a prevalence of approximately 8% in the 30-40 age group, and it can reach up to 90% in individuals over 90 years old[1]. Recently, transurethral resection of the prostate using bipolar electro-surgical energy (B-TURP) has been applied to expand the indications for endoscopic surgery in patients with large prostate sizes. B-TURP causes less superficial tissue damage, has better hemostasis, and allows the use of saline solution for irrigation during the surgery. According to a study by Kwon.J.S. (2011), comparing the efficacy of M-TURP, B-TURP, and open prostatectomy in patients with

large prostate glands, the B-TURP group had a shorter hospital stay (6.3 ± 1.3 days) compared to the M-TURP group (9.4 ± 2.3 days) and the open surgery group (12.0 ± 2.9 days)[2]. Additionally, the blood transfusion rate after surgery was 0% in the B-TURP group, compared to 15.7% in the M-TURP group and 33.3% in the open surgery group[2]. In Vietnam, bipolar electro-surgical resection for large prostate glands has not been widely applied, and there is limited research evaluating the treatment outcomes of this method in patients with large prostate sizes. The Urology Department at Thai Nguyen Central Hospital has been applying transurethral resection using bipolar electro-surgical energy for the treatment of BPH since 2020. The goal of this study is to evaluate the treatment outcomes of this method in patients with large prostates in the current period.

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2. STUDY POPULATION AND METHODS

2.1. Study Population

2.1.1. Inclusion Criteria

- Patients with benign prostatic hyperplasia and large prostate size (80 - 150 ml) who are indicated for surgery according to the guidelines of the American Urological Association (2023)[3].

- Patients diagnosed with BPH confirmed by histopathological examination of prostate tissue post-surgery.

- Patients with stable underlying conditions such as cardiovascular disease, hypertension, diabetes, or respiratory disorders.

2.1.2. Exclusion Criteria

- Patients who do not agree to participate in the study.

- Patients with BPH who have concomitant conditions such as urethral stricture, bladder tumors, inability to assume the lithotomy position, or a history of previous urethral or prostate surgery, bladder neck obstruction.

2.2. Study Period and Location

- Period: From January 2020 to October 2024.

- Location: Urology Department, Thai Nguyen Central Hospital.

2.3. Research Methods

- Study Design: Descriptive, cross-sectional study.

- Sampling Method: Non-probability sampling (convenience sampling), including patients who meet the criteria during the study period.

2.4. Research Indicators

Evaluate changes in urinary symptoms using the International Prostate Symptom Score (IPSS) before and after surgery.

Assess quality of life (QoL) scores before and after surgery.

Age of patients.

Duration of bladder irrigation.

Duration of catheterization.

Surgical duration.

Early postoperative complications.

2.5. Data Analysis

Data will be processed and analyzed using SPSS software version 20.0.

3. RESULTS

Table 1. Age of Study Participants

Age Group	Number of Patients	Percentage (%)
≤ 70	13	26
> 70	37	74
Total	50	100
Mean Age ($\bar{X} \pm SD$)	75.82 ± 8.72	

The average age of the participants was 75.82 ± 8.72 years. The group aged over 70 years accounted for 74% of the study population. The oldest patient was 95 years old, and the youngest was 50 years old.

Table 2. Surgical Duration of Study Participants

Surgical Time (minutes)	Number of Patients	Percentage (%)
< 60	21	42
60 - 90	20	40
> 90	9	18
Total	50	100
Average	67.84 ± 18.64 (range: 45 – 108 minutes)	

The average surgical time was 67.84 ± 18.64 minutes. Most patients (42%) had B-TURP procedures performed in less than 60 minutes. 40% of patients had surgery lasting 60-90 minutes, and 18% of patients had surgery lasting more than 90 minutes.

Table 3. Early Postoperative Complications

Complication	Number of Patients	Percentage (%)
Postoperative bleeding	2	4
Urinary tract infection	4	8
Urinary retention	3	6
No complications	41	82
Total	50	100

During the postoperative period, 9 patients experienced complications: 3 had urinary retention after catheter removal (6%), 2 had postoperative bleeding (4%), and 4 had urinary tract infections (8%).

Table 4. Duration of Catheterization and Bladder Irrigation After Surgery

Time Period		Number of Patients	Percentage (%)
Catheterization Duration (days)	≤ 3	14	28
	4 – 5	29	58
	≥ 6	7	14
	Total	50	100
Bladder Irrigation Duration (days)	≤ 3	14	28
	4 – 5	32	64
	≥ 6	4	8
	Total	50	100

Most patients (58%) had a catheter placed for 4-5 days after B-TURP. Seven patients (14%) had catheterization for ≥ 6 days due to urinary retention after catheter removal and postoperative bleeding. Fourteen patients (28%) had catheterization for ≤ 3 days. For bladder irrigation, 28% of patients had it for ≤ 3 days, and the majority (64%) had it for 4-5 days. Four patients (8%) needed bladder irrigation for ≥ 6 days due to postoperative bleeding and urinary tract infections.

Table 5. Improvement in IPSS After Surgery

Time of Evaluation Score Range (Severity)	Before Surgery		After Surgery	
	Number of Patients	(%)	Number of Patients	(%)
0 – 7 (mild)	0	0	31	62
8 – 19 (moderate)	23	46	19	38
20 – 35 (severe)	27	54	0	0
Total	50	100	50	100
Average IPSS	22.42 ± 6.45 (range: 14 – 34)		8.26 ± 2.20 (range: 5 – 13)	

Before surgery, 54% of patients had severe IPSS scores, and 46% had moderate scores. After surgery, no patients had severe symptoms, 38% had moderate symptoms, and the majority (62%) had mild symptoms.

Table 6. Improvement in QoL Scores After Surgery

Time of Evaluation Score Range (Severity)	Before Surgery		After Surgery	
	Number of Patients	(%)	Number of Patients	(%)
0 – 2 (mild)	0	0	41	82
3 – 4 (moderate)	24	48	9	18
5 – 6 (severe)	26	52	0	0
Total	50	100	50	100
Average QoL Score	4.58 ± 0.61 (range: 4 – 6)		1.86 ± 0.70 (range: 1 – 3)	

Before surgery, 52% of patients had severe QoL scores and 48% had moderate scores. After surgery, no patients had severe QoL scores, 18% had moderate scores, and the majority (82%) had mild scores.

4. DISCUSSION

We conducted a study on 50 patients with benign prostatic hyperplasia (BPH) and large prostate volumes who underwent bipolar transurethral resection of the prostate (B-TURP) between January 2020 and October 2024.

The average age of the study participants was 75.82 ± 8.72 years, with the oldest being 95 and the youngest being 50 years old. The most common age group was >70 years (74%). Lower urinary tract symptoms (LUTS) were almost always the most prominent symptoms, and these symptoms tend to increase with age. The International Prostate Symptom Score (IPSS) was standardized by the International Urological Association in 1991 and is widely used in clinical practice. The Quality of Life (QoL) score, considered as the eighth question of the IPSS, is commonly used by clinicians to guide treatment decisions and determine whether intervention is needed for BPH. In the study by Tran Quoc Hoa (2024) on B-TURP in patients with large prostates, the average preoperative IPSS was 23.8 ± 8.76, with 56.82% of patients having an IPSS between 20 and 35[2]. The preoperative QoL score in his study was 4.87 ± 1.01[4]. According to Kwon et al (2011), the average preoperative IPSS was 22.5 ± 5.92. Mohamed.M.A and collaborators (2014) reported an average preoperative IPSS of 27.0 ± 3.78[2,5]. Joshi et al recorded a preoperative QoL score of 4.26 ± 0.19. In our study, the average preoperative IPSS was 22.42 ± 6.45, with 54% of patients classified as having severe symptoms.

Besides, the average QoL score was 4.58 ± 0.61 . These results were similar to those of Kwon.J.S (2011) with an IPSS of 22.5 ± 5.9 , Tran Quoc Hoa (2024) with an IPSS of 23.8 ± 8.76 , and a QoL score of 4.87 ± 1.01 [2,4]. Patients typically seek treatment when their prostate volume has become considerably large, and surgery is indicated not based on prostate size but rather on symptoms and QoL. Prostate volume tends to increase with age due to hormonal changes and the proliferation of stromal tissue. From age 31 to 90, the prostate typically grows by about 0.4g per year. However, prostate size alone is not the determining factor for surgical intervention, though it plays a role in supporting the indication and prognosis. Previously, transurethral prostatectomy was ideal for prostates sized between 30-80 ml. Nowadays, the development of B-TURP with isotonic saline irrigation has significantly reduced the risk of complications, even in cases with larger prostates. To minimize risks and complications, the Vietnamese Urological Association and some authors recommend that surgery duration should not exceed 90 minutes[7]. The average surgical time in our study was 67.84 ± 18.64 minutes, which is similar to the study by Tran Quoc Hoa (2024), where the average time was 65.79 ± 18.44 minutes[4]. Postoperatively, patients may experience early complications such as the TUR syndrome, postoperative bleeding, urinary retention after catheter removal, and urinary tract infections (UTIs). In our study, 9 patients had complications: 3 patients had urinary retention after catheter removal (6%), and after re-insertion of the catheter, 2 patients (4%) experienced postoperative bleeding, requiring continuous bladder irrigation and hemostatic measures, but none required blood transfusions or reoperation. Four patients (8%) had UTIs and were successfully treated prior to discharge. Similarly, in the study by Tran Quoc Hoa (2024), 6 patients (6.82%) had urinary retention requiring catheter reinsertion, and 5 patients (5.68%) had UTIs. Joshi (2014) reported 2 cases of postoperative bleeding, but none required blood transfusion[6]. All patients in our study had a Foley catheter placed for continuous bladder irrigation postoperatively. The average duration of catheterization was 4.42 ± 1.16 days, with the majority (58%) being between 4-5 days. This is similar to the study by Tran Quoc Hoa (2024), where the average duration was 5 ± 1.22 days[4]. After surgery, the average IPSS decreased from 22.42 ± 6.45 preoperatively to 8.26 ± 2.20 postoperatively. The aim of surgery is to improve symptoms and QoL, and our study showed that the average QoL score decreased from 4.58 ± 0.61 preoperatively to 1.86 ± 0.70 postoperatively. Before surgery, 52% of patients had a poor QoL score, while after surgery, 82% of patients had a mild QoL score. Similarly, in Tran Quoc Hoa's study (2024), the post-surgery average IPSS was 6.97 ± 4.86 and the average QoL was 1.94 ± 1.12 [4]. According to Kwon et al (2011), the average post-surgery IPSS was 8.9 ± 4.9 and the QoL score was 2.1 ± 1.12 [2].

5. CONCLUSION

Bipolar transurethral resection of the prostate (B-TURP) is a safe and effective method for treating benign prostatic hyperplasia with large prostate volumes. It significantly improves lower urinary tract symptoms and enhances the quality of life of patients.

REFERENCES

- [1] Langan, R. C. & MD. Benign Prostatic Hyperplasia. Prim Care: Clinics in Office Practice 46, 223-232 (2019).
- [2] Kwon, J. S. & Lee, J. W. Comparison of Effectiveness of Monopolar and Bipolar Transurethral Resection of the Prostate and Open Prostatectomy in Large Benign Prostatic Hyperplasia. Korean Journal Of Urology 52, 269-273 (2011).
- [3] Lerner, L. B., Barry, M. J. & Das, A. K. Management Of Lower Urinary Tract Symptoms Attributed To Benign Prostatic Hyperplasia: Aua Guideline. American Urological Association (AUA), 14 (2023).
- [4] Tran Quoc Hoa. & Trinh Nam Son. Results Of Transurethral Resection Of The Prostate Of Benign Prostate Hyperplasia With Size 80 Grams Or More At Viet Duc Hospital And Hanoi Medical University Hospital Period 01/2018 - 01/2020. Vietnam Medical Journal 536, 198-202 (2024).
- [5] Abdallah, M. M. & Badreldin, M. O. A short-term evaluation of the safety and the efficacy of bipolar transurethral resection of the prostate in patients with a large prostate (>90 g). Arab Journal of Urology 12 (2014).
- [6] Joshi.HN, IJ, J. & RM, K. Outcomes of Transurethral Resecton of the Prostate in Benign Prostatc Hyperplasia Comparing Prostate Size of more than 80 Grams to Prostate Size less than 80 Grams. Kathmandu University Medical Journal 12, 163-167 (2014).
- [7] Vietnam Urology & Nephrology Association. Guidelines for Diagnosis and Treatment of Benign Prostatic Hyperplasia. Medical Publishing House, Hanoi, 11-12 (2019).