ORIGINAL ARTICLE

Outcomes of Trans Urethral Resection of the Prostate in Bening Prostatic Hyperplasia in patients presented with and without Acute urinary Retention: A Comparative Analysis

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Abstract

Background: ***Among men in their twilight years, benign prostatic hyperplasia (BPH) ranks high among urological conditions. With or without bladder outlet obstruction (BOO), BPH is still a leading cause of lower urinary tract symptoms in men.***

Aim and objectives: ***Specifically, we want to see how patients with BPH who experience acute urine retention (AUR) fare after transurethral resection of the prostate (TURP) as compared to those who do not.***

Patients and methods: ***This retrospective study examines the results of TURP for men with BPH, treated between 2019 and 2024 at hospitals affiliated with Al-Azhar University. The included participants were divided into two groups: group A with AUR and group B, which included those participants without. Important clinical outcomes were evaluated, including the duration of hospital stay, pre- and post-TURP uroflowmetry data, post-void residual urine (PVR), and international prostate symptom score (IPSS).***

Results: ***In comparison to individuals without AUR, those who presented with AUR had a considerably lengthier hospital stay and more blood loss. Nonetheless, IPSS score and quality of life improved significantly after surgery for both groups. The AUR group did have a somewhat higher frequency of postoperative complications, but these differences did not reach statistical significance.***

Conclusion: ***TURP is equally effective for BPH patients with and without AUR, providing symptomatic relief, functional recovery, and improved QoL in both groups. However, the presence of AUR introduces additional challenges, such as longer hospital stays and slightly higher rates of complications.***

Keywords: Trans-urethral resection; Acute urinary retention; Bening prostatic hyperplasia

1. Introduction

One of the most prevalent urological conditions affecting men in their older years is BPH. There are a lot of different potential reasons for lower urinary tract symptoms in males, but one of the most prevalent is BPH, which can occur with or without BOO.[1]

A patient's quality of life is diminished by symptoms affecting the lower urinary tract. Over 30% of men over the age of 65 may require intervention for distressing symptoms.[2,3]

For a number of reasons, AUR is among the most serious consequences of BPH. In the past, it has been used as an instant surgical indication. In previous studies, AUR was the primary indication for TURP in 25% to 30% of men. Even today, the majority of patients who do not urinate following a catheter removal attempt still end up having surgery.[4]

The most common cause of AUR is BPH. According to multiple studies, TURP surgery is associated with a significant rate of morbidity in individuals with BPH who have AUR.[5]

This study aims to compare the clinical outcome and postoperative results of TURP in individuals with and without AUR due to BPH.

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2. Patients and methods

This retrospective study examines the results of TURP in two groups of BPH patients: group A, who underwent TURP because of AUR, and group B, who underwent TURP for indications other than AUR. All participants were treated between 2019 and 2024 at hospitals affiliated with Al-Azhar University.

Inclusion Criteria:

The study included all male patients with BPH associated with one or more of the following clinical data; hematuria, urinary tract infection (UTI) and (AUR) as a result of BPH; an ultrasound-confirmed prostate size between 30 and 100 gm; a maximum flow rate (Qmax) of less than 10 ml/s; post-void residual urine (PVR) greater than 100 ml; and, finally, upper tract dilation accompanied by good bladder contractility and a diagnosis of BPH.

Exclusion Criteria:

Our study did not include those with a history of urethral stricture, neurogenic bladder, prior prostatic and/or urethral surgery, diagnosed prostatic cancer or associated bladder pathology (Stones or masses).

Preoperative, Operative and Postoperative Evaluation:

The patients' symptoms at presentation were revised, including their IPSS score and QOL questionnaires. Any comorbidities or relevant past history were recorded. The clinical findings were reported as well as the lab studies, ultrasonographic findings and results of their flowmetry. The intraoperative details were noted down as well as the early postoperative incidents, the duration of hospital stay and the time of catheter removal. Any intra- or postoperative complications were listed.

Furthermore, the follow-up data of the patient cohort were recorded

The included patients were divided into 2 groups

a - With AUR

b - Without AUR

Statistical Analysis:

Data were collected and analyzed using IBM SPSS software. This statistical analysis made use of the following tools: Demographic and clinical information were used to produce descriptive statistics, including mean, standard deviation, and percentage. For this comparative analysis, we compared the two groups' categorical variables using the Chi-square test. The student's t-test was used to evaluate continuous variables and find out if there was a statistically significant difference between the means of the groups. The significance level was determined by conducting two-tailed statistical tests, where a p-value less than 0.05 was deemed to indicate statistical significance.

3. Results

Table 1. Patient demographics and pre-operative data.

	WITH AUR (N=60)	WITHOUT AUR (N=60)	P-VALUE
AGE, YEARS, MEAN (SD)	70.36 (4.99)	72.18 (3.92)	0.348
QUALITY OF LIFE SCORE, MEAN (SD)	4.2 (0.5)	4.0 (0.4)	0.041
COMORBIDITY, %	21.6	19.2	0.918
HYPERTENSION	23.0	23.1	1.000
DIABETES MELLITES	10.8	9.6	1.000
ISCHEMIC HEART DISEASES			
PROSTATE SIZE, CC, MEAN (SD)	73.38 (3.82)	74.62 (2.93)	0.021
PSA MEAN, NG/ML, MEAN (SD)	3.41(0.4)	3.18 (0.5)	0.021
Q MAX, ML/S, MEAN (SD)	-	8.2 (0.63)	-

As shown in table 1, no statistically significant difference in age ,comorbidity ,prostate size and PSA between both groupes .

Table 2. Intra and early postoperative data.

	WITH AUR (N=60)	WITHOUT AUR (N=60)	P-VALUE
HEMOGLOBIN, G/DL, MEAN (SD)			0.048
PREOPERATIVE	11.73 (0.83)	11.54 (0.89)	
POSTOPERATIVE	8.45 (0.64)	8.76 (0.64)	
NEED FOR BLOOD TRANSFUSION, %	4.1	1.9	0.642
TUR SYNDROME, %	1.4	0.0	1.000
HOSPITAL STAY, DAYS, MEAN (SD)	7.0 (0.71)	4.52 (0.87)	<0.001

As shown in table (2), the reduction in hemoglobin (Hb) levels from pre-operative to post-operative is statistically significant in both groups, with a slightly greater reduction in the AUR group (p=0.048). The mean hospital stay for patients with AUR is significantly longer than for those without AUR (p<0.001).

Table 3. post-operative follow-up data

	WITH AUR (N=60)	WITHOUT AUR (N=60)	P-VALUE
HEMATURIA, %	10.8	5.8	0.523
RECATHETERIZATION, %	23.0	3.8	0.007
UTI, %	24.3	3.8	0.004
Q MAX, ML/S, MEAN	19.22	19.20 (2.4)	0.947

(SD)	(2.5)		
IPSS, MEAN (SD)	17.0 (1.08)	18.32 (3.83)	0.004
QUALITY OF LIFE SCORE, MEAN (SD)			0.041
PREOPERATIVE	4.2 (0.5)	4.0 (0.4)	
POSTOPERATIVE	4.0 (0.6)	3.72 (0.45)	

As shown in table (3), the quality of life (QoL) scores shows a statistically significant improvement from pre to post TURP in both groups. The pre-operation QoL is slightly higher in the AUR group. The p-value of 0.041 indicates that the difference in QoL improvement between the groups is statistically significant.

Hematuria, Recatheterization and UTI, were significantly difference more common in the AUR group, highlighting increased complications associated with AUR.

4. Discussion

In this study, patients with AUR who underwent TURP exhibited a higher incidence of post-operative complications, such as hematuria, urinary tract infections (UTIs) and longer hospital stays. These findings are consistent with the broader literature, suggesting that AUR patients are more prone to adverse outcomes following TURP. The study also observed a lower incidence of some complications, like TUR syndrome, compared to certain previous studies, indicating possible variations in patient care and surgical technique.

The findings of the current study were consistent with Kumar SG.,[6] which showed that AUR patients had higher rates of UTIs (21% vs. 10% in non-AUR patients, longer hospital stays, and a greater need for secondary interventions. Despite these challenges, the IPSS scores improved significantly in both groups, with a slightly better improvement in AUR patients, suggesting effective symptom relief despite the increased risk of complications.

According to Zeng et al.,[7] research on the Clinical Practice Guideline for Transurethral Plasma kinetic resection of the prostate for BPH, describes how TURP, especially the bipolar plasma kinetic variation, reliably enhances urinary flow rates, symptom scores, and quality of life dimensions. The review's notation that patients with AUR had comparable long-term outcomes to those without AUR, although having higher starting risks, supports the results of our study. Particularly in high-risk populations, such as those with AUR, the guideline stressed the significance of careful perioperative care to reduce complications.

The findings of the current study were consistent with Kanchi et al.,[8] According to their research, which compared the risks experienced by patients with BPH who underwent TURP with and without AUR, they concluded that AUR patients had a higher incidence of postoperative complications, including bleeding, UTIs, and delayed catheter removal. However, like my findings, the study noted that the improvements in IPSS and Qmax were substantial in both groups, with AUR patients showing slightly better improvements due to their initially worse baseline symptoms. This study reinforces the notion that despite the higher risk, TURP is a highly effective procedure for AUR patients.

According to Chen et al.,[9] research, AUR raises the probability of problems following prostate transurethral resection: Post-operative bleeding, infection, and reoperation are complications that are greatly increased by AUR, as he confirmed in a population-based study. In spite of these dangers, TURP improved overall symptom alleviation and quality of life. The results of our research, especially the higher risk linked with AUR, are well supported by this population-based study, which also shows the overall effectiveness of the operation.

The findings from this study, along with comparative analyses from recent literature, carry significant implications for clinical practice in the management of BPH, particularly in patients presenting with AUR. First and foremost, the increased complication rates observed in AUR patients undergoing TURP underscore the critical importance of careful patient selection and risk stratification.

The studies by Chen et al.,[10]; and Kanchi et al.,[8] provide robust evidence that patients with AUR are at a significantly higher risk of postoperative complications, such as urinary tract infections (UTIs) and hemorrhage, compared to those without AUR. Therefore, a thorough preoperative assessment is crucial to identify high-risk patients and tailor surgical approaches accordingly to mitigate potential risks.

Furthermore, the necessity for enhanced perioperative management is evident. The higher incidence of complications in AUR patients necessitates a proactive approach, including the use of prophylactic antibiotics, meticulous intraoperative fluid management, and vigilant postoperative monitoring to prevent and promptly address any complications that may arise.

This is supported by Zeng et al.,[7] which emphasizes the importance of rigorous perioperative care in improving outcomes for BPH patients undergoing TURP. Enhanced perioperative protocols could play a vital role in reducing the complication rates associated with TURP, particularly in high-risk groups like those with AUR.

Additionally, the comparative effectiveness of

alternative therapies such as prostatic artery embolization (PAE), Rezum and other minimally invasive procedures suggests that these less invasive options might be preferable for certain patients, especially those with a higher risk of TURP-related complications.

Long-term follow-up and patient education also emerge as critical components of clinical care for BPH patients, particularly those with AUR. Given their higher risk for complications and potential need for additional interventions, these patients should be closely monitored over time to ensure that any issues are promptly identified and managed. Educating patients about the potential risks and benefits of TURP, along with the importance of adherence to postoperative care instructions and follow-up appointments, is essential for achieving optimal outcomes and minimizing the likelihood of complications.

Finally, the consistency of findings across multiple studies supports the need for updated clinical guidelines that reflect the complexities and risks associated with TURP in AUR patients. These guidelines should incorporate recommendations for risk stratification, perioperative care, and the consideration of alternative therapies when appropriate. As more data becomes available, particularly from large-scale population studies, it is essential that these guidelines be regularly updated to reflect evolving best practices and ensure that patients receive the most appropriate and effective treatment for their condition. By integrating these findings into clinical practice, healthcare providers can enhance patient outcomes, reduce complication rates, and deliver more personalized and effective care for BPH patients.

Limitations of the Current Study: The study's retrospective design, while valuable for analyzing a large number of cases, may introduce biases related to patient selection and data recording in addition to lack of availability of some data in patients' medical files owing to missed recording. Additionally, the study did not account for certain variables, such as duration of preoperative catheterization. Another limitation is the lack of long-term follow-up data. While the study focused on immediate post-operative outcomes, understanding the long-term prognosis of AUR patients following TURP is crucial for optimizing patient care.

4. Conclusion

TURP is equally effective for BPH patients with and without AUR, providing symptomatic relief, functional recovery, and improved QoL in both groups. However, the presence of AUR introduces additional challenges, such as longer hospital stays and slightly higher rates of complications.

Disclosure

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References

1. Reynard JM, Yang Q, Donovan JL, et al. The ICS-'BPH' Study: uroflowmetry, lower urinary tract symptoms and bladder outlet obstruction. Br J Urol. 1998;82(5):619-623.
2. Hutchison A, Farmer R, Chapple C, et al. Characteristics of patients presenting with LUTS/BPH in six European countries. Eur Urol. 2006;50(3):555-562.
3. Briganti A, Capitanio U, Suardi N, et al. Benign prostatic hyperplasia and its aetiologies. European Urology Supplements. 2009;8(13):865–71.
4. McConnell JD, Barry MJ, Bruskewitz, RC Benign prostatic hyperplasia: diagnosis and treatment. Agency for Health Care Policy and Research. Clin Pract Guidel Quick Ref Guide Clin. 1994 Feb;(8):1-17.
5. Westenberg A, Gilling P, Kennett K, et al. Holmium laser resection of the prostate versus transurethral resection of the prostate: results of a randomized trial with 4-year minimum long-term followup. J Urol. 2004;172(2):616-619.
6. Kumar SG. A comparative study of post-TURP outcomes and complications between BPH patients, presenting with and without acute urinary retention. Government Medical College, Thiruvananthapuram.2023.
7. Zeng XT, Jin YH, Liu TZ, et al. Clinical practice guideline for transurethral plasmakinetic resection of prostate for benign prostatic hyperplasia (2021 Edition). Mil Med Res. 2022;9(1):14.
8. Kanchi BR, Reddy, KN. Comparative evaluation of post-TURP complications in patients with BPH presenting with and without acute urinary retention. Journal of Clinical Urology.2021;14(3):202-208.
9. Chen JS, Chang CH, Yang WH, Kao YH. Acute urinary retention increases the risk of complications after transurethral resection of the prostate: a population-based study. BJU Int. 2012;110(11 Pt C):E896-E901.
10. Chen MY, Skewes J, Woodruff MA, et al. Multi-colour extrusion fused deposition modelling: a low-cost 3D printing method for anatomical prostate cancer models. Sci Rep. 2020;10(1):10004.