

SHORT-TERM COMPLICATIONS OF TRANSURETHRAL RESECTION OF THE PROSTATE PERFORMED BY UROLOGY RESIDENT IN EDUCATIONAL HOSPITAL: CHARACTERISTICS AND DETERMINANT FACTORS

¹Besut Daryanto, ¹Taufiq Nur Budaya, ¹Johanes Dwi Meiyanto.

¹ Department of Urology, Faculty of Medicine/University of Brawijaya, Saiful Anwar General Hospital, Malang.

ABSTRACT

Objective: This research wanted to figure out the characteristics and determinant factors of short-term complications of TURP performed by urology resident in educational hospital. **Material & Methods:** This study was an analytical study using secondary data from electronic medical records of the total sample of 502 BPH patients undergoing TURP performed by urology resident January from 2015 until June 2022, and evaluated short-term complications, Clavien Dindo, and level of urology resident. Inclusion were BPH patients undergoing TURP by urology resident, while the criteria of exclusion were incomplete data of patient's demographic and records of clinical data. Results were displayed descriptively in distribution tables and analyzed using logistic regression with STATA 17. **Results:** Short-term complications of TURP were found in 10 patients (1.99%), i.e., bleeding (0.79%), clot retention (0.6%), and urinary retention (0.6%). The commonest groups were age at 61-70 (0.79%), Clavien Dindo I (0.79%), urology resident level at 5th semester (0.99%), prostate volume >50cc (0.99%) and complaint of urinary retention (0.99%). There were no significant correlations between patient age, level of urology resident, prostate volume, and chief complaint compared to rate of complication ($p>0.25$). **Conclusion:** TURP remained surgery of choice for BPH despite several short-term complications performed by different level of urology resident and there were no significant correlations between level of urology resident and rate of complication.

Keywords: BPH, Urology Resident, Short-Term Complications of TURP, Clavien Dindo.

ABSTRAK

Tujuan: Penelitian ini bertujuan untuk mengetahui karakteristik dan faktor-faktor yang berpengaruh terhadap komplikasi jangka pendek tindakan TURP yang dilakukan oleh residen urologi di rumah sakit pendidikan. **Bahan dan Cara:** Penelitian ini merupakan penelitian analitik yang menggunakan data sekunder dari rekam medis elektronik pasien dengan total sampel 502 pasien BPH yang dilakukan TURP oleh residen urologi sejak Januari 2015 hingga Juni 2022, kemudian dilakukan evaluasi terhadap komplikasi jangka pendek, Clavien Dindo dan level dari residen urologi. Kriteria inklusi adalah pasien BPH yang menjalani prosedur TURP oleh residen urologi, sedangkan kriteria eksklusi adalah pasien-pasien dengan data demografi dan data klinis yang tidak lengkap. Hasil penelitian disajikan secara deskriptif dalam bentuk tabel distribusi dan dianalisis menggunakan regresi logistik dengan STATA 17. **Hasil:** Komplikasi jangka pendek TURP ditemukan pada 10 pasien (1.99%), yaitu perdarahan (0.79%), retensi clot (0.6%), dan retensi urin (0.6%). Kelompok terbanyak adalah kelompok umur 61-70 tahun (0.79%), Clavien Dindo I (0.79%), level residen urologi pada semester ke-5 (0.99%), volume prostat pada kelompok >50cc (0.99%) dan keluhan retensi urin (0.99%). Tidak ditemukan hubungan bermakna antara umur pasien, level residen urologi, volume prostat, dan keluhan utama pasien, dibandingkan dengan tingkat komplikasi ($p>0.25$). **Simpulan:** TURP masih menjadi pilihan utama tindakan operatif pada BPH walaupun terdapat sejumlah komplikasi jangka pendek TURP yang dilakukan oleh residen urologi pada level yang berbeda dan tidak ditemukan hubungan bermakna antara level residen urologi terhadap tingkat komplikasi.

Kata kunci: BPH, Residen Urologi, Komplikasi Jangka Pendek TURP, Clavien Dindo.

Correspondence: Besut Daryanto; c/o: Department of Urology, Faculty of Medicine/University of Brawijaya, Saiful Anwar General Hospital, Jl. Jaksa Agung Suprpto No.2, Klojen, Kec. Klojen, Malang, Jawa Timur 65112, Indonesia. Phone: +6282233678283. Fax: +62341333030. Email: urobek.fk@ub.ac.id.

INTRODUCTION

Benign prostatic hyperplasia (BPH) is a male urinary tract problem that leads to certain symptoms which is called lower urinary tract symptoms (LUTS). Almost half of male over 50 years old suffers from BPH. The LUTS itself affects 18% of male at age group of 40 - 49 years old and at age 70-79 years old for more than 50%.¹⁻³

Medical treatments e.g., α -adrenergic blocker and 5 α -reductase inhibitors can improve symptoms of LUTS i.e., reducing acute urinary retention incidence and reducing indication for surgery. However, surgical procedure is required in certain circumstances. There are three main indications for surgery. First of all, the failure of medical treatment as defined by result of IPSS, evaluation of urinary stream, and the presence of increased residual urine. Secondly, BPH with complication i.e., urinary tract complications (infection, hematuria, recurrent retention of urine, urinary calculous and kidney failure) and the outside of urinary tract complications (hemorrhoids and hernias). Thirdly, the preference of patient for surgery rather than the long-term use of pharmacological drugs.³⁻⁵

Transurethral resection of prostate (TURP) procedure remains the surgery of choice for BPH. Although this procedure is extremely successful and provide long-term improvements in urinary functional outcomes, it is accompanied with a substantial risk of perioperative complications and morbidity. Despite high frequency of TURP procedure, the publication in Indonesia about determinant factors for TURP complications is surprisingly limited.⁵⁻⁶

OBJECTIVE

This research wanted to figure out characteristics and determinant factors of short-term complications of TURP performed by urology resident in educational hospital.

MATERIAL & METHODS

This study is an analytical research using design of retrospective cohort study to evaluate short-term complication, Clavien Dindo, and level of urology resident. The study used secondary data from electronic medical records of a total sample of 502 BPH patients. This research had been conducted

in Saiful Anwar General Hospital, Malang, Indonesia, from January 2015 until June 2022. The inclusion criteria of this study included BPH patients undergoing TURP by urology residents, while the criteria of exclusion were incomplete data of patient's demographic and records of clinical data. Result was displayed descriptively in distribution tables and then analyzed using logistic regression with STATA 17.

RESULTS

Short term complications of TURP were found in 10 patients (1.99%), i.e., bleeding (0.79%), clot retention (0.6%), and urinary retention (0.6%). The commonest groups were age at 61-70 (0.79%), Clavien Dindo I (0.79%), level of urology resident at 5th semester (0.99%), prostate volume in group of >50cc (0.99%) and complaint of urinary retention (0.99%) (see Table 1). All patients did not suffer from significant decrease in haemoglobin and hematocrit level postoperatively and there was no anemic patient after procedure.

Table 2 showed that there were no significant correlations between patient age, level of urology resident, prostate volume, and chief complaint compared to the rate of complication ($p > 0.25$).

TURP complications are divided into three groups i.e. intraoperative, early and late post operative complication. Intraoperative complications consist of bleeding (0.1-11%), TUR syndrome (1.1%), perforation of prostate capsule (2%), mechanical trauma of urethra (0.15%), ureteral orifice trauma (0.09%), and bladder rupture (0,02%). Early post operative complications e.g., retrograde ejaculation (60-80%), surgical revision (5.6%), clot retention (4.9%), urinary tract infection (4.1%), bleeding (2.9%), and urinary incontinence (1.8%). Late post surgery complications consist of erectile dysfunction (6.5%), bladder neck contracture (4.7%), urinary retention (4.5%) and urethral stricture (3.8%).⁷ This study showed that short term complications of TURP such as bleeding (0.79%), clot retention (0.6%), and urinary retention (0.6%) were all lower than literature.

The study of Sagen et al in Sweden showed that among 354 males underwent TURP, only eight men (2.3%) experienced significant difficulties during their hospital stay (Clavien-Dindo III). The study concluded that TURP procedure only made a small amount of serious sequelae. TURP syndrome

Table 1. Characteristics of patients.

Characteristic	N	%
TURP		
TURP without complication	492	98.01
TURP with short term complication	10	1.99
Total	502	100
Age of patient		
51-60	3	0.6
61-70	4	0.6
71-80	3	0.79
Total	10	1.99
Short term complication of TURP		
Bleeding	4	0.79
Clot retention	3	0.60
Urinary Retention	3	0.60
Total	10	1.99
Clavien Dindo Classification		
Clavien Dindo I	4	0.79
Clavien Dindo II	3	0.60
Clavien Dindo II b	3	0.60
Total	10	1.99
Level of urology resident		
5 th semester	5	0.99
6 th semester	3	0.60
7 th semester	2	0.40
Total	10	1.99
Prostate Volume		
<30cc	1	0.2
31-40cc	1	0.2
41-50cc	3	0.6
<50cc	5	0.99
Chief Complain		
LUTS		
Mild	1	0.2
Moderate	1	0.2
Severe	3	0.6
Urinary Retention	5	0.99
Total	10	1.99

was also found unusual. Only several cases require another surgical intervention for the following five years after procedure. Similar low complication rates were also found by Zuhirman et al in Riau, Fajaruddin et al in Yogyakarta, and Mbaeri et al in Nigeria.⁸⁻¹¹

This research revealed that there were found no significant correlations between patient age, level of urology resident, prostate volume, and chief complaint compared to the rate of complication ($p>0.25$). The result was similar to the study of Patandung et al in Medan which proved no significant differences in TURP complications in any prostate volume. Sixty patients undergoing TURP were classified into 2 groups, the first group with prostate < 80grams and second group with prostate size >80 grams. It was found that no significant difference of the results of IPSS and QoL post surgery in both group with p value >0.05. Halimi et.al also showed that among 40 patients with BPH, there were found that no significant differences between safety and efficacy of TURP procedure for prostate volume > 75 grams compared to prostate volume < 75 grams. Guo et al in Peking in their study of total of 2271 patients also showed that there were no significant differences between age compared to TURP complication ($p>0.05$)^{5,12,13}

As far now, there is no particular research discussing the correlation between the level of urology residents who perform TURP with any complications of it. Therefore, it is quite challenging for educational purposes. The limitation of this study was the small amount of TURP complication samples that might lead to an insignificant correlation between determinant factors. But in the other hand, TURP remained the surgery of choice for

Table 2. Correlation Analysis.

complication	Odds ratio	Std. err	z	P>[z]	[95% conf. interval]	
51-60 y.o	482583.6	8.21e+08	0.01	0.994	0	
61-70 y.o	268154.4	4.56e+08	0.01	0.994	0	
71-80 Y.O	293528.9	5.00E+08	0.01	0.994	0	
P-VOL 31-40cc	1.054054	1.510158	0.04	0.971	.0635821	17.47394
P-VOL 41-50cc	1.519481	1.779779	0.36	0.721	.1529947	15.09086
P-VOL >50cc	.5752212	.6375857	-0.50	0.618	.0655516	5.050358
6 th semester	.7835294	.5777541	-0.33	0.741	.1846722	3.324368
7 th semester	.888	.7506119	-0.14	0.888	.1693972	4.655001
Moderate LUTS	1.054054	1.510158	0.04	0.971	.0635821	17.47394
Severe LUTS	1.519481	1.779779	0.36	0.721	.1529947	15.09086
Urinary Retention	.5752212	.6375857	-0.50	0.618	.0655516	5.050358

BPH despite different levels of urology residents who performed the procedure.

CONCLUSION

TURP remained surgery of choice for BPH despite several short-term complications performed by different level of urology resident and there were no significant correlations between the level of urology resident and rate of complication.

REFERENCES

1. Rajeev R, Giri B, Choudhary LP, Kumar R. Surgery for benign prostatic hyperplasia: Profile of patients in a tertiary care institution. *Natl Med J India*. 2017; 30(1): 7-10.
2. Meiliana A, Wijaya A. Identification of Biomarkers for Prostate Cancer. *Indones Biomed J*. 2014; 6(3): 123-36.
3. Budaya TN, Daryanto B. *A to Z BPH (Benign Prostatic Hyperplasia)*. 1st ed. Malang: UB Press; 2019.
4. Prasetyo ZA, Budaya TN, Daryanto B. Characteristics of Benign Prostatic Hyperplasia (BPH) Patients Undergoing Transurethral Resection of the Prostate (TURP). *J Kedokt Brawijaya*. 2021; 31(4): 220-223.
5. Patandung R, Warli SM. Outcome benefits to transurethral resection of the prostate in patients with benign prostatic hyperplasia at Medan regional hospital. *J Kedokt dan Kesehat Indones*. Published online 2021:137-143.
6. Chung ASJ, Woo HH. Update on minimally invasive surgery and benign prostatic hyperplasia. *Asian J Urol*. 2018; 5(1): 22-27.
7. Ahyai SA, Gillig P, Kaplan SA. Meta-analysis of functional outcomes and complications following transurethral procedures for lower urinary tract symptoms resulting from benign prostatic enlargement. *Eur Urol*. 2010; 58(3): 384-397.
8. Sagen E, Namnuan R.O, Hedelin H, Nelzén O, Peeker R. The morbidity associated with a TURP procedure in routine clinical practice, as graded by the modified Clavien-Dindo system. *Scand J Urol*. 2019; 53(4): 240-245.
9. Fajaruddin, R., Prawito S. 2018. Faktor Prognostik Terjadinya Komplikasi Dini pada Pasien Pembesaran Prostat Jinak Pasca Reseksi Prostat Transurethral di RSUP dr. Sardjito Yogyakarta. [Online] Accessed by February, 5th 2023. <http://etd.repository.ugm.ac.id/penelitian/detail/74106>.
10. Zuhirman Z, Juananda D, Lestari P. Gambaran Komplikasi Transurethral Resection of the Prostate pada Pasien Benign Prostatic Hyperplasia. *J Ilmu Kedokt*. 2017; 10(1): 44.
11. Mbaeri TU, Abiahu JA, Obiesie EA. Assessment of Complications of Transurethral Resection of the Prostate Using Clavien-Dindo Classification in South Eastern Nigeria. *Niger J Surg Off Publ Niger Surg Res Soc*. 2020; 26(2): 142-146.
12. Halimi R, Pratama ARH. Outcome Comparison of Transurethral Resection of the Prostate in Benign Prostatic Hyperplasia Patients in Karawang General Referral Hospital. *Indones J Cancer*. 2019; 13(3): 69.
13. Guo RQ, Yu W, Meng Y Sen. Correlation of benign prostatic obstruction-related complications with clinical outcomes in patients after transurethral resection of the prostate. *Kaohsiung J Med Sci*. 2017; 33(3): 144-151.2