

OUTCOME COMPARISON OF TRANSURETHRAL RESECTION PROSTATE IN BENIGN PROSTATIC HYPERPLASIA PATIENT IN KARAWANG GENERAL REFERRAL HOSPITAL

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ABSTRACT

Objective: Benign Prostatic Hyperplasia (BPH) is the most common pathological condition in man and causes Lower Urinary Tract Syndrome (LUTS). The most popular therapeutic modality for BPH is the Transurethral Resection of Prostate (TURP). This study describes the TURP outcome in BPH patients with prostate volume >75 grams compared to <75 grams Karawang General Referral Hospital. **Material & Methods:** We performed a retrospective review of clinical outcome from BPH patient with LUTS who underwent TURP procedure between January 2017–April 2018. Data is taken through patient medical records and processed descriptively to describe complications, quality of life, laboratory. Qualitative data compared with Chi-Square test. **Results:** During this study, we evaluate 40 patients, 20 patients with prostate volume >75 grams (Group 1) and 20 patients prostate volume <75 grams. Mean age in group 1 $65,60 \pm 9,960$ and in group 2 $65,35 \pm 10,297$. IPSS after TURP between group 1 and group 2 show a significant difference, where the Incomplete Emptying found most in group 2 ($P < 0,05$). There is no significant difference Quality of Life Score between group 1 and group 2 ($P > 0,05$). From laboratory result obtain decrease of mean Haemoglobin percentage in both groups with P value $< 0,05$ in group 1 and P value $< 0,05$ in group 2. **Conclusion:** TURP procedure for patient with prostate volume >75 grams is safety and effective with lower complications and there is no significant difference compared to patient with prostate volume <75 grams.

Keywords: Benign Prostatic Hyperplasia, TURP, volume.

ABSTRAK

Tujuan: Pembesaran prostat jinak (BPH) adalah temuan patologi prostat yang paling sering pada pria dan sering menyebabkan sindrom saluran kemih bawah (LUTS). Modalitas terapi BPH yang paling populer adalah reseksi prostat transuretra (TURP). Pada studi ini menjelaskan hasil keluaran TURP pada pasien BPH dengan volume prostat >75 gram dibandingkan <75 gram di Rumah Sakit Umum Daerah Karawang. **Bahan & Cara:** Kami melakukan tinjauan retrospektif dari hasil klinis pada pasien BPH dengan LUTS yang dilakukan prosedur TURP antara Januari 2017–April 2018. Data dikumpulkan dari rekam medis. Data yang diambil adalah data yang menggambarkan komplikasi, kualitas hidup, dan laboratorium. Data kualitatif dites dengan Chi-Square. **Hasil:** Pada studi ini, kami melakukan evaluasi pada 40 pasien, 20 pasien dengan volume prostat >75 gram (grup 1) dan 20 pasien dengan volume prostat <75 gram (grup 2). Rata-rata usia pada Grup 1 adalah $65,60 \pm 9,960$ dan pada grup 2. IPSS setelah TURP pada grup 1 dan grup 2 menunjukkan perbedaan signifikan, pada gejala Incomplete emptying ditemukan pada grup 2 ($P < 0,05$). Pada Quality of Life tidak ditemukan perbedaan yang signifikan antara grup 1 dan grup 2 ($P > 0,05$). Berdasarkan hasil laboratorium, rerata haemoglobin turun pada kedua grup dengan nilai $P < 0,05$ di grup 1 dan nilai $P < 0,05$ di grup 2 $65,35 \pm 10,297$. **Simpulan:** Prosedur TURP pada pasien dengan volume prostat >75 gram aman, efektif, dan komplikasi yang lebih rendah, dan tidak ada perbedaan signifikan dibandingkan pasien dengan volume prostat <75 gram.

Kata Kunci: Pembesaran prostat jinak, TURP, volume.

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INTRODUCTION

Benign Prostatic Hyperplasia (BPH) is a condition of pathological abnormalities that most commonly occurs in men, and its incidence rate increases with age.¹ This is the most common cause of lower urinary tract syndrome (LUTS) in men that occur from the age of 50 years old.²

For evaluation and guidance that directs and determines the symptoms of obstruction due to prostate enlargement is a complaints scoring system, one of the widely used scoring systems is International Prostate Symptom Score (IPSS) developed by the American Urological Association (AUA) and standardized by the World Health Organization (WHO). This system can describe the severity of voiding complaints accompanied by the level of quality of life of patients.³

The Transurethral Resection of Prostate (TURP) is the most popular therapeutic modality in BPH management and it is still the gold standard for BPH operative therapy.¹ There is no maximum prostate volume limit for this action in the literature, this depends on the specialist experience of urology, speed of resection, and the tools used.⁴

Usually, large volume BPH management is performed with open surgery. Currently, it is still a debate about BPH management based on the size of the prostate volume. Some studies suggest that prostate volume >60 grams should be open surgery, while some other studies have argued that open prostate surgery should be performed on prostate volume >80 grams.⁵ In this study, the limit used is 75 grams according to the Campbell-Wals urology.⁶

OBJECTIVE

Benign Prostatic Hyperplasia (BPH) is the most common pathological condition in man and causes Lower Urinary Tract Syndrome (LUTS). The most popular therapeutic modality for BPH is the Transurethral Resection of Prostate (TURP). This study describes the TURP outcome in BPH patients with prostate volume >75 grams compared to <75 grams Karawang General Referral Hospital.

MATERIAL & METHODS

This research is retrospective by taking medical record data of BPH patients undergoing TURP surgery at Karawang Hospital from January

2017-April 2018, patient complaints in the form of LUTS, and the most frequent surgical indication is acute urinary retention caused by BPH. We operate these patients with non continuous monopolar TURP with a maximum operating time of 60 minutes. All procedures performed in studies involving human participants were in compliance with the guidelines of the Local Review Board and Ethics Committee and data were obtained with patient consent at the time of procedure/data collection.

Patients were grouped according to prostate volume, group 1 with prostate volume >75 grams and group 2 with prostate volume <75 grams. Preoperative history includes urinary complaints and quality of life of patients (QoL) based on the International Prostate Symptom Score (IPSS), clinical examinations including digital rectal examination, complete blood examination, kidney function, electrolyte, and abdominal ultrasound to measure prostate volume.

Patients who had LUTS complaints caused by bladder tumors, neurogenic bladder and a previous history of TURP surgery were not included in this study. All patients received prophylactic antibiotics 1 gram intravenous ceftriaxone. All TURPs are carried out by spinal anesthesia and done by upper level residents (semester 8-10) who are already independent in doing TURP. Non continuous Olympus working element and diathermy with settings of 80-100 Watts for cutting and 40-50 watts for coagulation. During the TURP procedure, 5% dextrose fluid is used as irrigation. Resection starts from the middle lobe of the prostate, then continues to the left lobe at 4-5 and continues at 1 o'clock, then continues to the right lobe of the prostate starting at 7-8 o'clock and forwarding at 11-12 o'clock. Control of bleeding is carried out to the maximum extent possible by coagulating the source of bleeding. The prostate chip was removed using eliq evacuator, and finally catheters were installed 22-24 fr 3 way accompanied by irrigation using 0.9% NaCl 80-100 drops per minute.

Intra and postoperative complications (TURP syndrome, bleeding, blood clot retention, urethral stricture) were all recorded in the patient's medical record after the patient returned from the hospital and the control to the urology polyclinic was evaluated for voiding complaints and the quality of life of the patient.

Data is taken through patient medical records. The data taken were then processed descriptively so as to describe complaints, complications, quality of life, laboratory comparison

(hemoglobin, hematocrit, leukocytes, and platelets) pre and postoperatively and the presence or absence of other surgery in patients. Data is processed using SPSS 23.0 which describes the mean and standard deviation (SD). Qualitative data compared with Chi-Square test. P value less than 0.05 showed statistical significance.

RESULTS

There is a total of 40 patients who underwent our TURP surgery were evaluated: 20 patients with prostate volume of more than 75 grams (group 1) which met the inclusion criteria and 20 patients with prostate volume less than 75 grams (group 2). The average age of patients in this study was 65.60 ± 9.960 for group 1 and 65.35 ± 10.297 for group 2. The average prostate volume was 105.55 (75.79-263) for groups 1 and 40.52 (20-70) for group 2. The incidence of acute urinary retention was 19 patients (95.0%) in group 1 and 11 patients (55.0%) in group 2 ($P < 0.05$), meaning clinically meaningful.

IPSS values and quality of life (QoL) before surgery showed no statistically significant differences between group 1 and group 2 ($P > 0.05$) as shown in Table 1 and Table 2. While postoperative IPSS values in the "incomplete emptying" section showed significant differences, where the complaints were more common in group 2 ($P < 0.05$). Postoperative QoL values also did not show significant differences between group 1 and group 2 ($P > 0.05$) as shown in Table 3 and Table 4. Postoperative complications in this study were blood clot retention and hematuria that occurred in group 1, but the comparison was not clinically significant (Table 5). Table 6 shows the results of routine blood tests (hemoglobin, hematocrit, leukocytes, and platelets), in group 1 there was a decrease in the mean postoperative hemoglobin from 12.425 gr/dL to 11.035 gr/dL with $P \text{ value} < 0.05$, as well as group 2 decreased from 12.235 gr/dL to 11.36 gr/dL with $P \text{ value}$ also < 0.05 , while other parameters did not show a statistically significant difference.

Table 1. Comparison of IPSS scores before surgery.

	Group 1 (>75 gram N=20)	Group 2 (<75 gram N=20)	P value
How often have you had the sensation of not emptying your bladder? (incomplete emptying) ?	4.05	4	0.653
How often have you had to urinate less than every two hours? (frequency) ?	4.45	3.8	0.332
How often have you found you stopped and started again several times when you urinated?(intermitency) ?	3.9	3.85	0.875
How often have you found it difficult to postpone urination? (urgency) ?	3.75	3.75	0.932
How often have you had a weak urinary stream? (weak stream) ?	4.15	4.2	0.748
How often have you had to strain to start urination? (straining) ?	3.75	4.1	0.301
How many times did you typically get up at night to urinate?(nocturia) ?	4.6	4.75	0.603

Table 2. Comparison of Quality of life (QoL) before surgery.

	Grup 1 (>75 gram N=20)	Grup 2 (<75 gram N=20)	P value
QoL before surgery (mean, SD)	5.46 (0.795)	5 (0.605)	0.06

Table 3. Comparison of IPSS scores after surgery.

	Grup 1 (>75 gram N=20)	Grup 2 (<75 gram N=20)	P value
How often have you had the sensation of not emptying your bladder? (incomplete emptying) ?	0.9	0.4	0.036
How often have you had to urinate less than every two hours? (frequency) ?	1.15	1.05	0.691
How often have you found you stopped and started again several times when you urinated?(intermitency) ?	0.55	0.95	0.169
How often have you found it difficult to postpone urination? (urgency) ?	0.55	0.6	0.790
How often have you had a weak urinary stream? (weak stream) ?	0.5	0.55	0.890
How often have you had to strain to start urination? (straining) ?	0.35	0.45	0.921
How many times did you typically get up at night to urinate?(nocturia) ?	0.85	0.5	0.276

Tabel 4. Comparisson Quality of life (QoL) post surgery.

	Grup 1 (>75 gram N=20)	Grup 2 (<75 gram N=20)	P value
QoL pre operasi	1.45 (1.095)	1.4 (1.146)	0.864

Tabel 5. Outcome post surgery.

Outcomes	Grup 1 (>75 gram N=20)	Grup 2 (<75 gram N=20)	P value
Hematuria	0 (0%)	1 (5%)	1.000
Blood clot retention	0 (0%)	1 (5%)	1.000
Stricture uretra	0 (0%)	1 (5%)	1.000
TURP sindrom	0 (0%)	0 (0%)	

Tabel 6. Comparison of pre and post TURP blood tests in group 1 and group 2.

	Group 1 (>75 gram N=20)			Group 2 (<75 gram N=20)		
	Pre operasi	Pasca Operasi	P value	Pre operasi	Pasca Operasi	P value
Hemoglobin	12.425	11.035	0.001	12.235	11.36	0.01
Hematokrit	35	33.315	0.064	36.105	32.27	0.06
Leukosit	8.497,5	10.831	0.07	8.253,5	9.565,5	0.0753
Trombosit	270.450	261.150	0.06	294.400	245.350	0.06

DISCUSSION

The main objective of BPH surgical treatment modalities is to reduce patient complaints, reduce the number of complications, improve quality of life, improve urine flow and reduce the incidence of repeat surgery.⁷ TURP is the most commonly used operating modality, this action supersedes other operating modalities and is still the gold standard for BPH management.³ More than 95% of BPH cases are treated with TURP operations with various medical indications, including; acute urinary retention, failed trial without catheter (TwoC), recurrent urinary tract infections, recurrent macroscopic hematuria, urinary tract stones, decreased renal function caused by BPH obstruction and pathological changes in the bladder and upper urinary tract.⁸ For large-sized prostate (>75 grams), open prostatectomy is still one of the options for therapeutic modalities, although the definition of "big" here is subjective and is still debated and depends on expertise, experience, and speed of resection of operators.³

There is always a risk of the possibility of perioperative complications in patients with large prostate volume, such as intra and postoperative bleeding and TURP syndrome. But the more advanced operating equipment, irrigation fluids, and surgical techniques caused a significant decrease in the number of complications, such as the incidence of TURP syndrome which is now below 1%.³ Early complications that can occur when TURP can be in the form of bleeding that requires transfusion (0-9%), TURP syndrome (0-5%), AUR (0-13.3%), blood clot retention (0-39%), and urinary tract infections (0-22%). Meanwhile, the perioperative mortality rate (first 30 days) was 0.1%. In addition, long-term complications that can occur include urinary incontinence (2.2%), bladder neck stenosis (4.7%), urethral stricture (3.8%), retrograde ejaculation (65.4%), erectile dysfunction (6.5-14%), and urinary retention and UTI.⁴

Open prostatectomy is the most invasive method of surgery with greater morbidity. Early complications that occur at the time of surgery are reported as much as 7-14% in the form of bleeding that requires transfusion.⁹ Meanwhile, perioperative mortality (first 30 days) is below 0.25%. Long-term complications can include bladder neck contractures, urethral stricture (6%) and urinary incontinence (10%).¹⁰ Kadir Ceylan's research from the urology department of the University of Yuzuncu

Yil, Turkey, examined 320 patients who underwent open prostatectomy from January 2006-December 2012, with short-term complications of 20.3% and long-term complications of 14.3%. Short-term complications include blood clot retention (6.6%), intraoperative bleeding (3.2%), surgical wound infection (4%), vesicocutaneous fistula (4.7%), and repeat surgery due to blood clot retention (1.5%). Long-term complications include urinary tract infections (7.5%), epididymo-orchitis (3.1%), urinary incontinence (0.9%) and bladder neck contractures or urethral strictures (2.2%).¹¹

Our patients were male patients with an age range of 65.60 ± 9.960 for group 1 and 65.35 ± 10.297 for group 2. The average prostate volume was 105.55 (75.79 - 263) for groups 1 and 40.52 (20 - 70) for group 2. Another study conducted by Joshi HN et al. from the urology department of Dhulikhel Hospital-Kathmandu University Hospital, Dhulikhel, Kavre, Nepal, obtained a comparison of the patient's age was 71.80 ± 6.93 years for the group 1 and 68.20 ± 12.70 years for group 2. The average prostate volume is 88.80 ± 8.70 grams for group 1 and 40.30 ± 11.80 grams for group 2.¹ The incidence of acute urinary retention in our study was 19 patients (95.0%) in group 1 and 11 patients (55.0%) in group 2 with a value of $P < 0.05$, different things found in Joshi HN et al.'s study which found the incidence of acute urinary retention 11 patients (36%) in group 1 and 10 patients (28%) in group 2 with a value of $P > 0.05$, meaning not statistically significant.¹

IPSS values before surgery in our study obtained a comparison of results that were not statistically significant, whereas in Joshi et al.'s study, there were significant pre-operative IPSS results on incomplete emptying parameters, "incomplete emptying" 30 patients in group 1 and 28 patients in group 2 with P values < 0.05 , while other IPSS parameters show results that are in line with our research.¹ Quality of life (QoL) values before surgery in our study were also not statistically significant between group 1 and group 2, whereas Joshi et al.'s study showed significant results, namely 4.26 in groups 1 and 3.22 in group 2 with P values < 0.05 .¹

IPSS values after surgery in our study showed a significant difference in incomplete emptying parameters, namely 0.9 in groups 1 and 0.4 in group 2 with a P value < 0.05 , whereas in Joshi et al. Researchers did not compare QoL after surgery.¹ Postoperative complications in our study were blood clot retention (1 patient), hematuria (1 patient) and

urethral stricture (1 patient) all of which occurred in group 2 patients, but not clinically significant compared with group 1 ($P>0.05$). While postoperative complications in Joshi et al.'s study were TURP syndrome (2 patients in group 1) and urethral stricture (2 people in group 2), but not statistically significant.¹

CONCLUSION

TURP procedure for patient with prostate volume >75 grams is safety and effective with lower complications and there is no significant difference compared to patient with prostate volume <75 grams.

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