

Research Article

Patient's Satisfaction Post-Transurethral Resection of the Prostate with Monopolar and Bipolar for Benign Prostate Hyperplasia

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Received 8 September 2023; Accepted 13 May 2024

<https://doi.org/10.23886/ejki.12.485.40>

Abstract

Transurethral resection of the prostate (TURP), either bipolar or monopolar, is a surgical treatment for benign prostatic hyperplasia, which has similar effectiveness in reducing international prostate symptom score, increasing men peak flow rates, and reducing post-void residual volume. However, bipolar TURP (B-TURP) can reduce the incidence of bleeding and dilutional hyponatremia. This study aims to evaluate the effectiveness of the level of patient satisfaction between Monopolar-TURP (M-TURP) and B-TURP. 82 patients at three hospitals in Denpasar City were eligible as subjects based on inclusion criteria, consisting of 41 patients for each procedure. The recruitment method used consecutive sampling from March to August 2019. The patient's demographics as baseline data were recorded. The level of patient satisfaction was recorded for one month after surgery through the SF-36 questionnaire. The baseline sample's characteristics before surgery in both groups were statistically identical. In evaluating patient satisfaction levels, there are significant differences where TURP (B-TURP) is better in the domain of vitality ($p=0.001$), social function ($p=0.005$), pain ($p=0.002$), and general health ($p=0.001$). B-TURP resulted in an increasing level of patient satisfaction better than M-TURP.

Keywords: transurethral resection of the prostate, patient satisfaction, quality of life, sexual health.

Tingkat Kepuasan Pasien Post Transurethral Resection of the Prostate dengan Monopolar dan Bipolar pada Benign Prostate Hyperplasia

Abstrak

Reseksi prostat transurethral (TURP), baik bipolar atau monopolar, adalah terapi bedah untuk benign prostat hyperplasia, yang memiliki efektivitas serupa dalam mengurangi skor international prostate symptom score, meningkatkan laju pancaran urin maksimal, dan mengurangi volume residu setelah berkemih. Namun, bipolar-TURP (B-TURP) dapat mengurangi perdarahan dan hiponatremia dilusional. Penelitian ini bertujuan mengevaluasi efektivitas tingkat kepuasan pasien antara pada M-TURP dan B-TURP. Sebanyak 82 pasien memenuhi syarat sebagai subjek berdasarkan kriteria inklusi pada tiga rumah sakit di Kota Denpasar yang terbagi dalam 41 pasien setiap kelompok. Subjek diambil secara konsektif sampling pada bulan Maret hingga Agustus 2019. Data demografi pasien dicatat sebagai data dasar. Tingkat kepuasan pasien dicatat selama satu bulan setelah operasi melalui kuesioner SF-36. Karakteristik dasar subjek sebelum pembedahan pada kedua kelompok identik secara statistik. Pada evaluasi tingkat kepuasan pasien terdapat perbedaan signifikan yaitu B-TURP lebih baik pada domain vitalitas ($p=0,001$), fungsi sosial ($p=0,005$), nyeri ($p=0,002$), dan kondisi kesehatan ($p=0,001$). B-TURP meningkatkan kepuasan pasien lebih baik dibandingkan M-TURP.

Kata kunci: transurethral resection of the prostate, kepuasan pasien, kualitas hidup, kesehatan seksual.

Introduction

Benign prostate hyperplasia (BPH) is one of the most degenerative diseases in men. In BPH patients, prostate enlargement interferes with urine flow, leading to urinary disorders. Nowadays, the incidences of BPH have increased along with the increase in life expectancy in Indonesia.¹ Although not life-threatening, BPH can cause lower urinary tract symptoms (LUTS) that affect the patient's quality of life. Based on World Health Organization (WHO)² data, BPH patients among 0.5-1.5/100,000 world populations had low mortality. There were 103 BPH patients treated with transurethral resection of the prostate (TURP) from a total of 1,161 urological operations at Prof. Dr. I.G.N.G. Ngoerah General Hospital in 2013.^{3,4}

Transurethral resection of the prostate (TURP) is a minimally invasive surgical treatment that can be performed with bipolar technique or monopolar technique. Compared to open surgical procedures, monopolar TURP (M-TURP) is less invasive and has lower complications, so it has become the gold standard of surgical therapy for BPH.⁵ However, BPH patients could still experience LUTS, approximately 33-35%, within 2-6 weeks post-TURP procedure.⁶ Bipolar TURP (B-TURP) has been developed as an alternative to M-TURP. The multicenter study in Canada demonstrated no significant differences in the surgery duration and resection length between M-TURP and B-TURP. Both procedures significantly increased the patient's quality of life based on decreasing IPSS scores.⁷ However, B-TURP can reduce the incidence of bleeding and dilutional hyponatremia.⁸

The health management paradigm has also changed; it is no longer focused solely on medical issues but is oriented toward the patient individually. Currently, medical parameters are measured objectively as indicators of existing problems, such as IPSS score, men peak flow rates (Qmax), and post-void residual volume (PVR), and they also need to be taken into account in patient perceptions. This study aims to analyze the difference in the level of patient satisfaction undergoing B-TURP and M-TURP in Denpasar City.

Methods

This study used a prospective cohort study design. The sampling methods in this study used consecutive sampling from March to August 2019 in three hospitals in Denpasar City. This study has been approved by the Institutional Review Board of the Faculty of Medicine, Universitas Udayana, Prof. I.G.N.G. Ngoerah General Hospital, Denpasar, with No. No. 2272 / UN14.2.2.VII.14 / LP / 2019). The study inclusion criteria were BPH patients aged ≥ 40 years with prostate volume 20-100 ml, which indicated to perform M-TURP or B-TURP procedures. Patients with prostate cancer, residual cases, sepsis, experiencing severe mental disorders, and unwillingness to participate in the study were excluded.

Patients were asked to give informed consent, and then the patient's identity and characteristics, such as age, body mass index, level of education, blood pressure, and prostate size, measured by transabdominal ultrasonography, were recorded. The procedure was performed by a single urology surgeon at each hospital. Then, one month after the M-TURP or B-TURP procedure, the patients were evaluated for satisfaction using the SF-36 questionnaire in Indonesian, consisting of eight domains.⁹ Every satisfaction domain was evaluated by percentage, within 0-100%. The higher percentage showed better patient satisfaction. The satisfaction improvement was analyzed using the Mann-Whitney test and 95% confidence intervals (CI). The analysis considered statistical significance when at $p < 0.05$. The statistical studies used IBM Corp.'s SPSS 25 (Armonk, NY).

Results

89 patients diagnosed with BPH underwent TURP, either M-TURP or B-TURP surgery. Seven patients were excluded due to four patients with prostate cancer histology results, one patient who died within two weeks after surgery, one residual case, and one who suffered sepsis. Then, 82 patients were eligible to participate in the study, which consisted of 41 patients in each group. The characteristics of patients shown in Table 1.

Table 1. The Patient's Baseline Characteristics

Characteristics	B-TURP (n=41)	M-TURP (n=41)
Age, years old (mean $\pm$ SD)	66.8 $\pm$ 7.9	67.1 $\pm$ 7.8
Education		
Educated	21 (51.2%)	17 (41,5%)
Non-Educated	20 (48.8%)	24 (58.5%)
Median Operative Time, minutes (median, min-max)	30 min (15 – 76)	35 (18 – 50)
Prostate Volume, mL (median, min-max)	41 (24.3 - 80.5)	49 (25.0 - 91.5)

The normally distributed data was age. The patients' education was divided into non-educated patients, who were not in school to junior high school, while educated patients were in senior high school and had bachelor's degrees. The prostate volume was measured by transabdominal ultrasonography (TAUS), which showed significant differences in the

two groups with $p=0.012$. Moreover, the efficacy in reducing IPSS score between B-TURP and M-TURP were similar, $p=0.521$.

Comparing the level of satisfaction based on SF-36 was performed using the Mann-Whitney test since the data distribution is abnormal. Data on the comparison of satisfaction levels in each group are shown in Table 2.

Table 2. Comparison of Satisfaction Levels Based on the SF-36 Questionnaire a Month after TURP

Domain	Groups				Groups
	Bipolar (n=41)		Bipolar (n=41)		
	Pre-TURP(%)	Post TURP(%)	Pre-TURP(%)	Post TURP(%)	
Physical functioning	15	95	17.5	90	0.115
Role limitations due to physical health	25	75	50	75	0.488
Role limitations due to emotional problems	33.3	66.7	33.3	100	0.682
Energy (vitality)	15	90	15	85	0.001
Emotional well-being	12	88	12	88	0.086
Social functioning	13	87.5	13	87.5	0.005
Pain	10	100	21	90	0.002
General health	15	90	10	85	0.001

Based on Table 2, from eight domains of patient satisfaction level, four domains have significant differences, that B-TURP brought better patient satisfaction than M-TURP. The domains are energy/vitality ($p=0.001$), with the bipolar group at 90% versus 85%, and the social function domain ($p=0.005$), with a similar median value. The average in B-TURP was 90.24% compared to 82.62% in M-TURP pain ($p=0.002$), in which the B-TURP group had a 100% value, while the monopolar was 90%. The general health ($p=0.001$), in which bipolar was 90% and monopolar 85%. The other domains showed an insignificant result.

Discussion

Bipolar-TURP is the management of BPH, which was developed to reduce the complication of M-TURP, especially in hemodilution hyponatremia. Many studies have tried to find the other

advantages of B-TURP compared to M-TURP, but the results are still controversial. However, B-TURP has been postulated to be superior in preventing perioperative and post-operative complications, which may reduce post-operative catheterization time. The efficacy of TURP, both bipolar and monopolar, was evaluated mostly through the IPSS score, reduction of prostate volume, and post-voiding residual volume (PVR). Those results were similar to our study, which showed insignificant differences in reducing IPSS scores. IPSS can demonstrate subjective improvement due to urinary symptoms and the patient's quality of life-related to symptom severity. However, IPSS is not reliable in assessing more complex quality of life, specifically in the physical and mental dimensions associated with the level of education and social demography.¹¹ Therefore, the authors used the SF-36 questionnaire, which has been validated this

questionnaire in communities in Indonesia. Other studies mention that the SF-36 questionnaire is a standard instrument in assessing chronic disease.¹²

This questionnaire assesses the condition of patients during the last four weeks. From eight domains of patient satisfaction level, four domains have significant differences, that bipolar TURP is better than monopolar TURP. The first domain is energy or vitality, with a significant difference $p=0.001$ showing that the bipolar group was 90%, while M-TURP was 85%. The energy or vitality domain includes the level of satisfaction for getting excited to start the day because they have enough sleep time. Both groups agreed that nighttime urinary complaints prior to the surgical procedure were disturbing and caused nonoptimal rest time. Therefore, lethargy and lack of enthusiasm are the main complaints. In the energy/vitality domain, both groups experienced an improved erection ability and sexual desire. Among 70% of men with BPH were associated with erectile dysfunction.² Other studies support this finding, where 80.7% of subjects in the study group had complaints of erectile dysfunction associated with LUTS. Erectile ability improved within a month after surgery due to reduced obstructive symptoms/LUTS. Erectile dysfunction is closely related to psychological factors, such as the symptoms of LUTS due to BPH causing stress and decreased sexual desire. After the TURP procedure, psychological stress for LUTS was reduced, and sexual desire returned to normal, which resulted in erectile ability improvement.¹³ However, in the M-TURP group, some patients had erectile dysfunction disorders due to a lack of enthusiasm and sexual desires, even after surgery. Another study demonstrated that postoperative erection problems could be caused by thermal injury or neuropraxia on the erectile nerve located near the prostate capsule, causing an increase of cell apoptosis and fibrosis in the corpora cavernosa and resulting in a lack of oxygenation in the cavernosa due to injury to the arteries during resection procedures.¹⁴

The other domains that are significantly different are the social function ($p=0.005$), pain ($p=0.002$), and general health domain ($p=0.001$). Prior LUTS symptoms limited patients from socializing, and they were better post-TURP. The social function domains were different only for the first two weeks due to using a urethral catheter, which is longer in monopolar. Then, the improvement of social function became similar. Moreover, it affects the pain domain, resulting in combined pain and discomfort complaints because the patients are immobilized body during traction, which lasts for one week and then resolves into a

similar pain domain. Interestingly, both complaints affected health and recovery perception in the general health domain. However, the improvement regarding the SF-36 could be affected by the age and education level. In geriatric patients, evaluating and having more comorbidities might be more complex than in younger patients. Another study claimed that education level might bias the results due to better disease and management insight at higher education levels.^{13,15}

This study analysis of the TURP procedures on patients' satisfaction using the SF-36 questionnaire was rarely discussed in the current literature. Although the perceived impact is not significantly different, bipolar TURP is superior to monopolar TURP in satisfaction levels that cover the physical and mental aspects of the patient. To minimize bias, TURP, both monopolar and bipolar, was done by a single operator, the researcher. Even though the characteristic data were not significantly different in each group, the baseline prostate volume were different, which might affect the bias in our study. The limitations of our study are that the data only assess the short-term outcomes. Therefore, the extended period study should provide more data on long-term outcomes.

Conclusion

Patient satisfaction with the B-TURP procedure is better than the M-TURP in 4 domains: vitality, pain, social function, and general health. Further study is needed to find the cost-effectiveness between B-TURP and M-TURP.

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