EFFICACY OF BLADDER TRAINING PROCEDURE IN PATIENTS UNDERGOING TURP

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ABSTRACT

Objective: *Catheter management is conducted to the patients undergoing transurethral resection of the prostate (TURP). There were many arguments between clinical practitioners about bladder training procedure after TURP procedure. This study aims to determine whether there is a relationship between bladder training action and success of spontaneous micturition in post TURP procedure in patients with urinary retention caused by prostate enlargement.* ***Material & methods:*** *Randomized clinical trial was conducted at Kardinah General Hospital, Tegal from October 2015 to February 2016. 44 study participants who underwent TURP were randomly allocated into two groups. In Group I, patient's Folley catheter was clamped prior to its removal (bladder training group); and in Group II was not clamped (control group).* ***Results:*** *Mean age of patients was 64.48 ± 8.1 years old. There were 23 patients (52.3%) have had history of recurrent urinary retention and 21 patients (47.7%) have had not (p=0.560). There were 4 patients (17.4%) in Group I and 1 patient (4.7%) in Group II who required re-catheterization and discharge with catheter. There was no statistically significant difference in spontaneous micturition rate between bladder training group and control group (p=0.187).* ***Conclusion:*** *The result of the current study identified that bladder training to patients undergoing TURP procedure had no significant impact in spontaneous micturition.*

Keywords: *Bladder training, transurethral resection of the prostate, catheterization, post-operating management.*

ABSTRAK

Tujuan: *Manajemen kateter dilakukan pada pasien menjalani reseksi transurethral pada prostat (TURP). Ada banyak argument antara praktisi klinis tentang prosedur pelatihan bladder training setelah prosedur TURP. Penelitian ini bertujuan untuk menentukan apakah ada hubungan antara prosedur bladder training dengan keberhasilan berkemih spontan post prosedur TURP pada pasien dengan retensi urine yang disebabkan pembesaran prostat.* ***Bahan & cara:*** *Percobaan klinis acak dilakukan di RSU Kardinah, Tegal dari bulan Oktober 2015 sampai Februari 2016. 44 peserta studi yang menjalani TURP secara acak dialokasikan kedalam dua kelompok. Di Grup I, kateter Folley pasien diklem sebelum dilepaskan (kelompok bladder training); Dan di Grup II tidak diklem (kelompok kontrol).* ***Hasil:*** *Rerata usia pasien adalah 64.48 ± 8.1 tahun. Ada 23 pasien (52.3%) yang memiliki riwayat retensi urin rekuren dan 21 pasien (47.7%) tidak memiliki (p=0.560). Ada 4 pasien (17.4%) pada kelompok I dan 1 pasien (4.7%) pada kelompok II yang membutuhkan kateterisasi ulang dan rawat jalan dengan tetap menggunakan kateter. Tidak ada perbedaan yang signifikan secara statistik dalam tingkat berkemih spontan antara kelompok bladder training dan kelompok kontrol (p=0.187).* ***Simpulan:*** *Hasil penelitian ini adalah prosedur bladder training untuk pasien yang menjalani prosedur TURP tidak memiliki dampak signifikan pada keberhasilan untuk berkemih spontan.*

Kata kunci: *Bladder training, reseksi transurethral prostat, kateterisasi, manajemen pasca operasi.*

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INTRODUCTION

Post-operative management in patients undergoing transurethral resection of prostate (TURP), one of them, is by using catheter, performed until the catheter can be removed and the patient can spontaneously urinate. Post-TURP complications associated with catheter use are spontaneous

micturition failure by 5% and 5% blood clotting retention.[1] Blood clotting retention can be treated by the evacuation of blood clotting and irrigation with saline normal fluids. While urine retention after catheter removal is more due to detrusor muscle failure.[1]

Bladder training is one of catheter treatments to restore the function of bladder before the catheter removal. In general, the bladder will function spontaneously in the presence of contractions in the bladder muscle, after previously the bladder muscle is in hypotonic conditions due to the absence of bladder stimulation from the volume of urine in the bladder. The patient's bladder muscle is in hypotonic condition while the patients are using the catheter, until it is performed TURP procedure catheter removal to patients.

The function of bladder filling and discharging will return spontaneously in different time period variations. To shorten this period, it is performed bladder training, that is by using the scheduled procedure of catheter ligation (clamping). This training is to stimulate the bladder muscles to function physiologically.[2]

OBJECTIVE

This study aims to determine whether there is a relationship between bladder training action and success of spontaneous micturition in post TURP procedure patients in patients with urinary retention caused by prostate enlargement.

MATERIAL & METHODS

This study was a randomized, controlled clinical trial. This study was a planned experimental study in humans (patients), in which the researchers intervened in the action of bladder training in one group of post TURP surgery patients. Then, the results of the interventions were evaluated and compared with the group of patients not intervened.

It was performed TURP procedures to patients with a diagnosis of urinary retention due to prostate enlargement indicated by surgery. After the surgery, it was installed Folley 24F 3-way catheter with 0.9% NaCl irrigation to patients. On the second day after the surgery, the irrigation was removed. Then on the third day after the surgery, the patients are grouped into two groups, namely: Patients group undergoing bladder training and, control group not undergoing bladder training.

Bladder training is a catheter ligation (clamping) action on the catheter to interrupt the flow of urine from the bladder through the catheter tube so that urine remains stuck in the bladder, until the patient feels the urge to urinate then the catheter ligation is removed for a moment to empty the bladder. If the patient does not feel the sensation of micturition, the catheter ligation is removed every 2-3 hours. On the fourth day after the surgery, the Folley catheter is removed, then patient's ability to urinate was assessed.

This study compared the patients' ability to urinate on the fourth postoperative day of TURP between the bladder training group and the non-bladder training group. After the removal of the Folley catheter, the patients were said to urinate spontaneously if the patients were able to urinate with strong stream (no dripping) twice and feel the lampias after micturition. Patients were said fail to urinate spontaneously if the patients were unable to urinate with strong stream (dripping) and feel no lampias accompanied by suprapubic pain. Then the patients were evaluated clinically that the bladder was not full after micturition.

The study was conducted at the Kardinah Regional General Hospital Tegal in the period of October 15, 2015 until February 2016. The population in this study were patients with the diagnosis: Urine retention due to prostate enlargement, performed transurethral resection of the prostate (TURP) procedure at Kardinah Hospital Tegal in the period of October 2015 - February 2016. Chi-square and Mann-Whitney statistical analysis were used to know the effectiveness of bladder training on the success of micturition and other factors related to the success of micturition after TURP.

This research has been through Ethics Committee Approval ref 071/002/2016 at Kardinah Hospital Tegal.

RESULTS

In this study, 44 patients participate with their consent, or patients' family consent. The mean age of patients is 64.48 years old with age range of 50-85 years old. A total of 21 patients (47.7%) are acute urinary retention patients who have never previously experienced urine retention, while 23 patients (52.3%) are recurrent urine retention patients.

Some patients have hypertension comorbid, 9 people (20.5%), diabetes mellitus by 10 people (22.7%) and renal insufficiency by 8 people (18.18%).

It is then performed PSA examination to patients with the mean of 16.17 ng/dL and median of 6 ng/dL. Transabdominal ultrasound examination is performed to determine prostate volume, with the results of mean by 46.20 ± 24.10cc. It is then performed transurethral resection of prostate (TURP) surgery to patients, then from the resection result in the form of prostate chips, it is measured the weight with the mean of 17.20 ± 7.44 gram.

Of the 23 patients in the bladder training group, after catheter removal, 19 patients are able to urinate spontaneously and 4 patients fail to urinate. Meanwhile, of the 21 patients in the control group, 20 patients are able to urinate spontaneously and 1 patient fails to urinate. From Chi-square test, there is no significant result between group of patients undergoing bladder training and control group with p = 0.187.

Table 1. Descriptive data of categorical variables.

Variable	Results
Age (years old)	
Median (range)	64.5 (50 - 85)
Mean (SD)	64.48 ± 8.1
Duration of catheter is installed before operative actions (days)	
Median (range)	10 (3 -30)
Mean (SD)	11.32 ± 6.93
History of recurring retention	
Yes	23 (52.3%)
No	21 (47.7%)
History of hypertension	
Yes	9 (20.5%)
No	35 (79.5%)
History of diabetes mellitus	
Yes	10 (22.7%)
No	34 (77.3%)
Renal insufficiency	
Yes	8 (18.18%)
No	36 (81.82%)

Table 2. Descriptive data of numerical variables.

Variable	Results
PSA (ng/dL)	
Median (range)	6 (1 - 100)
Mean (SD)	16.17 ± 25.08
Prostate volume based on TAUS (cc)	
Median (range)	37 (15 -126)
Mean (SD)	46.20 ± 24.10
Chip prostate (gram)	
Median (range)	17 (4 -31)
Mean (SD)	17.20 ± 7.44
Duration of surgery (minutes)	
Median (range)	60 (30 -90)
Mean (SD)	58.07 ± 13.08

Table 3. Relationship between Bladder training and recurrent retention history and spontaneous micturition success.

		Spontaneous micturition		*p*	OR
		Yes	No		
Bladder training	Yes	19	4	0.187	0.238 (0.024 -2.327)
	No	20	1		
History of recurring retention	Yes	21	2	0.560	1.750 (0.263 -11.662)
	No	18	3		

DISCUSSION

This research has similar research design with Vikash research in which TURP post patients are grouped into 2 groups, group 1 is group of patients without catheter ligation treatment and then it is performed catheter removal and group 2 is group of patients where it is performed intermittent catheter ligation prior to Catheter removal. The study is conducted to 86 post-TURP patients, showing no significant difference between the two groups on the incidence of urinary retention. It is similar to the results of this study where no significant outcomes are obtained between the patient group with bladder training and control group with p = 0.187. The group of patients with catheter removal without catheter ligation is treated in hospital shorter than the group treated by catheter ligation. This lowers the cost of treatment. Vikash also mentions that the size of the resected prostate gland does not correlate with the length of catheterization.[3]

Postoperative bladder dysfunction and micturition disorder may occur in catheter use and this can lead to infection in the urinary tract. Intermittent ligation management of the urethral catheter prior to catheter removal is recommended to stimulate filling and discharging physiologically. A catheter ligation procedure can reduce urinary neurologic dysfunction in postoperative patients. The Cochrane Review examines the best strategies for removing catheters in patients with the use of temporary urethral catheters. The study evaluates patients undergoing ligation in urethral catheters intermittently compared to patients where the urethral catheter is allowed to flow freely.[4-6]

Other studies have evaluated the use of short-term ureter catheters in postoperative adult urologic patients, with the similar results. The studies evaluate patients undergoing ligation in urethral catheters intermittently compared to patients undergoing immediate removal. In that study, there is a more frequent urinary tract infection in patients treated with catheter ligation and in the group of patients, it takes longer time to achieve the physiological function of the bladder due to urinary tract infection.[4,6]

In this study, it is also evaluated other factors on the success of post TURP spontaneous micturition patients. Patient age is not significantly correlated to the success of post TURP spontaneous micturition patients with p = 0.085. Recurrent retention history and retention time are also not significantly correlated to the success of post TURP spontaneous micturition patients with p = 0.56 and p = 0.239. PSA values are also not significantly correlated to the success of post TURP spontaneous micturition

Table 4. Analysis of other independent variable data on the success of spontaneous micturition.

	Spontaneous micturition		*p*
	Yes	No	
Age	66 ± 7.8	59 ± 8.7	0.085
Duration of retention	11 ± 7.1	8 ± 4	0.239
PSA	16.5 ± 25.1	13.2 ± 16.6	0.781
Prostate volume (gram)	45 ± 21	103 ± 41	0.912
Percentage of resected prostate volume	42 ± 21	19 ± 5.1	0.014

patients with p = 0.781. However, the percentage of resected prostate volume correlates significantly to the success of post TURP spontaneous micturition patients with p = 0.014.

The cause of acute urinary retention in post-TURP patients is blood-pressure retention. Ariane states that a history of preoperative infection and prostate size before surgery less than 17.5 grams is also a predictor of post TURP acute urinary retention.[7] Meanwhile, according to So Jun Yang, the cause of retention Acute urine after catheter removal in post-TURP patients is high prostate volume with a small prostate resection volume, therefore, the factor of operator affects the success. So Jun Yang's research results support the results of this study where the percentage of resected prostate volume is associated with the success of spontaneous micturition after catheter removal in post-TURP patients.[8]

CONCLUSION

In this study, it can be concluded that there is no relationship between bladder training actions and spontaneous micturition success in post-TURP procedure patients. Bladder training action by ligation catheter is still performed in several health centers in Indonesia. According to other studies, this action may increase the risk of urinary tract infections and prolong hospitalization time.

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