



## ORIGINAL ARTICLE

# Effect of designed self-care educational program on complications after transurethral resection of the prostate

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### ABSTRACT

Despite following "gold standard" in treating benign prostatic hypertrophy, TURP (Trance Ureteral Resection Prostate) surgery is associated with some complications. The present study was aimed at investigating the effect of self-care educational program on complications after TURP surgery in patients with benign prostatic hypertrophy. The study was a quasi-experimental one including two groups; an intervention one (35 subjects) and a control one (35 subjects). Measurement instruments included: demographic characteristics questionnaire, gross hematuria scale, and scale for dysuria and urinary tract obstruction in patients after the surgery. The designed self-care educational program was presented to the experimental group during two sessions, one before surgery and one after it, and care process was followed up during the first month after surgery via phone calls. Four weeks after removing the urinary catheter, gross hematuria amount, dysuria, and urinary tract obstruction were measured through a checklist. Collected data were analyzed using SPSS 16.0 software. Subjects aged between 45 and 80. Data analysis showed a significant decrease in incidence of hematuria ( $p=0.026$ ) and dysuria ( $p=0.041$ ) while no significant drop was observed in incidence of urinary tract obstruction ( $p=0.725$ ). The results indicated that the designed self-care program was effective in decreasing gross hematuria and dysuria in men with BPH after TURP surgery.

**Keywords:** self-care; gross hematuria; urinary tract obstruction; dysuria; TURP

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### INTRODUCTION

Surgery complication is an issue that concerns patients and healthcare and medical staff. It also causes a delay in patient's recovery, prescription of extra medicine, provision of post-release services, need for consistent support by families, and an increase in related costs. Although side complications occur before surgery and throughout the patient's release, this issue is noticed when the patient has been released from the hospital [1]. Although TURP surgery has gold standard in treating and managing BPH (Benign Hyperplasia Prostate) and its symptoms and it has clinically been considered as an effective and cheap method [2-4], like most other surgeries it has some complications that despite their decrease, they still occur [3, 5, 6]. Among other complications, hematuria, dysuria, and urinary tract obstruction occur after TURP surgery [7-9]. Patients who undergo TURP are hospitalized for a short period of time and spend most of their course of treatment at home; therefore, self-care training is require in order to manage and control the illness, symptoms, complications, and postoperative problems. Experts have recognized that teaching the patients about self-care is an effective factor in decreasing complications and problems that follow prostate surgery. Lina (2002) considers self-care activities as a "symptom management strategy" for complications and problems caused by prostatectomy. According to Dorothy Orem's theory (1995) self-care ability develops through searching, training, others' advice, and learning process during self-care activities [10]. Since self-care training provided by nurses is introduced as one of the most important methods to manage and inhibit complications caused by prostatectomy [11] and according to the study conducted by Mata *et al* (2010) that has put great emphasis on conducting experimental and semi-experimental studies that are on the effect of self-care training on postoperative complications [12], the

present study was aimed at investigating the effect of self-care educational program on complications after TURP surgery in patients with benign prostatic hypertrophy.

## **MATERIALS AND METHOD**

Convenience sampling was applied to select 70 patients with benign prostatic hypertrophy and undergone TURP surgery in Milad Hospital, who were divided into an experimental group (35 patients) and a control one (35 patients). All patients were operated on by 3 experienced urologists of Milad Hospital. Subjects in both groups were homogenized regarding their demographic characteristics (age, marital status, job, education, preoperative variables (prostate size, IPSS (International Prostate Syndrome Score), intraoperative variables (duration of surgery), and postoperative variables (duration of hospitalization and catheterization). Inclusion criteria were age between 45 and 80, complete consent to participate in the study, literacy, no history of acute and chronic inflammation of the prostate before surgery, and no history of neurogenic bladder dysfunction. Exclusion criteria were patient's dissatisfaction to continue participating in the study, catheterization or reoperation related to surgery complications or treatment completion, postoperative urinary tract infections, incidence of prostate cancer according to the results of prostate pathology test, and consumption of antiplatelet and anti-blood clot drugs after surgery. During the intervention, two patients from the experimental group (due to re-catheterization because of acute urinary obstruction) and four patients from the control group (due to re-hospitalization and catheterization because of severe bleeding) were excluded from the study; therefore, the study was conducted on 64 patients.

Informed consent was gained from all of the patients. A demographic questionnaire was utilized to collect the patients' demographic characteristics. Levels of gross hematuria, dysuria, and urinary obstruction were measured through gross hematuria checklist, dysuria checklist, and urinary obstruction checklist, respectively. In addition, information available in patients' records was applied to collect data related to surgery variables such as: prostate size, duration of surgery, and duration of hospitalization at the hospital. Duration of postoperative catheterization was determined by questioning the patients and IPSS was measured according to preoperative IPSS. All of the instruments utilized in the study including demographic questionnaire and urinary obstruction, gross hematuria, and dysuria checklists were designed by the researcher and their validity and reliability were assured by applying three of urology experts and nursing professors of Tarbiat Modares University. Checklists were filled out by the subjects of both groups within four weeks after catheter was removed. After the catheter was removed, the patients were required to complete the checklists by checking the related box to dysuria, hematuria, or urinary tract obstruction during urination everyday within 4 weeks. After the checklists were completed by the patients, number of days related to each complication was specified and analyzed. No intervention was utilized in the control group; however, after the experiment they were provided with a pamphlet containing discussed issues in the experimental group. After the patients' educational needs were specified, the designed self-care program that was prepared according to textbooks, research studies, views of urology experts and nursing professors (including the pamphlet and animation files related to the illness) was provided to the experimental group right after they were hospitalized.

The content of the educational program contained an educational pamphlet (for self-study) and two about one-hour educational sessions: one before surgery and one after it. The first session included teaching about the illness nature, preoperative instructions, the operation nature, postoperative outcomes, routine care before and after the operation, instructions about diet, patient mobility, oral and dental health, fluid intake after operation. The second session included releasing trainings and home self-care principles with an emphasis on procedures to reduce hematuria, dysuria, and urinary tract obstruction. These procedure and techniques were: genital hygiene and prevention of urinary-genital tract infection, consumption of large amount of liquids and prevention of constipation, daily sitting in a warm water tub during acute urinary irritation and obstruction, time of work and sexual activity at home, proper diet (reduction of spices, caffeine, and foods that cause constipation and bladder irritation), avoiding heavy lifting until one or two months after the operation, avoiding long distance walks, and instructing how to exercise and consume medicine, all of which were provided through appropriate educational aids (educational pamphlet and animations). After the second session, the checklists were enveloped and delivered to the patients so that they could complete them within four weeks after the catheters were removed and sent them back to the researcher. It should be noted that three patients (1 in the experimental group and 2 in the control one) could not able to post their checklist; therefore, the researcher went to their places and received the questionnaires and checklists. Moreover, home self-care was supervised through phone calls one month after the operation and the patients' questions were responded. The control group patients; however, were provided with no intervention during this period. In the end, collected data were analyzed using SPSS 16.0 software. In so doing, Independent t-test, Mann

Whitney test (to compare hematuria and dysuria in the two groups), chi-square test, and Fisher test (to check the two groups' demographic homogeneity) were utilized. Significance level was assigned at 0.05.

**RESULTS**

In this study 35 patients were selected in each group, 6 of whom (2 in the experimental group and 4 in the control one) were crossed out, which resulted in 64 subjects to be investigated.

Table 1 indicates the subjects' demographic characteristics. Analyzing their distribution frequency showed that both groups were homogenized regarding their demographic characteristics such as age, marital status, education, and job. They were also homogenized in terms of their pre-, post-, intra-, and post-operative variables (See Table 2).

Mann Whitney test showed that during the first week there was a significant difference between the two groups regarding incidence of gross hematuria (p=0.044) while it was not significant during the second week (p=0.78), the third week (p=0.294), and the fourth week (p=0.234). Moreover, comparing incidence of gross hematuria in the two groups during one month after catheter removal through independent t-test proved a significant difference between them (p=0.036), which shows a drop in the convention patients' gross hematuria compared to the control group. Regarding dysuria, statistical data analysis through Mann Whitney test proved no significant difference between the two groups during the first week (p=0.23), the second week (p=0.125), and the fourth week (p=0.179). This difference; however, was significant during the thirs week (p=0.028). Comparing the level of incidence of dysuria in both groups one month after catheter removal, independent t-test showed a significant difference (p=0.041), which indicates that incidence of dysuria dropped in the experimental group compared to the control one.

Regarding urinary tract obstruction, Mann Whitney test showed no significant difference between the two groups during weeks one to four {the first week (p=0.546), the second week (p=0.499), the third week (p=0.450, and the fourth week (p=1.0)}. Comparing incidence of urinary tract obstruction within one month after catheter removal, Mann Whitney test showed no significant difference between the two groups (p=0.725) which indicates that the abovementioned educational program had no significant effect of urinary tract obstruction.

**Table 1. Comparing the patients' demographics in the two groups**

Variable		Experimental group		Control Group		p
		N.	%	N.	%	
Age	51-60	10	30.30	9	26.47	0.777
	61-70	14	42.42	13	38.23	
	71-80	9	27.30	12	35.30	
Marital Status	Married	33	100	31	91.18	0.239
	Single	0	0	3	8.82	
Education	Under Diploma	25	75.75	26	76.47	1.000
	Diploma and more	8	24.24	8	23.53	
Job	Retired	23	69.69	25	73.52	0.783
	Non-retired	10	30.30	9	26.47	

**Table 2. Comparing the patients in the two groups before, during, and after the operation**

Variable		Experimental group		Control Group		p
		Mean	SD	Mean	SD	
Before	Prostate size (SS)	43.2	5.7	45.6	5.2	0.451
	ISPP (total score)	25.18	4.3	23.78	3.43	0.672
During	Surgery Duration (min.)	27.4	4.83	28.9	3.92	0.734
After	Catheterization Duration (min.)	10.3	2.14	10.1	4.31	0.371
	Hospitalization Duration (min.)	3.2	2.61	3.3	2.31	0.827

**Table 3. Comparing the patients in the two groups regarding their levels of hematuria, dysuria, and urinary tract obstruction**

Variable	Time	Group	Mean±SD	p
Gross Hematuria Level	Fist Week	Intervention	4.31±2.67	0.044
		Control	2.94±2.85	
	Second Week	Intervention	1.19±2.20	0.078
		Control	2.53±3.06	
	Third Week	Intervention	0.28±1.27	0.294
		Control	1.38±2.69	
	Fourth Week	Intervention	0.06±1.64	0.234
		Control	0.62±1.64	
Within the first month after catheter removal	Intervention	5.06±5.42	0.036	
	Control	8.84±8.32		
Dysuria Level	Fist Week	Intervention	4.03±3.01	0.23

	Second Week	Control	5±3.86	0.125	
		Intervention	3.41±3.24		
	Third Week	Control	4.69±3.15	0.028	
		Intervention	2.25±2.96		
	Fourth Week	Control	4.12±3.24	0.179	
		Intervention	1.94±3.06		
	Within the first month after catheter removal	Control	3.09±3.24	0.041	
		Intervention	12.26±9.93		
	Urinary Tract Obstruction	Fist Week	Control	17.59±10.34	0.546
			Intervention	1.66±2.52	
Second Week		Control	1.28±2.43	0.499	
		Intervention	1.34±2.58		
Third Week		Control	1.25±2.61	0.45	
		Intervention	0.81±1.85		
Fourth Week		Control	0.75±1.95	1.000	
		Intervention	0.66±2.07		
Within the first month after catheter removal		Control	0.66±2.07	0.725	
		Intervention	4.47±7.71		
		Control	3.94±7.05		

## DISCUSSION

In most studies, it has been concluded that variables like IPSS, preoperative prostate size, duration of surgery, duration of postoperative hospitalization at the hospital, and duration of postoperative catheterization have effect on incidence and level of postoperative complications [6, 13, & 14]. Therefore, the two groups were homogenized in terms of these variables. Gross hematuria is one of the main complications after TURP surgery, which according the results of the study conducted by Olapid *et al* (1998) continues 3 weeks after the surgery. Therefore, in this study effect of gross hematuria within four weeks was measured. The results showed that education could cause gross hematuria level to drop in the experimental group. In this regard, Huan-li's study [16] showed that nursing interventions during surgery including warming up bladder irrigation serum with 37 ° C water in operation room caused a decrease in complications after TURP surgery such as bladder spasm and bleeding [15]. In another study conducted by Park *et al* [6] in South Korea, effect of sitting in warm tub on TURP surgery complications such as bleeding, urinary tract infection, urinary tract stenosis and acute urinary retention was investigated. The result of their study showed that patients with bleeding were fewer in the experimental group compared to the control one (the experimental group had 19 patients and the control group contained 75 patients) [6]. In this study, the applied intervention not only reduced gross hematuria but also caused a significant drop in dysuria in the experimental group, which shows that the proposed self-care educational program can reduce these two complications of TURP surgery. In this regard, the results of the study conducted by Zhang *et al* (2007) showed that integrated use of traditional Chinese medicine and Western medicine before TURP surgery could reduce duration of dysuria [16]. Urinary tract obstruction was another complication on which the effect of the intervention was investigated. The results of the study showed that despite the fact that incidence level of urinary tract obstruction in the experimental group decreased more than that of the control group within four weeks, this reduction was not significant during the first, second, third, and fourth weeks after catheter removal. Overall it can be concluded that the intervention caused incidence of urinary tract obstruction to a larger extent in the experimental group compared to the control one; however, this reduction was not statistically significant. However, the results of Yueying's study [18] showed that nurses' psychological interventions could reduce postoperative complications such as urinary tract obstruction [17]. Moreover, in another study conducted by Park *et al* [6] in order to investigate the effect of sitting in warm water tub on TURP surgery complications, the results showed that there was a significant difference between the two groups regarding incidence of complications such as contraction and urethral stricture and acute urinary retention and that the group using the warm water tub had a lower level of urethral stricture [6]. In the same regard, the results of the study conducted by Mckinnon *et al* (2011) indicated that urinary tract obstruction caused by blood clots was the second important cause of acute urinary retention after TURP surgery [18]. And the results of the study conducted by Porru *et al* [20] showed that training pelvic floor muscle exercise reduced urinary parameters such as urinary incontinence and dribbling of urine (urinary obstruction symptoms) at the end of urine [19]. According to the abovementioned studies and since bleeding inhibitory cares, daily sitting in warm water tub, and pelvic floor muscle strengthening exercises were included in the self-care program, it was expected that urinary tract obstruction to significantly decrease in the experimental group compared to the control group; however, there was not such a significant difference. Since urethral stricture after TURP surgery was one of the causes of urinary tract obstruction and it itself was caused by different factors such as infection, mechanical trauma, ischemia urethral mucosa, and electrical damage

[21-22]; therefore, these causes which were out of the researcher's control might have caused the incidence of urinary tract obstruction. In addition, because the level of urinary tract obstruction in the experimental group reduced through the first week to the fourth week, continuing the intervention for more than four weeks could have resulted better outcomes.

## CONCLUSION

Overall, the results of the present study show that the proposed self-care program can significantly reduce TURP surgery complications such as gross hematuria and dysuria. Therefore, it can be stated that self-care training can be useful in improving physical and mental health, control and reduction of TURP surgery and finally enhancing life quality of patients with BPH undergone TURP surgery. Conducting this program and investigating its effect on other complications such as infection, pain, and sexual problems such as erection dysfunction in patients with BPH and under prostate surgery need further research.

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