

Research Article

## Postoperative Catheterization after Total Vaginal Hysterectomy: Six versus Twenty Four Hours. A Randomized Controlled Trial

### *Kateterisasi Pascaoperasi Total Vaginal Histerektomi: Enam Jam versus Dua Puluh Empat Jam. Sebuah Penelitian Randomisasi Terkontrol.*

Suskhon Djudad<sup>1</sup>, Abraham A.L. Maukar<sup>2</sup>, Surahman Hakim<sup>1</sup>, Tyas Priyatini<sup>1</sup>,  
Budi I. Santoso<sup>1</sup>, Leonardo<sup>1</sup>

<sup>1</sup>Department of Obstetrics and Gynecology  
Faculty of Medicine Universitas Indonesia  
Dr. Cipto Mangunkusumo General Hospital, Jakarta

<sup>2</sup>Department of Obstetrics and Gynecology  
Faculty of Medicine Universitas Sam Ratulangi  
Prof. dr. RDKandou Hospital, Manado

#### Abstract

**Objective :** To find out whether urinary bladder catheterization after total vaginal hysterectomy is more advantageous.

**Methods :** Forty-six subjects were included. Subjects were divided into two groups. In one group (n = 24), a transurethral catheter was removed after six hours post-surgery. In the other group (n = 24), the catheter was removed after twenty-four hours. A few hours after removal of the catheter, patients were asked to urinate. Then residual volumes were measured by measuring cylinder, using 12F catheter. Pain was measured using visual analogue scale (VAS) score. Patients' length of stay was also compared. Data were analyzed using Student T-test if distributed normally or Mann-Whitney Rank if data was abnormal.

**Results :** Mean age for each group was  $63.21 \pm 8.73$  and  $62.38 \pm 7.52$  (6 hours, 24 hours respectively). Median score for 6 hours group was 50.00 (range 5 - 80) and for 24 hours was 100 (range 30 - 250) (P = 0.000). Pain perception and hospital stay were not statistically different in both group (p = 0.134 and P = 0.377).

**Conclusions :** In this study, difference in postoperative catheterization time is associated with residual volume.

**Keywords :** bladder catheterization, postoperative catheterization, residual volume, total vaginal hysterectomy.

#### Abstrak

**Tujuan :** Untuk membandingkan lama waktu pemasangan kateter pascaoperasi total vaginal histerektomi yang lebih menguntungkan.

**Metode :** Empat puluh enam pasien ikut serta dalam penelitian. Secara acak dibagi menjadi 2 kelompok. Pada grup I (n = 24), pelepasan kateter dilakukan setelah enam jam pascaoperasi. Pada grup II (n = 24), kateter dilepas setelah dua puluh empat jam. Beberapa jam setelah pelepasan kateter, pasien diminta untuk buang air kecil. Lalu residu urin diukur setelahnya menggunakan gelas ukur, memakai kateter no. 12 F. Skor nyeri menggunakan skor Visual Analogue Scale (VAS). Lama rawat inap juga dibandingkan. Analisis data menggunakan student's T-test. Jika terdistribusi tidak normal, analisis memakai Mann-Whitney Rank.

**Hasil :** Rerata usia untuk tiap grup adalah  $63,21 \pm 8,73$  dan  $62,38 \pm 7,52$  (6 jam, 24 jam, secara berurutan). Skor median untuk grup 6 jam adalah 50,00 (range 5 - 80) dan grup 24 jam adalah 100 (range 30 - 250) (P = 0,000). Tidak ada perbedaan signifikan secara statistik pada rasa skor nyeri dan lama rawat inap (p = 0,134 dan p = 0,377).

**Kesimpulan :** Pada penelitian ini, perbedaan waktu pemasangan kateter pascaoperasi memiliki hubungan dengan volume sisa urine.

**Kata kunci :** kateterisasi urine, kateterisasi pascaoperasi, volume sisa urine, total vaginal histerektomi.

Correspondence author: Suskhon Djudad, suskhon007@yahoo.co.id

## INTRODUCTION

Transurethral catheterization following uncomplicated vaginal prolapse surgery is a standard method of practice for bladder treatment to enable drainage and prevent overdistension of the bladder. However, its implementation was relatively custom based, hospital policy-based and personal preference-dependent; therefore the duration varies markedly.<sup>1-3</sup> Although a necessary procedure, catheterization has a certain complication such as increasing the symptomatic and asymptomatic urinary tract infection (UTI), discomfort, and pain.<sup>4</sup> The risk of catheter-related UTI increase with the length of time a catheter is in situ.<sup>5</sup> Bladder catheterization increases the occurrence of UTI and is likely to have a negative impact on the well-being of patients after surgery and to prolong hospital stay.<sup>6</sup> That disadvantages of prolonging catheterization outweigh the advantages.<sup>7</sup> That patients who underwent catheter removal at 6 hours after the surgery did not need recatheterization and a lower incidence of UTI.<sup>3</sup>

In RSUP Prof. Dr. RD Kandou, the duration for catheterization following uncomplicated total vaginal hysterectomy varies based on operator preference. This study was undertaken to know whether urinary bladder catheterization after total vaginal hysterectomy is more advantageous.

## METHODS

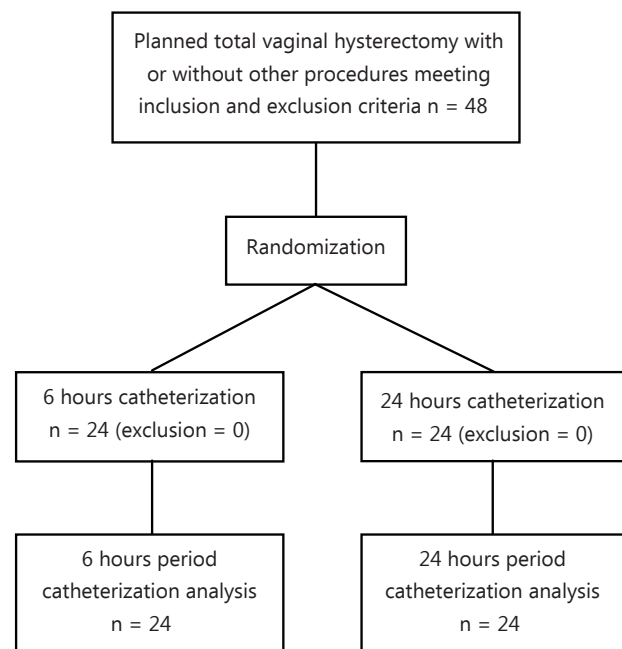
This study was a randomized controlled clinical trial that was conducted from January 2016 to April 2017 in Prof dr. RD Kandou General Hospital and its satellite. Ethical approval for the study had been obtained. Written informed consent was obtained from all patients before the randomization process. Women who were included in the study underwent an uncomplicated total vaginal hysterectomy.

Patients are divided using double-blinded randomized principal and concealment using SNOSE method into two groups (24 women for each group). All patients received a single dose of antibiotic prophylaxis before the operation. 12F latex catheters with a 10 ml balloon were used. Catheters were inserted before the operation for the duration of the surgical procedure. Then, the catheter was removed either six hours or twenty-

four hours after the operation. The time of the completion of skin/vagina closure was designated at the zero hours.

The following variables were assessed for each group: post voiding residual volume, pain, and length of hospital stay. After urinary catheter removal, patients were invited to spontaneously void their bladder. After voiding, residual volume was checked using on-off urinary catheterization. If they could not void or when there was no urge within 6–8 hours after the catheter removal, no 12F catheter was reinserted. Pain score was asked when we performed the on-off urinary catheterization and categorized using Visual Analogue Scale (VAS) score. The length of hospital stay was defined as the time interval between the completion of surgery and hospital discharge.

Numerical variables were evaluated using unpaired student's T-test. IBM SPSS Statistic Version 20 was used for the data analysis. Categorical variables were evaluated by Chi-square analysis. A P-value < 0.05 was considered statistically significant.



**Figure 1.** Flow Chart of Progress through the Trial

## RESULTS

A total of 48 women were enrolled in the study and 24 were assigned to each group. There were no single subjects that excluded.

**Table 1.** Demographics/ Clinical Characteristics of Patients

Variable	Description		P-value
Catheterization duration	6 hours (n = 24)	24 hours (n = 24)	
Age	63.21 ± 8.73	62.38 ± 7.52	0.725*
Body Mass Index	24.28 ± 2.75	25.49 ± 3.49	0.192*
Operation duration (minutes)	90 (65 – 150)	90 (70 – 150)	0.571**

Abnormally distributed numeric variable was written in median (minimum-maximum range).

\*Student T-tests \*\*Mann Whitney Rank test

**Table 2.** Outcome Results

	6 hours (n=24)		24 hours (n=24)		P-value
	Median	Range	Median	Range	
Residual volume	5.00	5 – 80	100.00	30–250	0,000
VAS score	3.00	0–6	4.50	1–6	0.134
Hospital stay	3.00	2–4	3.00	2–5	0.377

All women had similar demographic characteristics; age, body mass index, and duration of surgery (Table 1). The median age was 63 (range 44 – 86 years). Of the patients in both groups, all cases in the groups could void after its removal.

The purpose of this study is to find out whether urinary bladder catheterization is more advantageous. Based on table 2, using Mann Whitney Rank Test, we found a significant difference in residual volume (P = 0,000), but there was no significant difference in VAS score (pain perception) and hospital stay (P = 0.134 and P = 0.377, respectively).

## DISCUSSION

In-dwelling urinary catheterization is not a harmless procedure, commonly used to assess urinary output, to prevent postoperative urinary retention, and to reduce the possibility of injury to the urinary system during the surgery.<sup>1</sup>In-dwelling catheter after gynecological operation has been shown to affect the length of hospitalization, the occurrence of febrile morbidity and the incidence of urinary tract infection.<sup>8</sup> Such infections not only prolong hospital stay and are expensive to treat but also cause unpleasant symptoms.<sup>9</sup>

Currently, it is standard for in-dwelling catheters to be placed for 24 hours after standard gynecologic surgeries. However, found

that patients who had immediate removal of indwelling catheters had no adverse outcomes and reported significantly less pain than patients who had their catheters removed after 24 hours.<sup>8</sup> Having difference, stated that a high rate of recatheterization was observed in the group of immediate removal of the catheter,<sup>3</sup> whereas all subjects in the group of 6 hours catheter removal could void after its removal. In this study, lesser residual volume was found in the 6 hours group and had significant difference in comparative test using Mann Whitney Rank test. Also concluded that short term catheterization is more beneficial to prevent bladder over filling after vaginal prolapsed surgery.<sup>4</sup>

Pain scoring using VAS score had no difference statistically. Maybe it was caused by the use of analgesics and antibiotics pre- and post-operative, lowering the rate of infection. Though standard antibiotic treatment during or after removal of the catheter is not indicated in urogynecology patients as many have no bacteriuria or appear to clear bacteriuria without antibiotics.<sup>2</sup> Duration of hospital stay was also had no significant difference statistically. Though that shorter indwelling catheterization time was associated with shorter hospital admission.<sup>3,7</sup>

## CONCLUSION

In this study, shorter transurethral catheterization is associated with lower urine residual volume.

**REFERENCES**

1. Kamilya G, Seal SL, Mukherji J, Bhattacharyya SK, and Hazra A.A randomized controlled trial comparing short versus long-term catheterization after uncomplicated vaginal prolapse surgery. *J Obstet Gynecol Research*, 2010;36(1):154-8.
2. Schiøtz HA, Tanbo TG. Postoperative voiding, bacteriuria and urinary tract infection with Foley catheterization after gynecological surgery. *Acta Obstet Gynecol Scand*, 2006;85(4):476-81.
3. Alessandri F, Mistrangelo E, Lijoi D, Ferrero S, and Ragni N.A prospective, randomized trial comparing immediate versus delayed catheter removal following hysterectomy. *Acta Obstet Gynecol Scand*, 2006;85(6):716-20.
4. Khatun HA, Arzu J, Haider ZA. Short term catheterization versus long term catheterization after vaginal prolapsed surgery: A randomized control trial in Dhaka National Medical College & Hospital. *J. Dhaka National Med. Coll. Hos*, 2012; 18(2):4-8.
5. Dobbs SP, Jackson SR, Wilson AM, Maplethorpe RP, Hammond RH. A prospective, randomized trial comparing continuous bladder drainage with catheterization at abdominal hysterectomy. *Bri J Urol*, 1997: 554-6.
6. Vierhout ME. Prolonged catheterization after vaginal prolapse surgery. *Acta Obstet Gynecol Scand*. 1998; 77(10):997-9.
7. Hakvoort RA, Elberink R, Vollebregt A, Van der Ploeg T, Emanuel MH. How long should urinary bladder catheterization be continued after vaginal prolapsed surgery? A randomized controlled trial comparing short term versus long term catheterization after vaginal prolapsed surgery. *BJOG*, 2004;111:828-30.
8. Dunn TS, Shlay J, Forshner D. Are in-dwelling catheters necessary for 24 h after hysterectomy? *Am J Obstet Gynecol*, 2003; 189: 435-7.
9. Niël-Weise BS, P.J. van den Broek PJ. Urinary catheter policies for short-term bladder drainage in adults. *Cochrane database of systematic reviews (Online)*, 2005(3):CD004203