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A PROSPECTIVE STUDY COMPARING SHORT TERM CATHETERISATION VERSUS NONCATHETERISATION OF BLADDER FOLLOWING VAGINAL HYSTERECTOMY

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BACKGROUND: Urinary catheterization after vaginal Hysterectomy is commonly performed to evaluate urine output and avoid urinary retention. However, its implementation was relatively custom based, hospital policy based, and personal preference dependent, therefore the duration varies markedly. The best way to prevent catheter related UTI is avoid putting catheter if possible or removal of catheter as soon as possible. **AIM OF THE STUDY:** Our study is to compare the efficacy of catheterization following vaginal hysterectomy with noncatheterized patients. **SETTINGS AND DESIGN:** It is a randomized controlled trial conducted from the period 1st July 2012 to 30th June 2013 in our department. Cases were divided in to two group of postoperative without catheterization (Group 1) and with catheterization (Group 2) by Block randomization i.e. block of four patients with two from Group 1 and two from Group 2 are designed with various combination of six type, these combinations of 30 are taken to compare. **METHODS AND MATERIAL:** We assigned 120 patients of vaginal hysterectomy into two groups like the above mentioned. The factors studied are urinary retention, urinary dysfunction, urinary tract infection early ambulation and duration of hospital stay. Statistical Analysis used was chi square test on SPSS 15. **RESULTS:** 38% of patients had mild urinary discomfort in group 1 as compared to 18% in group 2. But there was no case of severe urinary discomfort in group 1 as compared to 12% in group 2. 61.66% of group 1 patients had ambulated in less than six hour as compared to 10% in group 2. 81.66% of group 1 patients had less than 3 day of hospital stay as compared to 71.66% of group 2 patients who had 4-6 days of hospital stay. **CONCLUSION:** No catheterization after vaginal hysterectomy for benign condition and if without any complications is well tolerated by the patients. Without catheterization patients had early ambulation, shorter hospital stay and lesser urinary discomfort. Non- catheterization will not only decrease the prevalence of UTI and also decrease the extra cost to the patients.

KEYWORDS: Vaginal Hysterectomy, Postoperative, Catheterization, urinary discomfort, UTI.

MESH TERMS: Hysterectomy. Vaginal, Urinary Catheterization, Urinary tract Infection,

INTRODUCTION: Urinary catheterization after vaginal hysterectomy is commonly performed to evaluate urine output and avoid urinary retention. However, its implementation was relatively custom-based, hospital policy-based, and personal preference-dependent, therefore the duration varies markedly.¹⁻³ The available information from urologic reports and institutionalized patients demonstrates a 3% to 10% increased risk of bacteruria per day of catheterisation.^{4,5}

The best way to prevent catheter related UTI is avoid putting catheter if possible or removal of catheter as soon as possible. Each urinary tract infection will prolong the hospital stay, increase the postoperative morbidity and increases hospital cost. Indwelling Foley's catheter will only help the

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doctor to monitor the urine output but give less benefit to the patient. There is no study to prove that Foley's catheter will pick up reactionary hemorrhage earlier than the vitals.

In vaginal hysterectomy there is not so much interference in nerve supply of bladder and urethra, so short term catheterization after surgery is tried now a days. The question whether to catheterize or not after surgery has been debated for several years and has not yet been resolved. Our study is intended to compare the efficacy of catheterization following vaginal hysterectomy with no catheterized patients. The factors studied are urinary retention, urinary dysfunction, urinary tract infection and hospital stay.

METHODOLOGY: It is a randomized controlled trial conducted from the period 1st July 2012 to 30th June 2013 in our department. Ethical committee approval was taken before the start of the study. Informed and written consent was taken from each of the women and enrolled for the study. Proper evaluation for indication of surgery was done. Routine investigations of blood and urine were done to rule out infection. Routine urine culture to rule out urinary infection or asymptomatic bacteriuria was done. Blood sugar for Diabetes Mellitus, ECG & Chest X-ray for cardiac disease and serology for HIV, HBV, HCV and Syphilis was done. Pap smear and endometrial aspiration for screening of cervical and endometrial malignancy was done.

Cases were divided into two groups of postoperative without catheterization (Group 1) and with catheterization (Group 2) by Block randomization i.e. block of four patients with two from Group 1 and two from Group 2 are designed with various combination of six type, these combinations of 30 are taken to compare. Standard technique of vaginal hysterectomy was followed for all cases by same set of Gynecologic surgeons done under spinal anesthesia with bupivacaine. Immediately after the surgery urinary bladder was drained by metal catheter in group 1. Mobilization of the patients was done after 4 hour and asked for bladder evacuation. If they were not able to evacuate even after 6hour patient was catheterized. In group 2 Foley's catheter was put immediately after surgery. It was removed after 12 hour. Later on, time of first voiding was recorded. Pain scale score was recorded 4 hour after surgery. Health status score was recorded 12 hour after surgery in both of the group. Cefazoline 1g was given one hr. before each surgery and repeated one more dose four hour after the previous dose.

Inclusion criteria for the study were-Patients undergoing vaginal hysterectomy for Dysfunctional uterine bleeding, fibroid uterus less than 16 weeks, cervical polyps, cervical dysplasia, pelvic inflammatory disease with mobile uterus, cases with previous surgeries like caesarean section, myomectomy, ovarian cystectomy, adenomyosis, recurrent post-menopausal bleeding without any evidence of malignancy and genital prolapse.

Exclusion criteria were known history of neurological disorder, urinary incontinence, Women who had recurrent urinary tract infections or positive urine culture ($>10^5$ colony-forming units of an identified single uro-pathogen per millilitre of urine) pre-operatively and women for whom a complicated procedure was encountered during the hysterectomy in which case in-dwelling catheter had to be kept post-operatively at the surgeon's decision.

Statistical test used was chi square test on SPSS 15.

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RESULTS: There were 120 patients who underwent vaginal hysterectomy. Sixty patients were without catheterization of bladder after hysterectomy and remaining were put catheter. There were no significant differences in the demographic characters (Table.1) between the two groups.

There were no significant differences in the indications of surgery between the two groups (Table 2). The duration of surgery, pain score, health status score and duration of analgesia was not difference between two groups (Table 3).

Urinary discomfort has shown significant difference between the two groups (Table 4). Mild urinary discomfort is seen more in group 1 but moderate and severe is more in group 2. First voiding difficulty and prevalence of UTI are same in both the group.

Time of first voiding is significantly earlier in the group 2 (Table 5) but spontaneous voiding and intermittent catheterization is same in both the group. Shorter hospital stay and earlier ambulation (Table 6) is significantly better in group 1.

DISCUSSION: In this study we compared the effects of without catheterization after vaginal hysterectomy with catheterization. According to our study we found no significant differences in the pain scale, health status score and duration of analgesia used between the two groups which shows postoperative without catheterization will not increase pain due to full bladder. We have found less urinary discomfort; early ambulation and shorter hospital stay in without catheterized patients.

There are few randomized clinical trials about catheter removal after vaginal hysterectomy. Chai and Pun did a RCT on 70 patients who underwent TAH for benign diseases revealed no difference in the pain assessment and symptomatic urinary tract infection between immediate and delayed catheter removal groups but re-catheterization was significantly higher in early removal group (20 vs. 0%; $P = 0.011$).^{6,7}

Postoperative catheterization after vaginal hysterectomy is done to measure the urine output and reduce the voiding discomfort. In our study significant difference in voiding dysfunction was found but mild and moderate discomfort was more in without catheterized patients whereas severe discomfort was found in with catheterized patients. First voiding difficulty was similar in prevalence in both of the group. There was increase in the prevalence of UTI in with catheterized patients but it was not statistically significant. Dunn T & Lipsky B. (2001)⁸, Getliffe K & Newton T. (2006)⁹ reported that short duration of urinary catheter after surgery was safe and overall postoperative urinary problems (symptoms, URI) were reduced significantly. Similarly Fernandez et al, (2003) and Ghoreish J. (2003) reported that long duration of urinary catheter was associated with a significantly higher incidence of postoperative urinary retention which might have implications for long term bladder function. Avoiding catheterization after hysterectomy in stable patients prevents certain complications such as UTI, promotes early ambulation and reduces hospital stay. UTI also increases morbidity, hospital stay and extra costs to patients.

Summit and colleagues in their study on 100 patients with vaginal hysterectomy concluded that indwelling Foley catheter after surgery was not needed although it did not increase the postoperative morbidity¹⁰. In contrast to Summit, Ghezzi study in 2007 on 233 women who underwent vaginal hysterectomy or laparoscopic assisted vaginal hysterectomy showed voiding problems in 21% of patients with immediate removal of urinary catheter and mentioned it as a risk factor for urinary infection and longer hospitalization¹¹. But this study had not included the control group.

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Forced early ambulation in without catheterized group will decrease the risk of deep vein thrombosis, urinary complaints and duration of hospital stay. In our study there is statistically significant difference in the early ambulation and duration of hospital stay. Patients who were not catheterized ambulated early and had shorter hospital stay. In Ghoreishi study 270 cases of cesarean section were compared in two groups with and without Foley catheters. There was no difference in complications but hospital stay was shorter in group without urinary catheter¹². Our study was consistent with Ghoreishi study showing that without catheterized patients were not having increased pain in postoperative period but had early ambulation and shorter hospital stay. It also showed lesser urinary discomfort and UTI. Larger scale study is necessary to further confirm our finding and to implement in routine practice.

CONCLUSION: Without catheterization after vaginal hysterectomy for benign condition and without any complications is well tolerated by the patients and also had early ambulation, shorter hospital stay and lesser urinary discomfort. Without catheterization will not only decrease the prevalence of UTI and also the extra costs to the patients.

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Item		Without catheter (total n=60) No. %		With catheter (total n=60) No. %		X ² value	"p" Value
Age	30-40yrs	30	50%	33	55%	0.519	1.000 (N.S.)*
	41-50yrs	16	26.66%	16	26.66%		
	51-60yrs	8	13.33%	6	10.00%		
	>61yrs	6	10.00%	5	08.33%		
Education	Illiterate	35	58.33%	30	50.005%	3.41	0.182 (N.S.)*
	Primary school	22	36.66%	21	35.00%		
	Secondary school	03	05.00%	09	15.00%		

Table 1: Demographic character of study population

* N.S. = Not Significant statistically

Indications	Total no.120					
	Without catheter		With catheter		X ² value	"p" value
	No	Percentage	No	Percentage		
Genital prolapse	26	43.33%	28	46.66%	3.023	0.527 (N.S.)
DUB	05	08.33%	08	13.33%		
Fibroid uterus	10	16.66%	08	13.33%		
Adenomyosis	02	03.33%	00	00.00		
Chronic PID	15	25.00%	14	23.33%		
Cervical polyp	02	03.33%	02	03.33%		

Table 2: Indications for hysterectomy

* N.S. = Not Significant statistically

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	Without catheter		With catheter		X ² value	“p” value
	No	Percentage	No	Percentage		
Duration of surgery						
<1hr	46	76.66%	44	73.33%	0.415	0.813 (N.S.)*
1-2h	13	21.66%	14	23.33%		
>2hr	1	01.66%	2	03.33%		
Pain scale score						
<4					0.037	0.848 (N.S.)*
5-8	20	33.33%	22	36.66%		
8-12	40	66.66%	38	63.33%		
Health status score						
<50%	11	18.33%	9	15.00%	0.261	0.878 (N.S.)*
50-75%	32	53.33%	34	56.66%		
>75%	17	28.33%	17	28.33%		
Duration of analgesia						
<4days	22	36.66%	18	30.00%	0.600	0.741 (N.S.)*
5-8days	29	48.33%	32	53.33%		
>9days	9	15.00%	10	16.66%		

Table 3: Gynecological history of study population

* N.S. = Not Significant statistically

Factors	Total no 120				X ² value	“p” value
	Without urinary catheter -60		With urinary catheter-60			
	Number	Percentage	Number	Percentage		
Urinary discomfort						
Mild	23	38.33%	11	18.33%	15.76	0.000 †
Moderate	13	21.66%	26	43.33%		
Severe	00	00.00	08	13.33%		
Fist voiding difficulty	13	21.66%	09	15.00%	0.50	0.48 (N.S.)*
UTI	05	08.33%	16	26.66%	5.77	0.016 †

Table 4: Urinary factors studied

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†=(P<0.05)Statistically significant

* N.S. = Not Significant statistically

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Items	Total number of study population-120				X ² value	“p” value
	Without catheter - 60		With catheter - 60			
	Number	Percentage	Number	Percentage		
Time of first voiding						
<4 h	09	15.00%	49	81.66%	54.83	0.000 †
5-8h	46	76.66%	08	13.33%		
9-11h	05	08.33%	03	05.00%		
Spontaneous voiding	55	91.66%	57	95.00%	0.13	0.714 (N.S.)*
Intermittent catheterization	05	08.33%	03	05.00%	0.13	0.714 (N.S.)*

Table 5: Factors of first voiding

†=(P<0.05) Statistically significant

* N.S. = Not Significant statistically

Factors	Total number of study population-120				X ² value	“p” Value
	Without catheter-60		With catheter -60			
	Number	Percentage	Number	Percentage		
Ambulation					45.80	0.000 †
<6hour	37	61.66%	06	10.00%		
7-9hour	15	25.00%	12	20.00%		
>10hour	08	13.33%	42	70.00%		
Hospital stay					57.33	0.000 †
<3day	49	81.66%	08	13.33%		
4-6day	07	11.66%	43	71.66%		
>7day	04	06.66%	09	15.00%		

Table 6: Postoperative ambulation and duration of hospital stay

†=(P<0.05) Statistically highly significant

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