

Effect of Early versus Late removal of Urinary Catheter on Urinary Outcome after Hysterectomy

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Abstract: Aim of the study: this study aims to explore the effect of early versus late removal of urinary catheter on urinary outcome after hysterectomy. Setting: This study was conducted in the gynecology department of Mansoura University Hospital. Study Design: quasi experimental design. Sample Type: purposive sample. The study comprised of 100 gynecologic women, they were chosen according to the following criteria: Complained from symptoms of uterine prolapse, undergoing hysterectomy, their age ranged from 40 ->60 years old and free from any other gynecological problems. They were categorized into two groups: 1) early group, had early removal of urinary catheter 12 – 24 hours after surgery. 2) late group had late removal of urinary catheter after surgery by 48 – 72 hr,s. Results: Urinary symptoms " retention of urine, frequency, burning micturation and UTI were significantly higher in late urinary catheter elimination group as compared to early removal group . Conclusion: Short duration of postoperative catheterization "12-24" hour's is preferred than long duration in which it lead to less urinary problems. Also age of women, degree and duration of uterine prolapse don't play a major role in development of post catheter removal urinary symptoms. Pre existing of postoperative UTI had a main role in the development of these symptoms. Thus it was recommended that ideal time of removal of urinary catheter is from 12-24 hour hysterectomy.

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Key Words: Urinary Catheter, Urinary Outcome, hysterectomy, pyelonephritis, Postoperative.

1. Introduction:

Urinary catheterization as a priority area for the development of a best practice statement, because of the risks of urinary tract infection (UTI) associated with catheterization. The risk of UTI is affected by a number of factors, including the method and duration of catheterization, the quality of catheter care and host susceptibility. Each hospital-acquired UTI results in an increased length of stay of 5-6 days in hospital and has additional cost implications for treatments (Penny, B. ; Chris, H 2005).

Hysterectomy for non-malignant condition is the most common major gynecological surgery performed in women less than the age of 50 years.. Griffiths et al, (2004) Postoperative urinary retention due to bladder over distention and atony, pain, infection, hematoma and the inflated balloon of the standard folly's catheter, all contributes to delayed return of normal micturation. For preventing increased risk of postoperative Urinary retention due to bladder over distention and atony, most gynecologists use urinary catheterization as bladder drainage in women undergoing hysterectomy (Schiotz, H & Tanbo, T . 2006).

Urinary catheter, although it's a necessary procedure, it has certain complication such as increasing the rate of both symptomatic and asymptomatic urinary tract infections, discomfort and pain. Urinary tract infection as the most important complication of catheterization may lead to many serious and unpleasant outcomes such as

pyelonephritis, and septicemia, shock and death (Alessandri et al. 2006). Also the risk of urinary tract infection rises with increasing duration of catheterization, a reduction in catheter time might be expected to reduce this risk (Keung, K& Chung, K .2005).

Different gynecological departments at different hospitals have different protocols for post-operative hysterectomy, bladder catheterization, some recommends 48 – 72 hours catheterization, some 3-5 days. Few studies reported that, short duration (24 – 48) post vaginal hysterectomy catheterization is equally effective and has fewer incidences of urinary infection and bladder function returns earlier ,meanwhile the risk of UTI rises with increasing duration (48- 72) of catheterization, so a reduction in catheter time might be expected to reduce this risk (Schiotz, H & Tanbo, T . 2006).

This study was designed to determine the effect of early versus late removal of urinary catheter on postoperative complications. Such as urinary tract infection, voiding disturbance and hospital stay in gynecologic surgeries.

Significance of the study:

From clinical observation many women suffered from discomfort of catheter and urinary tract infection after hysterectomy. Some studies reported that women undergoing hysterectomy had urinary tract infections. Together with the fact that there is no

protocol for the timing of removal of urinary catheter after hysterectomy at Mansoura university hospital

Research Questions:-

1. What is the ideal time of urinary catheter removal after hysterectomy?
2. Does early removal of urinary catheter will reduce urinary tract infection?

2. Materials and Methods:-

Setting: This study was conducted in the gynecology department of EL - Mansoura university hospital.

Study Design: quasi experimental design was used to conduct this study

Type of Sample:- purposive sample

Subjects:-

The study comprised of 100 volunteers gynecologic women. They were chosen according to the following criteria:-

- Complained from symptoms of uterine prolapse.
- Undergoing hysterectomy
- Their age ranged from 40 ->60 years old
- Free from any other gynecological problems.

Subjects were categorized into two groups

Group (1) : - had early removal of urinary catheter (12 – 24 hrs) after hysterectomy.

Group (2):- had late removal of urinary catheter after surgery by 24hr,s or more.

Tools: - two tools were developed and used to collect the necessary data

1- A structured interviewing questionnaire sheet was designed by researcher to include:-

- a) Socio – demographic data as; age, education....etc.
- b) Question related to gynecological history:
 1. Surgery indication as uterine prolapse and its degrees.
 2. Duration of surgery.
 3. Analgesics used for pain relieve.
- c) Observation check list was used to assess complications of the urinary catheter as:
 1. According to Campbell et. al (1995)degree of urinary discomfort “by using visual analogue scale”.
 2. Characteristics of first voiding and its interval and amount.
 3. Occurrence of urinary tract infection (from symptoms encountered).
 4. Ambulation and hospital stay.
 - 5.

2) Investigation record: a sample of urine was obtained for culture in order to confirm diagnosis of infection,(before & after hysterectomy).

Procedures:-

- This study was conducted during the period started from April (2004) to end of March (2005), 11months for data collection.
- -Subjects were categorized into two groups as previous mentioned.
- Every woman in the two groups was assessed individually by using the previous mentioned tools.
- Every woman was followed from the first day before surgery until the time of hospital discharge.
- Woman approval to participate in the study was obtained.
- Approval of the hospital director was obtained.
- All women in the study had the right to withdraw at any time during the study period.
- The purpose of the study was explained to each woman and informed that data will be kept in secret, this will reflect on increasing their confidence and cooperation.

Pilot study:-

It was carried out on 10 patients to evaluate the applicability and clarity of the tools and assessment of feasibility of implementing the study.

The sample of women included in the pilot study was excluded from the study sample.

Limitation of the study: Some women refused to participate in the study.

3. Results:

Table 1 reveals that, insignificant differences were observed among two groups regarding their age and educational level. The mean age is similar among women with early and late removal of urinary catheter also the same table shows that, most of women in two groups were illiterate.

Table 2 shows that, slightly less than half of women had a first degree prolapse. Insignificant difference was observed among early and late groups regarding analgesic use.

Table 3 reveals that, significant improvements were observed in early removal of urinary catheter group than late removal group regarding urinary discomfort, first voiding disturbance.

Table 4 shows that significant improvement was observed in early removal of urinary catheter group than late removal group regarding first voiding.

The rate of long interval voiding was higher in late urinary catheter removal.

Table 5 reveals that the mean score of hospital stay was higher among late urinary catheter removal group than early group.

Table 1. Characteristics of the Study Sample

Items	(n = 100)			
	Early (n=50)		Late (n=50)	
	NO.	%	NO.	%
*Age(years)				
40-	15	30.0	13	26.0
50-	24	48.0	27	54.0
>60	11	22.0	10	20.0
X + SD	54.2+7.2		54.4+6.8	
*Education				
Illiterate	21	42.0	23	46.0
Primary school	12	24.0	10	20.0
Secondary school	13	26.0	11	22.0
University	4	8.0	6	12.0

Table 2. Gynecological history of the studied women

Items	(n= 100)			
	Early (n=50)		Late (n=50)	
	NO.	%	NO.	%
*Surgery Indication:				
-Prolapse				
Grade 1	24	48.0	21	42.0
Grade2	14	28.0	16	32.0
Grade3	12	24.0	13	26.0
*Duration of operational surgery:				
<30min.	16	32.0	15	30.0
30 – 45 min.	28	56.0	30	60.0
>45 min.	6	12.0	5	10.0
X + SD	98.7+10.6		37.7+9.4	
*Analgesic	6	12.0	4	8.0

Table 3. Urinary Outcome among women in the Study sample

Items	(n = 100)			
	Early (n=50)		Late (n=50)	
	NO.	%	NO.	%
*Urinary discomfort:				
Mild	37	74.0	12	24.0
Moderate	13	26.0	27	5.0
Sever	0	0	11	22.0
*First voiding:				
Disturbance	3	6.0	31	62.0
*Positive result of urinary tract infection:	3	6.0	12	24.0

Table 4. Characteristics of First Voiding urine among women in the Study sample

Items	n = 100)			
	Early (n=50)		Late (n=50)	
	NO.	%	NO.	%
*Interval of voiding:				
• 2-3h.	33	66.0	13	26.0
• 5-8h.	16	32.0	29	58.0
• 9-11h.	1	2.0	8	16.0
*Spontaneously:	48	96.0	30	60.0
• Bed pan	10	20.0	19	38.0
• Bathroom	40	80.0	11	22.0
*Interrupted				

Table 5. Ambulation and Hospital Stay among women in the Study sample

Items	(n= 100)			
	Early (n=50)		Late (n=50)	
	NO.	%	NO.	%
*Ambulation/h. :				
• 4-	37	74.0	3	6.0
• 9-	10	20.0	10	30.0
• 4-18	3	30.0	37	94.0
*Hospital Stay/h. :				
24	47	94.0	8	16.0
40	3	6.0	33	66.0
>48	-	-	9	18.0

4. Discussion:

This study aims to explore the effect of early versus late removal of urinary catheter on urinary outcome after hysterectomy. This study involved two groups each of them composed of 50 women undergoing hysterectomy due to genital prolapse. First group had early removal of urinary catheter from 12-24 hour after operation; Second group had late removal of urinary catheter from 48-72 hour.

As regarding the women age, the two groups were matched for age ($p > 0.05$), this factor can cause of augment genital prolapse which lead to hysterectomy ,and thus, might give wrong results

which affecting on study result . So, the matching criteria to avoid these possibilities. Also women age have a large effect on the incidence of hysterectomy. Also (Dunn, T& Lipsky, B. 2001) added that, hysterectomy for nonmalignant condition is the most common major gynecological surgery performed in women less than the age of 50 year. This finding was similar to the result of the present study in which the mean age was 47 year for women with hysterectomy.

Concerning using of urinary catheter after hysterectomy. In the present study the urinary catheter was inserted after operation for all women in the study sample. This result was explained by Keung,

K& Chung, K .2005 who mentioned that using of urinary catheter after major uncomplicated gynecologic surgery has been the standard method of practice for bladder treatment after operation. Also Phipps et al, (2007) added that urinary catheter was inserted to assess urinary output, improve exposure at the time of surgery and reduce the possibility of injury to urinary tract during surgery.

The urinary catheter was not removed after the operation to prevent postoperative urinary retention and bladder dysfunction however, according to the results of the study; hospital stay, incidence of UTI, ambulation time and level of discomfort were significantly lower in the early catheter removal group. The results provide more evidence (Dunn, T& Lipsky, B.(2001), Getliffe, K& Newton, T.(2006) 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. Early removal of urinary catheter in stable patients prevents certain complications such as UTI, promotes early ambulation and reduces hospital stay.

As well as Keung, K& Chung, K .2005 mentioned that, Patients with UTI may need additional diagnostic tests and extra medication; this is time consuming because it may increase hospital stay and involve excessive costs. Earlier ambulation may reduce major postoperative complications such as phlebitis and thromboembolism. In addition, length of hospitalization early catheter removal group was significantly shorter than in late group. Therefore, it may decrease complication such as hospital infection and reduce hospital costs.

Also the present study reveals that only a few of women in early catheter removal group required re-catheterization after failing to void and all were able to resume normal voiding , as compared to.. Griffiths et al, (2004) of women in late group.

5. Conclusions and Recommendations

The early removal of in-dwelling catheters after operation was not associated with adverse events as: an increased rate of, urinary tract infections, or need for re-catheterization. In addition, pain assessment was significantly less in the early removal group. As well as short duration of postoperative catheterization "12-24" hour's is preferred than long duration in which it lead to less urinary problems. Also age of women, degree and duration of uterine prolapse don't play a major role in development of post catheter removal urinary symptoms. Pre existing

of postoperative UTI have main role in the development of these symptoms. Thus we recommend that ideal time of removal of urinary catheter is from 12-24 hour after gynecological operations.

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