



Effect of Enhanced Recovery Pathway on Hysterectomy Complications in Suez Canal University Hospital and General Hospital at Ismailia City

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Abstract

Background: The enhanced recovery pathway concept emerged as a multimodal approach directed at optimizing the patient experience, standardizing perioperative care, and improving surgical outcomes. **Aim:** to evaluate the effect of enhanced recovery pathway on hysterectomy complications for women in Suez Canal University Hospital and General Hospital in Ismailia City. **Design:** - A quasi-experimental study design was used in this study. **Sample:** - convenient sample consist of 132 women undergoing hysterectomy operation. **Tool:** - Structured interviewing questionnaire included questions personal and socio-demographic characteristics and -Obstetric, gynecological, surgical history and follow up assessment checklist. **Results:** - the majority of women in two groups were complained from bleeding (65.2% in control group and 60.6% in study group). 54.5 % of control group and 42.4% of study group had fibroid as a medical diagnosis. The highest frequency women (60.6% in control group and 43.9% in study group) had 1-6 month as time of current complained. The women in the study group were less likely to suffer from complications as fever, vaginal prolapse and pneumothorax compared to those in control group. Differences observed are statistically significant $P= (0.023, 0.049, 0.004)$. **Conclusion:** The result of the study concluded that women undergoing hysterectomy operation who received enhanced recovery pathway protocol were more likely to decrease the incidence of post-operative complications than women who didn't. **Recommendation:** - Health care settings should emphasize the importance of coordination between health care members relating to the application of the evidenced key elements of enhanced recovery pathway management regarding hysterectomy.

Keywords: Enhanced recovery program; Complications of hysterectomy.

1. Introduction

Hysterectomy is the second most frequently performed major surgical procedure on women all over the world especially peri and post-menopausal, second only to caesarean [1]. Regarding to literature about 100,000 hysterectomies are performed in UK alone and about 60,000 in USA

Gangadharan and Prasanthi [2] Most common complication was hemorrhage during performing operation or post-operative hematoma development which may indicator exploration and hemostasis as women present with anemia, dyspnea and abdominal distension and pain with hypotension after the operation [3, 4]. Post-operative complications after hysterectomy include hematoma or abscess in the minor pelvis, abdominal hemorrhage, fever, vaginal bleeding, urinary retention, stenosis of the ureter, pelvic organ fistula, infection of the urinary tract, infection at incision site, numbness and tingling near the incision site and organ prolapse [3].

Enhanced recovery after surgery attempt to minimize the physiologic deviations induced by surgery. Enhanced recovery after surgery include: pre-operative education and preparation, intra-operative fluid restriction, management of pain and nausea, early post-operative mobilization, and early resumption of enteral nutrition. Enhanced recovery after surgery use was associated with decreased length of stay and reduced post-operative narcotic, improvements in women satisfaction and decrease cost to women, and length of stay without increasing morbidity or readmission rates after open hysterectomy [5].

Enhanced recovery after surgery pathways have decreased post-operative pain and shortened hospital stays and quality improvement at academic medical center for women undergoing minimally invasive hysterectomy for benign indications and evaluate peri-operative outcomes [6]. Enhanced recovery in gynecologic surgery has been shown to reduce medical costs while having stable complication and readmission rates [7].

One innovative program is enhanced recovery after surgery, which aims to improve clinical outcomes and quality of care post-surgery and improve patients' experience after surgery [8]. ERAS aim to replace 'traditional surgical paradigms' with evidence-based strategies to improve women recovery [9].

Nurses play important role in the assessment and management. Nurses are the primary caregivers once women are admitted to the hospital. For patients undergoing a surgical procedure such as a hysterectomy, the nurse assumes

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the role of a primary caregiver from the moment when the surgical procedure is completed, and women are transferred from the operational room to the post-anesthesia care unit [10].

Physician, anesthetist and nurses work essential role during and after hysterectomy. The goal of the nursing intervention is prevention or minimization of complications, pain management and help optimum recovery. Nursing care is essential from the day of admission to discharge [11].

1.1. Significant of Study

The Enhanced Recovery Pathway (ERP) provides consistency in pre-operative, operative, and post-operative patient care with a well-structured directive. It helps in pre-operative optimization, pre-operative counseling, and informed consent. The reduction in post-operative length of stay when following ERP is statistically significant and has a comparable rate of readmission when compared to traditional management [12]. The nurses' role is essential for providing education and following the pathway successfully. With proper planning and education of patients and health care team members, the benefits of ERP can outweigh the costs of implementation and dramatically improve patient recovery [13]. So, this study was done to shed light on the Effect of Enhanced Recovery Pathway for Women Undergoing Hysterectomy Operation in Ismailia City.

1.2. Subjects and Methods

1.2.1. Study Design

A quasi-experimental study design was used in this study.

1.2.2. Study Setting

The study was carried out at obstetric and gynecological inpatient department in the governmental hospitals located at Ismailia city, which include: -Suez Canal University Hospital – and General Hospital

1.2.3. Subjects

The target populations of this study were women under hysterectomy surgery.

1.2.4. Sampling Method

Convenience sampling was used to recruit the study sample.

1.2.5. Inclusion Criteria

- Women aged from 40 – 60 years.
- Women undergoing total abdominal hysterectomy

1.2.6. Exclusion Criteria

- Uncontrolled medical diseases as diabetes mellitus, hypertension....etc.
- The sample divided into two groups (study and control group) 66 women for each group
- Aim:** to evaluate the effect of enhanced recovery pathway on complications of hysterectomy

1.2.7. Research Hypothesis

Implement enhanced recovery pathway on women undergoing hysterectomy will reducing post-operative complications.

1.3. Tools for Data Collection

1.3.1. Tools of Data Collection

Tool (1): Structured Interviewing questionnaire:

It was consisted of

1-Personal and socio-demographic characteristics about the study subjects, it consisted of 4 questions including age, level of education and occupation and marital status [14].

2-Obstetric, gynecological and surgical history, it included 19 questions such as gravidity, parity, and birth interval..... etc [14].

Tool (2): Follow up assessment checklist:

1-Outpatient clinic checklist included complications that occurred post hysterectomy. According to medical and nursing assessment, the checklist was filled by investigator from fourth day after operation until 10th day. It included 10 questions as wound infection, pneumothorax, vaginal bleedingetc. (used for study group and control) *Ali, et al.* [3] and *Heeba, et al.* [15].

2- Home care checklist included 5 questions about post-operative instructions as exercise and wound care. (used for study group) [3].

2. Operational Design

2.1. Validity of the Tool

The tool was tested for its content validity, comprehensiveness and applicability by 5 expertise of obstetric and gynecological professors in medical and nursing field who revised the tools and modifications were done according to their opinion.

2.2. Reliability

It was done using Cronbach alpha coefficient to assess the internal consistency of the tool and its value was (0.790).

2.3. Pilot Study

A pilot study was conducted on 10% of the study sample to examine the clarity and effectiveness of the study tool. It was covered 13 women undergoing hysterectomy operation. Data obtained from the pilot study were analyzed. Based on its results, modifications of the study tool were done. The subjects included in the pilot study were excluded from the study sample.

2.4. Design Phase

During this period, the preliminary design of the tools and preparing ERP to be used for data collection was accomplished, tested and accordingly the final structure of the tools had been done for data collection.

2.5. Fieldwork

A. Approvals: Before conducting of this study a written letter was directed from the dean of the faculty of nursing, Suez Canal University to every manager of each hospital to obtain a permission to conduct this study. The aim of this study was explained to the manager, physicians and nurses staff working in each hospital.

B. Data collection: Data were collected within an 8- month period started in July 2019 and ended in February 2020. Data was collected 4 days/ week (Saturday and Wednesday in General Hospital, Monday, Thursday in Suez Canal University Hospital). The investigator recruited the subjects according to the previous mentioned criteria. The investigator introduced her, explained the purpose of the study for each subject, ensured privacy to obtain their cooperation.

C. Implementation of ERP Guidelines of enhanced recovery pathway for women undergoing hysterectomy were implemented for women in study group [16, 17].

2.5.1. Pre-operative Period

Give preoperative instruction about: Preparation before the operation, **fasting** 6-8 hrs for solids and hrs for liquids, drink 250 cc oral carbohydrate 2-4 hours prior to operation (as orange or apple juice) and agreement about operation

Preoperative care: avoid enema and prescribed medication.

Prescribed pre-operative antibiotic, antiemetic and thromboprophylaxis 1 hour prior to surgical incision when this is indicated.

2.5.2. Operative Period

Calculated amount of IV fluid solution based on formula ((patient weight in kg +40) + (amount of blood loss *3)).

Don't insert nasogastric intubation and drainage

Warmed women with thermal blanket or use warm IV fluid

Give IV fluid as physician order.

2.5.3. Post-Operative Period

Immediately postoperative to start oral fluid 6 hours after surgery and mobilization 8 hours after surgery.

First day post-operative to eat normal diet according to tolerance gave intravenous analgesia and antiemetic prophylaxis as prescribed. Remove urinary catheter within 24 hours.

Second postoperative day Instructed women to eat normal diet and take medication as prescribed Instructed women to perform the following exercise post-operatively

- **Circulatory Exercises** (on bed/chair): *Ankle* movements that performed every hour by bended stretched the ankles up and down firmly and quickly. Repeated exercises 10 times per hour.

Knees Asked women to tight thighs by pushing the backs of knees down against the bed and repeated five times every hour.

- **Walking** Walk for about 20 minutes at least once a day.

- **Deep breathing exercises** Asked women to take a slow deep breath in through nose, hold for two seconds, then sigh the air out of mouth, repeated three times per day in sitting up in bed, or sitting out in a chair.

- **Coughing exercises** Asked women to support abdomen by holding a small towel or pillow firmly over tummy when cough in sitting up in bed, or sitting out in a chair and repeated three times per day.

2.5.4. Pelvic Floor Muscle (Kegel Exercise)

- Take in a deep breath and tighten the muscles around vagina like stopping urine flow. Hold for 5 seconds, and then relax and repeat. Repeat exercise 4 times each day.

2.5.5. On Discharge

- Instructed women about compliance of medication after surgery as prescribed and follow instructions related to exercises after operation included walking of 60 meters which started after surgery and continued at home and gradually increase distance each day.
- 2-Don't lift or carry anything heavier than 3-4kg for 6 weeks.
- 3-Don't pull or push anything for 6weeks.
- 4-Sexual relation resumed 6-8 weeks after surgery if feel physically comfortable.
- 5-Asked about length of stay at hospital.

2.5.6. Post Discharge

- Women under study were followed up one week to ask about performing exercise and following all instructions at clinic or and telephone call.
- The evaluation performed from fourth to tenth day post-operative for study and control group and included evaluation of post-operative complications (assessed by physician) as wound infection, vaginal bleeding ...etc

2.6. Ethical Considerations

Formal approval for conducting the study was reserved from research ethics committee of faculty of nursing. All ethical considerations were careful for privacy and confidentiality. Written approval was obtained from the women joined with the study before conducting the study, ensuring that these data would from women use for the research purpose only, and she has the opportunity to withdraw at any time

2.7. Statistical Methods

Data collected through the questionnaire were coded, entered and analyzed using SPSS version 20 (Statistical Package for the Social Sciences). The statistical techniques were used as percentage, mean score degree \bar{X} , standard deviation SD, student t test, quantity probability of error (P- value) and chi square test (X^2 test).

3. Results

Table (1) shows that, distribution of the study and control group according to personal data. As shown, the mean age of the study group was 48.37 ± 6.46 years and control group were 48.89 ± 5.7 . The highest frequency of studied women was married (81.8% study group and 78.8% control group). The highest frequency of studied women had secondary level of education (37.9 % study group and 33.3 % control group). 78.8 % of control group were working while 62.1% of study group were house wife's with statistically significant difference $P=0.036$.

Table (2) shows, distribution of the study and control group according to their menstrual history. As shown, there are slight insignificant differences between two groups regarding age of menarche, duration of menstruation, menstrual regularity and cycle length. The highest frequency of studied women had last menstrual period <1 year (65.1% in study group and 56.1% in control group). 50 % of study group had moderate amount of blood flow and 54.5% of control group had severe amount of blood flow with statistically significant difference ($p=0.011$). 74.2% of study group hadn't associated symptoms with menstruation and 45.5% of control group ($p=0.001$)

Table (3) describes that, distribution of the study and control group according to their obstetrical history. As shown, the majority of the study and control group had 4-6 pregnancies. The highest frequency of women in control group (63.6%) had 4-6 times of parity and 48.5 % women in study group had 1-3 times of parity with statistically significant difference ($P=0.045$). Majority women hadn't abortions with no statistically significant difference). (74.2% of study group and 66.7% of control group). Majority women had 4-6 child (66.7% of control group and 43.9% in study group) with statistically significant difference ($p=0.027$).

Table (4) describes that, distribution of the study and control group according to their contraceptive history. As shown, the majority of women in two groups use copper IUD contraceptive method (31.8% study group and 36.4 % control group) and most of them dis-continue contraceptive method (95.5% in both groups). The more frequent cause of discontinue was bleeding and the difference is statistically insignificant

Table (5) Reveals that, distribution of the study and control group according to their surgical history were statistically insignificant. The highest frequency of studied women (77.3% in study and 66.4 % in control group) hadn't gynecological operation. The study and control group were equal in hadn't none- gynecological operation (69.7%).

Table (6) shows that, distribution of the study and control sample according to present gynecological history. As shown, the majority of women in two groups were complained from bleeding (65.2% in control group and 60.6% in study group). 54.5 % of control group and 42.4% of study group had fibroid as a medical diagnosis. The highest frequency women (60.6% in control group and 43.9% in study group) had 1-6 month as time of current complain.

Table (7) shows distribution of the study group according to self-care at home based on instruction. The mean percentage of study group that performed deep breathing exercises were 86.81 ± 16.44 . The mean of study group that performed coughing exercises and Kegel exercises were 81.74 ± 17.57 and 81.06 ± 17.7 respectively.

Table (8) shows distribution of the study and control group according to wound care and compliance to treatment. 96.96% of the study group follow guidelines of wound care compared to women in control group with statistically significant $p=0.000$. All women in both groups were talk medications according physician order.

Table (9) reveals distribution of the study and control group according to presence of post-operative complications from the third to tenth day post operation. As reveals, the women in the study group were less likely to suffer from complications as fever, vaginal prolapse and pneumothorax compared to those in control group. Differences observed are statistically significant $P= (0.023, 0.049, 0.004)$.

4. Discussion

In our data, the socio-demographic data of the mean age of the study group was 48.37 ± 6.46 years and control group were 48.89 ± 5.7 . This finding agreed with Ali, *et al.* [3] who study effect of designed nursing care protocol on minimizing post hysterectomy complications at el Manial University Hospital they found that the socio-demographic data of the mean age of study and control group were 48.1 ± 12 and 47.7 ± 13.2 respectively. No significant difference between two groups.

The current study showed that more than half of studied women had secondary level of education or its equivalent in both groups This finding was in line with Heeba, *et al.* [15] study of "clinical pathway of post-operative nursing care for women undergoing gynaecological operation at port said hospitals" found that more than half from studied women had secondary level of education in both groups.

The present study revealed that almost two third of women in two groups were complained from bleeding. More than half of control group and less than half of study group had fibroid as a medical diagnosis. These findings were supported by Ferghali, *et al.* [18] who study implementation of Enhanced Recovery After Surgery as a Protocol versus routine care on women undergoing hysterectomy and found that more than one quarter in the study group and less than half in the control group had complained from irregular uterine bleeding and more than one quarter in the study group and one third in the control group had fibroid as a medical diagnosis.

The present study finding that the majority of women in the study group were less likely to suffer from complication as fever, vaginal prolapse and pneumothorax compared to those in control group. Differences observed are statistically significant $P= (0.023, 0.049, 0.004)$. This supported by Udayasankar, *et al.* [19] who found that the women in study group had less complications than control group. Also, Elsarrag, *et al.* [20] that found the majority of reviewed studies found that implementation of enhanced-recovery protocols in surgery was return to function without increasing rates of complications.

These findings agree with the results of the study of "Enhanced recovery pathways in abdominal gynecologic surgery" done by de Groot, *et al.* [21], reported that the ERAS reduce complications, mortality and or readmission rate. Similarly, Modesitt, *et al.* [22] in the study of " Enhanced recovery implementation in major gynecologic surgeries: effect of care standardization" who mentioned that the potential clinical benefits of ERAS reduced complication and mortality rate.

Also, Meyer, *et al.* [23] in the study titled "Effect of an enhanced recovery after surgery program on opioid use and patient-reported outcomes obstetrics and gynecology" who concluded that no increase in complication or readmission rates. In similar side, Wijk, *et al.* [24] in the thesis under the title of "International validation of Enhanced Recovery After Surgery Society guidelines on enhanced recovery for gynecologic surgery" which illustrated that the Enhanced recovery programs have fewer complications more than traditional care.

This finding was in line with Ali, *et al.* [3] study of "Effect of Designed Nursing Care Protocol On Minimizing Post Hysterectomy Complications At El Manial University Hospital" they reported that the wound infection post-operative was cleared in control group compared with 3.3% of the study group with significant difference between two groups ($X^2 =4.54, P=0.03$).

In similar side, the study of Enhanced recovery after surgery in gastrointestinal surgery done by Gao, *et al.* [25] study reported that the ERAS protocols were associated with mild post-operative complications in study group compared with the control group. In addition, Agarwal, *et al.* [26] that the majority of study group had lesser complications than control group. From the perspective of the researcher, application of Enhanced Recovery Programmed reduced complications due to early remove of urinary catheter, early mobilization, diet and performing exercise as breathing, coughing and ankle exercise.

5. Conclusion and Recommendations

Based on the aim of the study and research questions of the present study, it was concluded that: Concluded that women undergoing hysterectomy operation who received enhanced recovery pathway protocol were more likely to decrease the incidence of post-operative complications than women who didn't. It is also recommended that Health care settings should emphasize the importance of coordination between health care members relating to the application of the evidenced key elements of enhanced recovery pathway management regarding hysterectomy.

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Table-1. Distribution of the study group and control group according to their Personal data

Variables	Study group (66)		Control group (66)		Test
	N	%	N	%	P value
Personal data					
Age Mean ± SD	48.37±6.46		48.89±5.7		t=0.456 (P=0.649)
Marital status					
Married	54	81.8	52	78.8	$\chi^2=1.43$ (P=0.609)
Widowed	9	13.6	11	16.7	
Divorced	3	4.5	3	4.5	
Educational level					
Illiterate	18	27.3	24	36.4	$\chi^2=2.02$ (P=0.731)
Basic education	13	19.7	9	13.6	
Secondary education or its equivalent university education	25 10	37.9 15.2	22 11	33.3 16.7	
Job status					
Working	25	37.9	52	78.8	$\chi^2=4.40$ (P=0.036*)
No working	41	62.1	14	21.2	

χ^2 is chi-square test; *=P value is significant.

Table-2. Distribution of the study and control group according to their menstrual history

Variables	Study group (66)		Control group (66)		Test
	N	%	N	%	P value
Menstrual history					
Age of menarche					Equal
9-12years	43	65.2	43	65.2	
>12years	23	34.8	23	34.8	
Mean ± SD	11.89±1.96		11.66±1.89		t=0.677 (P=0.499)
Duration of menstruation					
3-5 days	39	59.1	30	45.5	$\chi^2=2.46$ (P=0.117)
>5days	27	40.9	36	54.5	
Mean ± SD	5.45±1.71		5.93±1.80		t=1.58 (P=0.116)
Menstrual regularity					
Regular	58	87.9	59	89.4	$\chi^2=.075$ (P=0.784)
Irregular	8	12.1	7	10.6	
Cycle Length					$\chi^2=2.05$ (P=0.358)
21-25 day	16	24.2	12	18.2	
26-30 day	44	66.7	43	65.2	
>30	6	9.1	11	16.7	
Mean ± SD	28.72±5.21		30.09±8.29		t=1.13 (P=0.259)
Last menstrual period					
<1 year	37	65.1	37	56.1	$\chi^2=.749$ (P=0.688)
1:5	19	28.8	22	33.3	
>5year	10	15.2	7	10.6	
Mean ± SD (month)	36±72.90		28.27±37.27		t=.767 (P=0.445)
Amount of blood flow by total number of pads					$\chi^2=9.058$ (P=0.011*)
3-5pads (mild)	9	13.6	1	1.5	
6-8 pads (moderate)	33	50	29	43.9	
>9 pads (high)	24	36.4	36	54.5	
Mean ± SD	2.22±.67		2.53±.53		t=2.86 (P=0.005*)
Associated symptoms					
Ye	17	25.8	36	54.5	$\chi^2=11.38$ (P=0.001*)
No	49	74.2	30	45.5	
Pain with menstruation					
Yes	19	28.8	14	21.2	$\chi^2=1.01$ (P=0.315)
No	47	71.2	52	78.8	

χ^2 is chi-square test; *=P value is significant.

Table-3. Distribution of the study and control group according to their obstetric history

Variables	Study group (66)		Control group (66)		test
	N	%	N	%	P value
Obstetric history					
Number of Gravidity					$\chi^2=5.80$ (P=0.121)
None	0	0	1	1.5	
1-3	23	34.8	12	18.2	
4-6	33	50	38	57.6	
>6	10	15.2	15	22.7	
Mean \pm SD	4.21 \pm 1.71		5.18 \pm 2.03		t=1.89 (P=0.061)
Number of parities					$\chi^2=8.06$ (P=0.045*)
None	0	0	1	1.5	
1-3 times	32	48.5	17	25.8	
4-6 times	29	43.9	42	63.6	
>6 times	5	7.6	6	9.1	
Mean \pm SD	3.65 \pm 1.33		4.56 \pm 1.79		t=1.64 (P=0.102)
Number of abortions					$\chi^2=.983$ (P=0.612)
None	49	74.2	44	66.7	
1-3 times	15	22.7	20	30.3	
4-6 times	2	3	2	3	
Mean \pm SD	.50 \pm 1.02		.62 \pm 1.06		
Number of living children					$\chi^2=9.20$ (P=0.027*)
None	0	0	1	1.5	
1-3 child	33	50	17	25.8	
4-6 child	29	43.9	44	66.7	
>6 child	4	6.1	4	6.1	
Mean \pm SD	3.54 \pm 1.30		4.34 \pm 1.54		t=1.59 (P=0.114)

χ^2 is chi-square test; *=P value is significant

Table-4. Distribution of the study and control group according to their contraceptive history

Variables	Study group (66)		Control group (66)		Test
	N	%	N	%	P value
Type of contraceptive method used					
None	12	18.2	19	28.8	$\chi^2=4.44$ (P=0.350)
Copper IUD	21	31.8	24	36.4	
Hormonal method	19	28.8	15	22.7	
Surgical method	1	1.5	0	0	
More than method	13	19.7	8	12.1	
Continuation contraceptive method					
Continue	3	4.5	3	4.5	Equal
Discontinue	63	95.5	63	95.5	
Causes of dis-continuation of contraceptive method (n=126)					
No usage	13	19.7	18	27.3	$\chi^2=4.25$ (P=0.750)
Bleeding	26	39.4	22	33.3	
Cessation of menstruation	15	22.7	14	21.2	
Irregular menstruation	1	1.5	3	4.5	
Weight gain	1	1.5	0	0	
Widowed	6	9.1	7	10.6	
Divorced	3	4.5	1	1.5	
Travel of husband	1	1.5	1	1.5	

χ^2 is chi-square test.

Table-5. Distribution of the study and control group according to their surgical history

Variables	Study group (66)		Control group (66)		Test
	N	%	N	%	P value
Gynecological operation					
Non	51	77.3	44	66.7	$\chi^2=5.35$ (P=0.148)
Dilatation and curettage	14	21.2	15	22.7	
Biopsy from uterus	0	0	3	4.5	
Others (cystectomy, evacuation of abscess.)	1	1.5	4	6.1	
None- gynecological operation					
Non	46	69.7	46	69.7	$\chi^2=1.38$ (P=0.930)
Appendectomy	8	12.1	6	9.1	
Tonsillectomy	3	4.5	2	3	
Hemorrhoids	1	1.5	1	1.5	
Cholecystectomy	4	6.1	4	6.1	
Hernia	0	0	1	1.5	
Others	4	6.1	6	9.1	

χ^2 = is chi-square test

Table-6. Distribution of the study and control sample according to their present gynecological history

Variables	Study group (66)		Control group (66)		Test
	N	%	N	%	P value
Chief complains					
Bleeding	40	60.6	43	65.2	$\chi^2=5.06$ (P=0.167)
Prolapse	6	9.1	3	4.5	
Lower abdominal pain	10	15.2	4	6.1	
Bleeding and pelvic pain	10	15.2	16	24.2	
Medical diagnosis					
Fibroid	28	42.4	36	54.5	$\chi^2=4.90$ (P=0.671)
Uterine prolapse	10	15.2	5	7.6	
Cancer	8	12.1	8	12.1	
Endometriosis	1	1.5	1	1.5	
Abnormal uterine bleeding	2	3	3	4.5	
Chronic pelvic pain	1	1.5	0	0	
Post-menopausal bleeding	13	19.7	12	18.2	
Adenomyosis	3	4.5	1	1.5	
Time course of current complain (month)					
1: 6	25	37.9	40	60.6	$\chi^2=5.20$ (P=.611)
7:12	29	43.9	17	25.8	
>12	12	18.2	9	13.6	
Mean ± SD	10.34±9.10		7.63±8.46		t= 1.77 (P= 0.079)

Table-7. Distribution of the study according to self-care at home based on instructions

Variables		Study group (66)		Control group (66)		χ^2	P value
		Done		Done			
		N	%	N	%		
General rules	Wound care	64	96.96	32	48.5	45.79	(P=0.000*)
	Take medications according doctor order	66	100	66	100	Equal	

χ^2 = is chi-square test; * =P value is significant

Table-8. Distribution of the study and control group according to wound care and compliance to treatment

Variables		Study group (66)
		Done
		Mean Percentages
Deep Breathing Exercises	Take a slow deep breath through nose, hold it two seconds and the out of mouth	86.81±16.44
	Repeat three times	86.81±16.44
	Proper position (sitting up in bed, or sitting out in a chair).	86.81±16.44
Coughing Exercises	Support abdomen by holding a small towel or pillow firmly over tummy when cough.	81.74±17.57
	Position (sitting up in bed, or sitting out in a chair.	81.81±17.55
	Repeat three times	81.74±17.57
Kegel Exercises	Take deep breath and tighten muscles	81.06±17.74
	Hold for five seconds	81.06±17.74
	1. Repeat 4 times	81.06±17.74

χ^2 = is chi-square test; * = P value is significant.

Table-9. Distribution of the study and control group according to presence of post-operative complications (from the third to tenth day post operation)

Variables	Study group (66)		Control group (66)		χ^2	P value
	Yes		Yes			
	N	%	N	%		
Post-operative hypotension	8	12.1	16	24.2	.967	0.335
Post-operative hypertension	0	0	5	7.6	5.19	0.023*
Wound infection	2	3	8	12.1	1.98	0.049*
Fever	0	0	2	3	1.425	0.156
Ureter obstruction	0	0	2	3	1.425	0.156
Vaginal bleeding	0	0	8	12.1	8.51	0.004*
Thrombosis	1	1.5	2	3	.000	1.000
Urinary incontinence	0	0	3	4.5	3.07	0.08
Vaginal Prolapse	0	0	1	1.5	1	0.319
Pneumothorax	0	0	3	4.5	3.07	0.08
Mean ± SD	.18±.52		.96±.52		t=5.64	0.000*

χ^2 = is chi-square test; * = P value is significant.

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