Effect of Designed Nursing Care Protocol On Minimizing Post Hysterectomy Complications At El Manial University Hospital

By:
Huda AbdElrhman Ali, Prof. Dr/ Ragaa Ali Mohamed, Prof. Dr/ Reda Ismail Riad, Dr/ NagwaA.ElFadeel,

B.Sc.N, Professor of Maternal & Newborn Health Nursing - Faculty of Nursing - 6 October University, Professor of Obstetrics & Gynecology- Faculty of Medicine-Cairo University, Assistant professor of Maternal &Newborn health Nursing -Faculty of nursing - Cairo University

Abstract

Background, Hysterectomy is the most common gynecologic surgical procedure among reproductive aged women, complications with serious consequences may occur, Aim of this study, was to assess the effect of designed nursing care protocol to minimizing post hysterectomy complications, Design, A quasi experimental design was adopted in this study. Sample, a simple random sample of 120 post hysterectomy women were recruit for this study. Setting, A gynecological units at ElmanialUniversity Hospital Cairo University. Tools, data were collected by using three tools developed by the researcher: 1) structured interview schedule, 2) assessment sheet, and 3) follow up sheet. Results, the result of the study revealed that, no significant difference was found between both groups in relation to Socio-demographic characteristics($X^2=1.56, P=0.81$), Marital Status($X^2=0.90, P=0.64$), and Residence($X^2=0.64, P=0.52$).The result indicated a highly significant difference between the two group; under study in relation to the length of hospital stay($T^2=5.01, P=0.0001$), postoperative body temperature($T=2.63, P=0.01$), urinary tract infection($X^2=5.84, P=0.02$), wound infection($X^2=4.54, P=0.03$), and chest infection($X^2=4.39, P=0.04$)after application of designed nursing care protocol during hospitalization after hysterectomy. Conclusion, this study concluded that a designed nursing care protocol was effective on minimizing post hysterectomy complications. Recommendations, further study are needed to design protocol of care before and after hysterectomy to prevent hysterectomy complications. Application of planned nursing care protocol for all post hysterectomy women at the hospital.

Key words: hysterectomy, complications

INTRODUCTION

Hysterectomy is the surgical removal of the uterus and it is the most common major gynecological surgical procedure worldwide. It has a broad spectrum of indications ranging from malignant gynecological disease to obstetrical indication. Regardless of mode, hysterectomy is most often performed for benign conditions such as irregular uterine bleeding with or without uterine fibroids, and the operation is done in order to improve the patient’s Quality of life (QoL). Hysterectomy is most often indicated when medical treatment or less invasive methods have failed [SKL 2008; NICE 2007; Lefebvre 2008].

Although hysterectomy is considered safe surgery, it has many complications, these complications may occur as many as 25% of patients undergoing vaginal hysterectomy and 50% of those undergoing abdominal hysterectomy (Rock, 2008).

Hysterectomy complications during surgery can range from mild to fatal, and some of these can be devastating. Some of these complications may prevent work or even usual daily activities, and some may cause death or permanent injuries and disabilities. Some of these complications that occur during the surgery can be corrected right away, such as when another organ or other tissue type is accidentally perforated or injured, but other complications may not be noticed until the procedure is completed (Cucinella; Granes; Calagna; Somigliana; Perino, 2011).

Complications of hysterectomy classified into intraoperative and post-operative complications. Intraoperative complications include perforation of nearby organs, excessive bleeding which can require a transfusion, deep
vein thrombosis, death, injury to organs and tissues in the abdomen during the procedure, ureter damage or injury, incision site changes, because at times a vaginal incision is deemed insufficient after the procedure is started and an abdominal incision may need to be made as well, blood pressure that drops dangerously low or becomes too high during the surgery, heart attack or heart failure, respiratory arrest, paralysis if nerves or other tissues are injured or damaged, and brain damage (Lewin et al., 2013).

Some hysterectomy complications are a result of the general anesthesia drugs given during the surgery to keep the patient asleep and unaware of the procedure. While many people never experience any problems with anesthesia, other patients die from complications that these drugs can cause. In some cases general anesthesia cannot be used because of the high risks involved, and if this is the case then surgeon may have to explore other possibilities for procedure instead (Herber, Judge, Clark, Bridgman, Maresh, Overton, 2005).

Complications of hysterectomy include an allergic reaction to the anaesthesia drugs, aspiration of fluid or particles into the lungs, high blood pressure or low blood pressure, over sedation, abnormal heart rhythm, cardiac arrest, respiratory arrest, malignant hyperthermia, muscle rigidity, nausea and vomiting, pneumonia from inhaling the anaesthesia gases, nerve damage, and lack of oxygen resulting in brain damage or death (Soto; Lo; Friedman; Soto; Nezhat; Chuang; Gretz, 2011).

Complications after hysterectomy (post-operative complications) include hematoma or abscess in the minor pelvis, abdominal hemorrhage, vaginal bleeding, fever, urinary retention, stenosis or obstruction of the ureter, pelvic organ fistula, infection of the urinary tract, infection of the incision site, intestinal occlusion, numbness and tingling near the incision site, organ or tissue prolapse, excessive hysterectomy scar tissue growth, loss of normal hormone levels, osteoporosis onset that occurs earlier, menopausal symptoms including hot flashes and severe mood swings (Wiseman, 2008).

Postoperative presentation is variable and nonspecific, such as acute pelvic pain, nausea, vomiting, malaise, and leakage of fluid via the trocar sites, abdominal distension, ileus, fever, flank pain, and ileus peritonitis (Komisaruk; Frangos; Whipple, 2011).

Complications Regarding Type of Surgery, The three types of hysterectomy has been compared in terms of complications. In the most recent meta-analysis, urinary tract injury was significantly higher in laparoscopic hysterectomy (LH) than abdominal hysterectomy, while no significant differences were found in laparoscopic hysterectomy versus vaginal hysterectomy (VH) or total LH versus laparoscopic assisted vaginal hysterectomy (LAVH). No significant difference was observed between other intraoperative visceral injuries (bowel or vascular) as a result of the surgical approaches (Rivera; Grossardt; Rhodes; Rocca, 2009).

Laparoscopic Supracervical Hysterectomy (LSH) has its unique complications in addition to the previously mentioned in the LAVH section because the cervix remains behind. Although we have not had complications, a study by van der Stege had 25% of the patients continued to menstruate and 10% had vaginal discharge (Pitter; Anderson; Blissett; Pemberton, 2008).

The majority of complications occur during entry of instruments into the abdomen used to create pneumoperitoneum. Therefore, open-
Entry and closed-entry have commonly been compared. The incidence of many complications decreases with open-entry, and intraoperative diagnosis of complications becomes more probable, decreasing the mortality resulting from delayed diagnosis. Some authors advocate routine uses of open-entry. Other reasons for complications are thermal and energy source injuries, operative manipulations, and suturing, and the presence of CO\textsubscript{2} out of the peritoneum. Because some complications result from more than one cause, clear classification of complications is challenging (Cucinella. et al., 2011).

While some authors report a higher incidence of urinary system injury in laparoscopy than in laparotomy in their reviews, some others demonstrate a lack of such an increase in their series. The most common type of urinary injury during laparoscopy is bladder perforation. Most injuries occur during hysterectomy operations. Bladder injury may occur during insertion of trocars, especially suprapubic ones, dissection of the bladder during gynecologic operations, or as a result of thermal energy (Cohen, 2011).

The care plan for a woman undergoing hysterectomy should reflect her emotional needs and the nurse's awareness of her anxiety levels, as well as the physical care required (Liu, 2012).

The nurse role extended to preparing the patient and family for discharge is an ongoing process that takes place throughout the hospitalization. Prior to discharge, verbal and written instructions are provided to the patient and family, including when to call the surgeon, activity restrictions, guidelines for medication administration, signs and symptoms of infection to report, and follow up appointments (Reynolds, 2009).

Nurses should strengthen health guidance in patients; especially in patients before discharge she told effectively protect the wound, to ensure adequate sleep. General need within 3 months after surgery prohibits sex life, to avoid the bath. Patients should strengthen dietary guidance, recommended that patients eat some high calorie and high protein and high in vitamins, and promote the rapid postoperative recovery. Periodic review carried to the hospital, there are exceptions to the hospital should be timely treatment (Marx et al, 2006). The nurse can give practical advice on several issues and can also take advantage of the opportunity to offer some useful health education advice and promotion (Chen, 2013).

**Aim of the Study**
The aim of the study is to assess the effect of designed nursing care protocol on minimizing post hysterectomy complications.

**Significance of the Study**
Through clinical observation in the clinical area settings, the researcher observed that the incidence of hysterectomy increased during the last two years, In 2009, the incidence of hysterectomy at Elkaser Al Eini hospital (0.66 %), while in 2010, (1.15 %) it means that hysterectomy incidence doubled year by year (Kaser Al Eini hospital statistical sinuses, 2010). Many complications accompanying hysterectomy such as hemorrhage, Deep Venus thrombosis, wound infection, bowel problems, these complications have negative impact on the women functional status and consequently quality of life, therefore, the minimizing of these complications represents a great challenge for the nurses. (Clarke, 2012).
**Research Hypothesis**

Post hysterectomy women who received a designed nursing care protocol will experience less complication than those who don’t.

**SUBJECT AND METHODS**

**Research Design**

A quasi-experimental design was used to assess the effect of designed nursing care protocol on minimizing post hysterectomy complications.

**Setting**

The study was conducted at El Manial University Hospital. This hospital included a lot of units which provided the clients with the services needed; these units are labor, postpartum, high risk maternity unit, and gynecologic units. The sample were recruited from gynecologic units that includes 3 departments (22, 32, and 33); each of them divided into 2 words which contains all women's who complained from gynecological problems such as pre and postmenopausal bleeding, uterine cancer or fibroids, uterine prolapse and post hysterectomy.

**Sample**

A simple random sample was used to collect data of this study; the study included 120 post hysterectomy women at El Manial University Hospital. The sample divided into two groups 60 women each group, group A (control group) who received daily routine care according to the policy of the hospital, and group B (study group) completely assessed and received planned nursing care protocol; the women were assigned to each group at a random basis. Data collected through a period of 24 months from beginning of December 2011 to the end of November 2013. The researcher was collected data 3 days/week for each group, started by control group.

**Tools of data collection**

The tools for data collection were developed after reviewing the related literature then these tools were tested for content validity. Data were collected through three tools;

1. **Structure Interview Questionnaires**: it was concerned with patient Socio-demographic data, medical history, Gynecological history, and Obstetric history.

2. **Assessment and Follow Up Sheet**: It was designed for postoperative physical assessment which included: Vital signs, Neurological integrity, Cardiovascular system, Respiratory system, Renal system, gastrointestinal system, lower extremities, and general observation and assessment for (bleeding, wound site, intravenous infusion, potency of drainage tube, pain location and site).

3. **Nursing Care Protocol**: This protocol designed by the investigator; it included postoperative care according to standard of care and nursing process as the following:
   - Daily physical assessment for post hysterectomy women.
   - Long term plan.
   - Intervention of plan of care.
   - Evaluation of care.

**Pilot Study**

A pilot study was carried on 10% of the study sample to test the feasibility of the study and applicability of the tool. The main purpose of pilot study was to test the relevance of the tools used, to determine the time needed to data collection, detect any problem peculiar to the tools, and find out any problem that may interfere with the process of data collection.

**Procedure**

Official permission was obtained from the manager of El Manial Maternity Hospital. The researcher introduced herself to the hospital administrative. Written consent was obtained from the participant for each
woman who accepts to participate in the study. The researcher informed the sample that they were free to participate or refuse in the study. In addition, they were informed that they could withdraw from the study at any time if they choose to. They assured that their answers would be confidential then the researcher started to collect the data through four phase: 1) interview., 2) assessment., 3) implementation (using nursing protocol of care on minimizing post hysterectomy complications for study group)., and 4) follow up and evaluation phase.

1) Interviewing phase: The researcher interviewed all women in both groups at the admitted ward before the operation to collect data related socio-demographic data, past history, and data about present obstetric history. The interview consumed about 15 minutes for each woman.

2) Assessment phase: The researcher started the assessment immediately after hysterectomy; Assessment includes: vital signs especially temperature, chest clearance, wound (site, color, discharge), home's signs for DVT, assessment for urinary tract infection (urgency of urination, dysuria), and bowel sound and movement for detection of paralytic ileus.

3) Implementation phase: This phase started immediately after assessment. The researcher applied the designed nursing care protocol to the women after the operation to minimizing post hysterectomy complications. Assessment of vital signs and urinary output every hour for 6 hours then every 6 hours; Respiratory system (initiate deep breathing exercises frequently every 2 hours, help the patient to change position frequently while in bed, and frequently back rub to avoid accumulation of secretion); renal system (monitor urinary output, keep the urinary bag below the level of the patient to avoid urine back flow, bladder training before catheter removal, and early catheter removal to avoid urinary tract infection); gastrointestinal system (early ambulation as early as possible, give laxative to enhance bowel movement, and early start oral fluids after doctor permission); lower extremities (early passive legs exercises by researcher then active exercises by the patient and early ambulation to avoid deep Venus thrombosis); wound site (inspect the dressing for bleeding, inspect the bed clothes under the patient for pooled blood, when dressing changed inspect the wound for localized infection); intravenous infusion (adequate rehydration to avoid hypovolemic shock, assess vein puncture site for signs of inflammation to avoid extravasations); potency of drainage tubes (Monitor the amount and color of drainage every 12 hours); pain measurement (using numerical pain rating scale and administer analgesic as prescribed if pain score 5 or more); cardiovascular system (Assessment of blood pressure, pulse, skin color, and capillary refill time, hemoglobin, hematocrite, and presence of pain, hotness, redness in calf muscles).

4) Follow-up and evaluation phase: Follow up was done from immediate post hysterectomy (follow up for conscious level, vital signs, wound site, drainage, skin color, intake and output) until discharge and extended for one month after discharge by phone for both groups.

Statistical Analysis

Data were analyzed using statistical package for the social science (SPSS) version 20. Numerical data expressed as means and standard deviations. Qualitative data expressed as frequency and percentage. Chi-square test used to examine the relationship between qualitative variables. Repeated quantitative variables, unpaired T test used for comparison. Probability of error (p-value) < 0.05 considered significant.

Results of the study

Table (1) Patient age ranged between 40 to less than 50 years in control and
study group respectively and with mean age was 48.1 ±12 and 47.7±13.2 respectively. No significant difference between two groups (X²=1.56, P=0.81).

Table (2) the majority of both groups were illiterate with 50% in control group versus 53% in study group. No significant difference between two groups (X²=5.13, P=0.40).

Table (3) the mean length of hospital stay/day in the control group was 3.87±1.82 versus 2.32±1.56 for study group. High statistical significant difference between two groups (T =5.01, P=0.0001).

Table (4) the mean body temperature during the first day post-operative in the control group was 37.4 ±1.9 versus 37.1 ±1.6 for study group with no significant difference between two groups (T =0.94, p=0.35). Regarding mean body temperature during the second day post-operative in the control group was 37.9 ± 1.1versus 37.5 ± 0.9for study group with statistical significant difference between two groups (T =2.18, p=0.03). In addition to mean body temperature during the third day post-operative in the control group was 38.5 ±1.2versus 37.9 ± 1.3 for study group with high statistical significant difference between two groups (T =2.63, p=0.01).

Table (5) Urinary tract infection were (21.7%) of the control group had urinary tract infection postoperative compared with 5.0% of the study group with significant difference between two groups (X² =5.84, P=0.02). Table (5) Wound infection was 16.7% of the control group had wound infection postoperative compared with 3.3% of the study group with significant difference between two groups (X²=4.54, P=0.03).

Table (5) Chest infection was 25.7% of the control group had chest cripitation postoperative compared with 10.0% of the study group with high significant difference between two groups(X²=4.51, P=0.03). Regarding wheezing postoperative this table reflected that 46.7% of the control group had wheezing compared with 23.3% of the study group with high significant difference between two groups(X² =6.19, P=0.01). This table reflected that 21.7% of the control group had chest infectionpostoperative compared with 6.7% of the study group with significant difference between two groups(X²=4.39, P=0.04).

Table (1): Distribution of the Control and Study Groups in Relation to their Age.
<table>
<thead>
<tr>
<th>Age</th>
<th>Control Group (no =60)</th>
<th>Study Group (no =60)</th>
<th>$X^2$</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>&lt;30</td>
<td>2 3.3</td>
<td>1 1.7</td>
<td>1.56</td>
<td>0.81</td>
</tr>
<tr>
<td>30-39</td>
<td>16 26.7</td>
<td>14 23.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40-49</td>
<td>27 45.0</td>
<td>29 48.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50-59</td>
<td>11 18.3</td>
<td>9 15.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60≤</td>
<td>4 6.7</td>
<td>7 11.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean± SD</td>
<td>48.1±12.3</td>
<td>47.7±13.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table (2): Distribution of the Control and Study Groups in Relation to their Level of Education**

<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Control group (no =60)</th>
<th>Study group (no =60)</th>
<th>$X^2$</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>30 50.0</td>
<td>32 53.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Read &amp; write</td>
<td>10 16.7</td>
<td>11 18.3</td>
<td>5.13</td>
<td>0.40</td>
</tr>
<tr>
<td>Primary school</td>
<td>7 11.7</td>
<td>8 13.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preparatory school</td>
<td>6 10.0</td>
<td>8 13.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary school</td>
<td>5 8.3</td>
<td>1 1.7</td>
<td>5.13</td>
<td>0.40</td>
</tr>
<tr>
<td>University</td>
<td>2 3.3</td>
<td>0 0.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table (3): Distribution of the Control and Study Groups in Relation to their Length of Hospital Stay/Day**

<table>
<thead>
<tr>
<th>Length of Hospital Stay/Day</th>
<th>Control group (no =60)</th>
<th>Study group (no =60)</th>
<th>Test</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Mean± SD</td>
<td>3.87±1.82</td>
<td>2.32±1.56</td>
<td>5.01</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

**Table (4): Distribution of the Control and Study Groups in Relation to their post-Operative Body Temperature**

<table>
<thead>
<tr>
<th>Body Temperature</th>
<th>Control group (no =60)</th>
<th>Study group (no =60)</th>
<th>Test</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean± SD</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st day</td>
<td>37.4 ±1.9</td>
<td>37.1 ±1.6</td>
<td>0.94</td>
<td>0.35</td>
</tr>
<tr>
<td>2nd day</td>
<td>37.9 ±1.1</td>
<td>37.5 ±0.9</td>
<td>2.18</td>
<td>0.03</td>
</tr>
<tr>
<td>3rd day</td>
<td>38.5 ±1.2</td>
<td>37.9 ±1.3</td>
<td>2.63</td>
<td>0.01</td>
</tr>
</tbody>
</table>

**Table (5): Distribution of the Control and Study Groups in Relation to their urinary, wound, and chest Infection**
<table>
<thead>
<tr>
<th>Complications</th>
<th>Control group (no =60)</th>
<th>Study group (no =60)</th>
<th>$X^2$</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
<td>No</td>
<td>%</td>
</tr>
<tr>
<td>Urinary tract infection</td>
<td>Yes</td>
<td>13</td>
<td>21.7</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>47</td>
<td>78.3</td>
<td>57</td>
</tr>
<tr>
<td>Wound infection</td>
<td>Yes</td>
<td>10</td>
<td>16.7</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>50</td>
<td>83.3</td>
<td>58</td>
</tr>
<tr>
<td>Chest cripitation</td>
<td>Yes</td>
<td>16</td>
<td>25.7</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>44</td>
<td>73.3</td>
<td>54</td>
</tr>
<tr>
<td>Wheezing</td>
<td>Yes</td>
<td>28</td>
<td>46.7</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>32</td>
<td>53.3</td>
<td>46</td>
</tr>
<tr>
<td>Chest infection</td>
<td>Yes</td>
<td>13</td>
<td>21.7</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>47</td>
<td>78.3</td>
<td>56</td>
</tr>
</tbody>
</table>
Discussion

Although hysterectomy is generally considered safe, several possible complications are associated with the procedure. These complications can result in mild to severe morbidity and even (although rare) mortality (Stovall, Mann, 2008).

Infection is a common postoperative complication associated with hysterectomy. Four percent to 10% of patients undergoing vaginal hysterectomy and 6% to 25% of those having abdominal hysterectomy develop an infection post-surgery. In all, regardless of the careful precautions taken, approximately one-third of patients develop postoperative febrile infection. Because of this, the use of preoperative and postoperative interventions, such as prophylactic treatment with broad-spectrum antibiotics, can contribute greatly to the reduction of infections occurring with hysterectomies (Rice, and Howard, 2006).

Bladder injuries occur in up to 2% of hysterectomy cases. In vaginal hysterectomy, the bladder can be perforated during entry into the anterior cul-de-sac; in abdominal hysterectomy, injury can occur when the peritoneum is opened or during dissection of the bladder off the lower uterine segment, cervix, and upper vagina. Although most of these complications are corrected during the procedure, postoperative incontinence due to bladder injury during surgery is commonly reported (Van der Vaart, van der Bom, de Leeuw, Roovers, Heintz, 2002).

As regards the socio-demographic data of the studied sample nearly half of both control and study groups age were ranged between 40 to less than 50 years old respectively and their mean age were 48.1±12 and 47.7±13.2 respectively. No significant difference between two groups(X² =1.56, P=0.81). This study was not in accordance with the study done by Roman, 2011, who study women with early-stage cervical cancers, in California, mentioned that the majority of females acquired cancer after the age of 55 years old, while a similar study done in Egypt by Sabbour, 2001 about epidemiological correlates of hysterectomy at Ain Shams University hospital, mentioned that the mean age of women was 45.4+/−8.9, the highest frequency of hysterectomy was in the age group 45-54 years.

In relation to the level of education and occupation of the studies and control groups, it was cleared that half of the control group was illiterate also, slightly more than half of the study group and the majority of them were housewives with no significant difference between two groups(X² =5.13, P=0.40) & (X² =0.40, P=0.52) respectively. this study was in an agreement with the study of Marie, 2004, who study screening for hysterectomy among developing countries people, mentioned that most of the studied sample were illiterate while the majority of them were housewives for both control and study groups.

As observed from the current findings that the mean body temperature during the first day post-operative in the control group was 37.4 ±1.9 versus 37.1 ±1.6 for study group with no significant difference between two groups (T =0.94, p=0.35). Regarding mean body temperature during the second day post-operative in the control group was 37.9 ± 1.1versus 37. 5 ± 0.9for study group with statistical significant difference between two groups (T =2.18, p=0.03). In addition to mean body temperature during the third day post-operative in the control group was 38.5 ±1.2versus 37.9 ± 1.3 for study group with high statistical significant difference between two groups (T =2.63, p=0.01). This study was in accordance with the study of Ong, Codd, Coughlan, O’Herlihy,2010. who study Prevalence of hysterectomy in Ireland, mentioned that the third day recorded highly temperature than the first or the second in the control group and study group with mean 38.9 ± 1.3.
It was clear from the current findings that only the rest of the studied sample and control sample had urgent situation postoperative such as dysuria or urine retention & incontinence ($X^2$=7.74, $P=0.01$). ($X^2$=4.54, $P=0.03$) &($X^2$=0.16, $P=0.69$) respectively. This study was in agreement of the study of Marie, 2004 and clerk, 2012 who, mentioned that the complications that may occur postoperative are bleeding, infection dysuria, incontinent urine retention, but in the similar study of clerk, 2012, mentioned that urine retention and bleeding were the common complications.

As regards the wound infection post-operative, it was cleared that the rest of them had wound infection postoperative compared with 3.3% of the study group with significant difference between two groups($X^2$ =4.54, $P=0.03$). This study was in agreement with Lepine, et al., 2001, who mentioned the rest of the studied sample had wound infection postoperative.

In relation to chest infection postoperative, cripitation and wheezing this study cleared that the rest of the studied sample had chest infection , cripitation and wheezing, while nearly half and one third of the control group had cripitation and wheezing ($X^2$=4.51, $P=0.03$) &($X^2$=6.19, $P=0.01$) respectively, with highly significant difference between two groups, these findings were in agreement with the study of Bunker, 2007, who study Performing hysterectomy, mentioned that chest infection, cripitation and wheezing, were the most complain of the rest of the studied sample.

**Conclusion**, this study concluded that a designed nursing care protocol was effective on minimizing post hysterectomy complications.

**Recommendations**, further study are needed to design protocol of care before and after hysterectomy to prevent hysterectomy complications.

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