

Radical Cystectomy Surgeries: Effect of Implementing A designed Nursing Teaching Protocol on Nurse's Performance and Patient's Outcomes

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Abstract: Radical cystectomy is the primary treatment for patients with muscle-invasive bladder cancer. Aims: were to evaluate the effect of implementing designed nursing teaching protocol on nurses knowledge and practices as well as on patients outcome. **Setting:** The study was conducted at the surgical oncology department at South Egypt Cancer Institute. **Sample:** A convenience sample including (60) nurses and 60 patients were divided into two groups (30) Patient control & (30) patient study after implementation of the designed nursing teaching protocol. **Tools:** Pre/post-test questionnaire sheet, observational checklist for the nurses, designed nursing teaching protocol, and patient assessment sheet. **Results:** most of nurses had poor knowledge and practice pre implementing of nursing teaching protocol. Overall total scores of nurse's knowledge with a mean (5.08±4.94) were improved significantly post implementing of the nursing teaching protocol with a mean (18.95±2.55). Overall total scores of nurse's practice with a mean (99.13±15.36) were improved significantly after implementing of nursing teaching protocol with a mean (209.7±0.63). The result of studied patients with mean (20.03±4.93) was developed complication of stoma was improved with mean (7.7±4.87) during the study period. **Conclusion:** the nursing teaching protocol had statistically significant improvement on nurse's knowledge, practice, and patient outcome for studied patients. **Recommendations:** continued nursing education and in service training programs in surgical oncology department should be well organized within South Egypt Cancer Institute and equipped with the necessary educational facilities and materials to upgrade the knowledge and skills of nurses.

Keywords: Nursing teaching Protocol, Patient Outcomes, Radical Cystectomy surgeries.

1. INTRODUCTION

Bladder cancer (BC) is the most common malignancy of the urinary tract, the 7th most common cancer in men and the 17th in women (Brausi, 2011). In the United States, BC is the fourth most common cancer and the eight leading cause of cancer-related death in humans (Fry & Vahabi, 2016).

Cystectomy is the surgical removal of all or part of the bladder. It is used to treat bladder cancer that has spread into the bladder wall (Berglund & Herr, 2012). Radical cystectomy is the recommended treatment for bladder cancer that has invaded the muscle of the bladder (Boron; et al, 2016).

A radical cystectomy is most commonly performed for cancer that has invaded into the muscle of the bladder. In a radical cystectomy the bladder is removed along with surrounding lymph nodes (lymph node dissection) and other organs that contain cancer. In men, this could include the prostate and seminal vesicles. In women, this could include a portion of the vagina, uterus, fallopian tubes, and ovaries (Welty; *et al*, 2017).

Worldwide, BC accounts approximately estimated in the United States at the years of (2018) about (81,190) new cases of bladder cancer about (62,380) in men and (18,810) in women and about (17,240) deaths about (12,520) in men and 4,720 in women (American Cancer Society, 2018).

In developed areas of the world, such as North America and Western Europe, these BC are predominantly urothelial (transitional cells). Non-urothelial tumors comprise a larger fraction of disease in other areas, particularly where schistosomiasis is prevalent (Fiorina; *et al*, 2018).

Bladder schistosomiasis (bilharzia) is the second most common parasitic infection after malaria, with about (600) million people exposed to infection in Africa, Asia, South America, and the Caribbean (World Health Organization, 2017).

In Egypt at the years of 2017 BC represent (1,775 males and 411 females; 784 SCC and 1,402 UC) in both sexes (Fiorina; *et al*, 2018). During the period from 2017 to 2018 were approximately 1120 cases in both sexes admitted to surgery department at South Egypt Cancer Institute (South Egypt Cancer Institute Records, 2018).

National Comprehensive Cancer Network (NCCN) guidelines recommend radical cystectomy as the primary treatment for patients with muscle-invasive bladder cancer, whereas alternative treatments are reserved for patients with extensive comorbid conditions or poor performance status (Montie; *et al*, 2010).

Urinary diversion has also been used in managing pelvic malignancy, birth defects, strictures, trauma to ureters and urethra, neurogenic bladder, chronic infection causing severe ureteral and renal damage, and intractable interstitial cystitis and as a last resort in managing incontinence (Janice; *et al*, 2010).

There are three main types of urinary diversion surgeries which include ileal conduit urinary diversion, continent reservoir pouch and orthotopic bladder. For all of these procedures, a portion of the small and/or large bowel is disconnected from the fecal stream and used for reconstruction (LeMone& Dwyer, 2009).

The ileal conduit is the most popular form of urinary diversion; a section of ileum is resected close to the ileocecal valve, the distal end of the ileum, which has been mobilized, is attached to the peritoneum and the ureters are implanted. The distal end of the ileum is then brought through and attached to the abdominal skin as a stoma. Urine can then flow through the ileal conduit and is collected in a bag attached to the surface of the skin (Jack; *et al*, 2008).

The patient who undergoes radical cystectomy surgeries has many nursing care needs because of alterations in the functional health patterns of elimination, health perception-health management, cognitive perceptual, self-perception, role relationships and quality of life. The nurse will be responsible for monitoring the patient's vital signs, fluid status (stoma/catheter output, drains, intravenous fluids, nasogastric tube) need for analgesia and the administration of prescribed medication (Oshea, 2011).

The nurse should also monitor the stoma to ensure it remains pink and healthy in appearance. The patient will also require wound care and help with activities of daily living in the immediate postoperative period. Specialist input from other healthcare professionals such as stoma care nurses, physiotherapists and dieticians may also help (Gerharz; *et al*, 2015).

Furthermore, this research could provide health professionals with an in depth understanding related to such patients which could be reflected positively on the quality of patient's life and improve the post-operative patient's health outcomes. It is hoped also that this effort could support the role of the nurse in the patient's care through assessing and providing the required care and teaching about adapting and living with stoma reaching their maximum functional capacity.

Significance of the study

Careful monitoring of the viability of the stoma and recognition of stoma ischemia as a particular nursing responsibility could have a great impact upon the success of the urostomy. Provided that, stoma clinic is newly introduced into South' Egypt Cancer Institute and the nurses working in this clinic did not received any special preparation to help them deal safely with such conditions as expressed by them. So this research could be an attempt to equip this group of nurses with needed knowledge and practices that could contribute to stoma care.

Aim of the Study

The aim of the present study was in 3 folds;

1. Assess nurse's knowledge and practice for nurses working with the patient's cystectomy surgeries.
2. Design a teaching protocol for nurses working with patients cystectomy surgeries.
3. Evaluate the effect of implementing designed nursing teaching protocol on nurse's knowledge and practices as well as on patient's outcome.* patient's outcome refers to the reduction, and prevention of post-operative radical cystectomy complications.

Research Hypothesis

To fulfill the aim of the study the following research hypothesis were formulated:

1. The post-mean knowledge scores of nurses who will exposed to a designed teaching protocol will be higher than their pre mean knowledge scores.
2. The post mean practice scores of nurses who will exposed to a designed teaching protocol will be higher than their pre mean practice scores.
3. The incidence of post-operative cystectomy complications for patient cared by nurses after protocol implementation will be lesser than that developed pre-protocol implementation.
4. A positive relationship will exist between knowledge and practice score obtained by nurses receiving the designed teaching protocol.

2. PATIENTS AND METHODS**Research design:-**

Quazi experimental research design was utilized in this study.

Study Variables:-

The independent variable in this study is the designed teaching protocol while the dependent variables are: nurse's knowledge, and practices as well as the patient's outcome, which refer to reduction of postoperative cystectomy complications.

Technical design:-**Setting of the study:-**

The study was conducted at the surgical oncology department and outpatient clinic in South Egypt Cancer Institute.

Study sample:

A sample of convenience including all nurses working at surgical oncology department and outpatient clinic (60) nurses who are willing to participate in the study. In addition to all patients admitted for surgical oncology department (radical cystectomy surgeries) for at least 6/month (30) patient control & (30) patient study after implementation of the designed nursing teaching protocol.

Study tools:

Data pertinent to the study were collected and utilized the following four tools:

Tool I-pre/post test questionnaire sheet for the nurses:

This tool was developed by the researcher after reviewing and utilizing the most recent relevant national & international literature.

Pre/post test questionnaire sheet was used prior to implementation of the teaching protocol to measure the exact knowledge level of nurses about radical cystectomy surgeries. The same tool was used after the implementation of the teaching protocol (post- test) in addition to evaluate the knowledge after the nursing teaching protocol.

This tool consisted of two parts:

Part (1) demographic data for nurses; to assess the personal data for the study sample which including (6) items as, sex, age, marital status, qualification, duration of experience, and training courses about radical cystectomy (questions from 1 to 6).

Part (2) Pre/post-test questionnaire sheet for the nurses; to assess their knowledge about care of patient undergoing radical cystectomy surgeries which include 3 main parts as, a nurses knowledge about definition of bladder cancer, causes of bladder cancer, signs & symptoms of bladder cancer, types of bladder cancer, contraindications for radical cystectomy surgeries and complications after radical cystectomy surgeries.

The questionnaire sheet was administered by the researcher to the nurses for answering all its components then collected.

Scoring system:

Each right answer was given one score and zero for false answer. The total scores were 24, definition of radical cystectomy given three score because it is divided into three parts. Those who obtained less than (60%) were considered having unsatisfactory level of knowledge. While above (60%) were considered having satisfactory level.

Tool II-Observation checklist sheet for the nurses:

This tool was used before and immediately after the implementation of the teaching protocol as well as two months later to evaluate the impact of the nursing teaching protocol on nurses' practice.

The Observation checklist was applied by the researcher to evaluate the nurse's practice as regard nausea and vomiting, thirst, constipation and gas cramps, post pain management, post-operative psychological care, and nursing care of stoma.

Scoring system:

Each item was observed, categorized and scored as the following; two degree for each step that done correct, one degree for each step done incorrect and zero for step that not done. The total score for all steps was 100.

Those who obtained less than (60%) were considered having inadequate level. While above (60%) were considered having adequate level.

Tool III- Designed nursing teaching protocol:

It was developed by the researcher based on the review of relevant literatures according to nurse's knowledge and practice that can help nurses in provision of a safe and effective care for cystectomy patients. It was include anatomy and physiology of urinary system, definition, causes, signs and symptoms, diagnosis, treatments of bladder cancer, definition and complications of cystectomy surgeries and nursing intervention and teaching instructions about stoma care.

Tool IV-Patient's assessment sheet:

It used to assess post-operative cystectomy complications that might develop among all patients admitted to surgical oncology department until six months after implementation of the nursing teaching protocol.

Operational design:**II-Administrative design**

An official letter was issued from the dean of the faculty of nursing to the head of the surgical oncology department as well as the head of nursing service administration soliciting the necessary approval to conduct the present research. Meetings with nursing supervisors and physicians of the surgical oncology department to explain the objectives and contents of the teaching protocol and the methods for applying the teaching protocol to gain their cooperation and to allow the release of nurses to attend the teaching protocol during minimal workload activities.

This study was carried out in 3 phases:-

Phase (1): Preparatory phase: in which the researcher was designed and tested the proposed teaching protocol after extensive literature review(nursing text books, journals, internet resources, etc.) about cystectomy surgeries and assessment of nurses knowledge and practice in this regard, then the final form of the nursing teaching protocol will be checked by panel of experts to list content validity.

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Pilot study; the purpose of this pilot study was of 2 folds: first to ensure the clarity of designated study tools. Second, to examine the utility of the designed tools and identify any difficulties or problems needed to be handled before applying it. Those patients who were involved in the pilot study were excluded from the actual study sample. Modification of the sheet and checklist was done to develop the final form that is most suitable.

To facilitate the implementation of the nursing teaching protocol about cystectomy surgeries, researcher prepared the training places, teaching aids and media (pictures, videotapes and handouts). This was followed by arranging for the nursing teaching protocol schedule based on the contents of protocol, number of staff involved, time availability, shifts as well as the resources available.

Phase (2): Implementation phase: in which an official permission to proceed with the proposed study was granted from the head of the surgical oncology department as well as the hospital nursing director. It was carried out on three stages: First stage of implementation phase; was directed toward nurses in which the researcher meet them to schedule the teaching sessions for both theory and practice. Number of teaching sessions was vary according to their understanding.

After mastering of required skills and knowledge acquisition, the immediate post test were carried out for both the knowledge and practice using (tool I&II). The second stage of implementation phase; was directed to assess patient urostomy using (tool IV). The third stage of implementation phase; was application of the designed nursing teaching protocol (tool III).

Phase (3): Evaluation phase: The last phase of a designed teaching protocol in which the nurses' knowledge and practices was evaluated post of a designed teaching protocol implementation (tool I&II), the selected patients who are willing to participate in the study was assessed, and utilizing the patient urostomy assessment sheet (tool IV) for one hour every day for control group. 2 months after protocol implementation the nurse's knowledge and practices had been also evaluated by the researcher through filling tool (I&II). The whole period for teaching protocol implementation was 1 year.

Careful teaching and reinforcement of teaching was performed according to the nurses needs to ensure their understanding and daily observation and guidance as well as evaluation of patient's condition (skin color, temperature, turgor, capillary refill, bleeding of stoma).

Statistical design

Descriptive & inferential statistics was utilized Data were collected and analyzed by computer program SPSS. Data expressed as mean, standard deviation, number and percentage. T-test is used to determine significant for numeric variable. Chi-square test is used to determine significant for non-parametric variable. A probability level of 0.05 was adopted as a level of significance for testing the research hypothesis.

Ethical and legal consideration

- 1) Research proposal was approved from Ethical committee in the faculty of nursing.
- 2) There is no risk for study subject during application of the research.
- 3) The study was followed common ethical principles in clinical research.
- 4) Written consent was obtained from patients or guidance who are willing to participate in the study, after explaining the nature and purpose of the study.
- 5) Confidentiality and anonymity was assured.
- 6) Study subject have the right to refuse to participate and or withdraw from the study without any rational any time.
- 7) Study subject privacy was considered during collection of data.

Limitation of the study

1. Since the researcher was the only data collector, this study did not include patients monitoring for 24 hours. So, it was impossible to be sure if nurses' assessment sheet were properly applied.
2. Investigation findings are limited in generalizability because the sample was selected from one geographical area in Arab Republic of Egypt (South Egypt Cancer Institute).

3. As result of small number of nurses working in this department researcher was obliged to include nurses working with similar patient in outer departments inside the hospital.

3. RESULTS

Table (1): Distribution of demographic characteristics of the studied nurses (n=60)

Variables	Frequency	
	No. (n=60)	%
Gender		
- Male	7	11.7
- Female	53	88.3
Age		
- <20 years	4	6.7
- from 20> 30 years	32	53.3
- from 30 to 40 years	24	40.0
Mean ±SD	26.85±4.92	
Marital status		
- Single	11	18.3
- Married	49	81.7
Level of education		
- Diploma in Nursing	45	75.0
- Instituted of Nursing	5	7.0
- Bachelor of Nursing	10	18.0
Experience year		
- < 1 years	3	5.0
- From 1- <5 years	18	30.0
- From 5 - 10 years	15	25.0
- More than 10 years	24	40.0
Mean ±SD	7.74±4.98	
Training courses for cystectomy		
- Yes	4	6.7
- No	56	93.3

Table (2): Comparison between nurses' knowledge as regards pre& post implementation of nursing teaching protocol (n=60).

Knowledge items	Pre(n=60)				Post(n=60)				P. value
	incorrect		Correct		incorrect		Correct		
	No	%	No	%	No	%	No	%	
Radical cystectomy surgeries									
Definition of cancer bladder	14	23.3	46	76.7	0	0.0	60	100.0	<0.001**
Indication of cystectomy	13	21.7	47	78.3	0	0.0	60	100.0	<0.001**
Symptoms of cancer bladder	48	80.0	12	20.0	4	6.7	56	93.3	<0.001**
Types of cancer bladder	48	80.0	12	20.0	2	3.3	58	96.7	<0.001**
Contraindications of cystectomy operation	55	91.7	5	8.3	3	5.0	57	95.0	<0.001**
Potential complications after procedure	4	6.7	56	93.3	0	0.0	57	95.0	0.047*
General pre-operative nursing care									
Primary nursing care given to patients before cystectomy	49	81.7	11	18.3	3	5.0	57	95.0	<0.001**
Instructions given to patients before cystectomy	18	30.0	42	70.0	2	3.3	58	96.7	<0.001**
General nursing care After cystectomy									
Nursing cares given to patients immediately after cystectomy	51	85.0	9	15.0	6	10.0	54	90.0	<0.001**
Routine nursing cares given to patients after cystectomy	53	88.3	7	11.7	4	6.7	56	93.3	<0.001**

Specific nursing care after cystectomy									
Nursing care of the pain after the operation	50	83.3	10	16.7	4	6.7	56	93.3	<0.001**
Nursing care for stoma after cystectomy	50	83.3	10	16.7	1	1.7	59	98.3	<0.001**
Symptoms and signs of infected wound	50	83.3	10	16.7	2	3.3	58	96.7	<0.001**
The basic daily nursing care and observations for cystectomy patient	50	83.3	10	16.7	4	6.7	56	93.3	<0.001**
Nursing precautions must be met to avoid infection of wound	52	86.7	8	13.3	2	3.3	58	96.7	<0.001**
Instruction that must be given to patients before discharge	35	58.3	25	41.7	2	3.3	58	96.7	<0.001**
Measuring vital signs immediately operation for patients	58	96.7	2	3.3	8	95.0	55	91.7	<0.001**
The position for patients immediately after operation	32	53.3	28	46.7	2	3.3	58	96.7	<0.001**
Deep breathing exercises and cough after operation	41	68.3	19	31.7	6	10.0	54	90.0	<0.001**
Use the abdomen belt.	50	83.3	10	16.7	7	11.7	53	88.3	<0.001**
Observe bleeding from wound	47	78.3	13	21.7	3	5.0	57	95.0	<0.001**

Chi-square test * Significant difference at p. value<0.05, ** Significant difference at p. value<0.01

Table (3): Total and subtotal mean knowledge scores obtained by nurses pre& post implementing nursing teaching protocol (n=60).

Knowledge items	Mean ±SD	T-test	P. value
-Radical cystectomy surgeries (maximum score=6) • Pre • Post	1.67±1.71 5.73±0.84	-16.499	<0.001**
-Nursing care before cystectomy(maximum score=2) • Pre • Post	0.18±0.39 0.95±0.22	-13.260	<0.001**
-General care after cystectomy(maximum score=2) • Pre • Post	0.82±0.47 1.9±0.3	-15.033	<0.001**
-Specific care after procedure (maximum score=11) • Pre • Post	2.42±3.2 10.37±1.75	-16.909	<0.001**
-Knowledge score(maximum score=21) • Pre • Post	5.08±4.94 18.95±2.55	-19.321	<0.001**

Independent T-test ** Significant difference at p. value<0.01

Table (4): Comparison between level of knowledge score obtained by nurses pre& post after implementation of nursing teaching protocol (n=60).

Knowledge Level	Pre(n=60)		Post(n=60)		P. value
	No.	%	No.	%	
Unsatisfactory	53	88.3	1	1.7	<0.001**
Satisfactory	7	11.7	59	98.3	
Mean ±SD	5.08±4.94		18.95±2.55		<0.001**

- Chi-square test ** Significant difference at p. value<0.0 - Independent T-test ** Significant difference at p. value<0.01

Table (5): Two by two t.test for the mean total and subtotal practice scores obtained by nurses pre & post after implementation of nursing teaching protocol (n=60).

Practice items	Mean±SD	T-test	P.value
-General pre-operative nursing care:(score=14) • Pre • Post	9.63±1.39 14±0	-24.340	<0.001**
-Specific pre-operative nursing care:(score=34) • Pre • Post	13.43±3.68 33.97±0.18	-43.121	<0.001**
-Immediate post-operative nursing care:(score=42) • Pre • Post	19.57±6.07 41.85±0.48	-28.354	<0.001**
-Preventive measures for post-operative discomfort:(score=40) • Pre • Post	22.72±5.45 39.97±0.18	-24.505	<0.001**
-Post-operative instruction before discharge (score=80) • Pre • Post	33.78±3.77 79.95±0.29	-94.492	<0.001**
-Total practice score(score=210) • Pre • Post	99.13±15.36 209.73±0.63	-55.721	<0.001**

Independent T-test ** Significant difference at p. value<0.01

Table (6): Comparison between nurses' practice level throughout nursing teaching protocol phases (pre, post).

Practice Level	Pre		Post		P.value
	No	%	No	%	
Unsatisfactory	52	86.7	0	0.0	<0.001**
Satisfactory	8	13.3	60	100.0	
Mean±SD	99.13±15.36		209.7±0.63		<0.001**

- Chi-square test ** Significant difference at p. value<0.01

- Independent T-test ** Significant difference at p. value<0.01

Table (7): Correlation between nurses knowledge and practice scores obtained by nurses pre and post implementation of nursing teaching protocol (n=60).

Total Practice score	Total Knowledge score	
	r.value	P. value
Pre	0.207	0.112
Post	0.504	<0.001**

**Statistically Significant Correlation at p. value<0.01

Table (8): Demographic characteristics of the studied patients (n=30).

Variable	Frequency	
	No	%
Age group		
- 40-55	10	30.0
- 55-65	20	70.0

Mean ±SD	55.50±8.31	
Sex		
- Male	24	80.0
- Female	6	20.0
Adders		
- Rural	22	73.3
- Urban	8	26.7
Martial status		
- Married	30	100.0
Level of education		
- Illiterate	18	60.0
- Basic education	11	36.7
- Secondary	1	3.3
Occupation		
- Farmer	21	70.0
- House wife	5	16.7
- Not worked	1	3.3
- worker	3	10.0

Table (9): Comparison between of studied patients’ assessment for stoma as regarded pre& post implementing nursing teaching protocol (n=30).

Variables	pre (n=30) Mean ± SD	post (n=30) Mean ± SD	P. value
Assessment of the stoma			
A-Criteria of stoma			
The characteristics of normal stoma:			
Pink and moist like the inside of the mouth.	0.2±0.41	0.97±0.18	<0.001**
Insensitive to pain	0.13±0.35	0.93±0.25	<0.001**
Vascular and may bleed when cleaned	0.23±0.5	0.93±0.25	<0.001**
Characteristics of abnormal stoma:	4.1±1.69	2±1.29	<0.001**
Dryness	0.83±0.38	0.47±0.51	0.002**
Change in color of stoma	0.7±0.47	0.2±0.41	<0.001**
Stenosis	0.37±0.49	0.2±0.41	0.157
Ureteral obstruction	0.67±0.48	0.5±0.51	0.197
Edema	0.47±0.51	0.1±0.31	0.001**
Discharge or leakage	0.53±0.51	0.33±0.48	0.122
Hernia	0.53±0.51	0.2±0.41	0.007**
Total of Criteria of stoma	8.73±1.80	3.00±1.20	<0.001**
B-Abnormalities of skin around stoma			
Redness or hotness of the skin	0.47±0.51	0.77±0.43	0.016*
Excoriation of the skin	0.4±0.5	0.63±0.49	0.073
Exudation of the skin	0.2±0.41	0.67±0.48	<0.001**
Burning sensation and discomfort	0.23±0.43	0.57±0.5	0.008**
Ulceration of the skin	0.2±0.41	0.5±0.51	0.014*
Total of abnormalities of skin around stoma	3.13±1.25	1.5±1.01	<0.001**
C- The characteristics of urine in appliance			
color	0.47±0.51	0.73±0.45	0.035*
Amount	0.27±0.45	0.8±0.41	<0.001**
Oder	0.27±0.45	0.7±0.47	0.001**
Turbidity	0.27±0.45	0.8±0.41	<0.001**
Total of characteristics of urine	1.27±0.94	3.03±1.54	<0.001**

Table (10): Comparison between patient complications after radical cystectomy surgeries pre & post implementing of nursing teaching protocol (n=30).

Variables	pre (n=30) Mean ± SD	post (n=30) Mean ± SD	P. value
Patient complication after radical cystectomy surgeries			
-Early complication			
Acidosis	0.53±0.51	0.33±0.48	0.122
Leaking urine or stool	0.7±0.47	0.2±0.41	0.001**
Bowel obstruction	0.7±0.47	0.17±0.38	0.001**
Kidney infection	0.67±0.48	0.23±0.43	0.001*
Total early complication	2.6±0.97	0.93±0.94	<0.001**
-Late complication			
Obstruction of the ureters or intestines	0.57±0.5	0.3±0.47	0.038
kidney problems, such as renal failure	0.6±0.5	0.23±0.43	0.003*
problems with opening (stoma)	0.37±0.45	0.17±0.38	0.001**
scar tissue that forms inside the intestines	0.53±0.51	0.3±0.47	0.069
Total late complication	2.43±0.94	1±0.83	<0.001**
Total complication of the stoma	5.03±1.59	1.93±1.48	<0.001**
Total assessment of the stoma	20.03±4.93	7.7±4.87	<0.001**

- Independent t-test, * Significant difference at p. value<0.05, ** Significant difference at p. value<0.01

Table (11): Comparison between studied of patients' assessment for stoma and stoma complications as regarded pre& post implementing nursing teaching protocol.

Items	pre (n=30)	post (n=30)	P. value
Assessment of the stoma	15±3.77	5.77±3.65	<0.001**
Complication of the stoma	5.03±1.59	1.93±1.48	<0.001**
Total Patient assessment of the stoma	20.03±4.93	7.7±4.87	<0.001**

- Independent t-test, ** Significant difference at p. value<0.01

Table (1): showed that; the majority of the nurses are female (88.3%). More than half of nurses their age ranged from 20 >30 years (53.3%) with Mean of (26.85±4.92) and had diploma of nursing (75.0%). the majority of nurses are married (81.7%) and the majority of the nurses no had attended training programs (93.3 %). less than half of the nurses (40.0%) their years of experience more than 10years with Mean of (7.74±4.98).

Table (2): illustrate that; the majority of nurses had incorrect answer use the abdomen belt (83.3%). Also the table shows that; about half of nurse had incorrect answer related to knowledge of nurse's pre protocol implementation while after implementation of protocol most of them answer correctly. A significance statistical difference between nurses knowledge scores as regards pre& post implementation of the nursing teaching protocol.

Table (3): demonstrated that; the baseline mean scores for total and subtotal knowledge are very low before implementation of the nursing teaching protocol (1.67±1.71, 0.18±0.39, 0.82±0.47, 2.42±3.2, 5.08±4.94 respectively). However, there was an improvement in the mean knowledge scores after the implementation of the nursing teaching protocol (5.73±0.84, 0.95±0.22, 1.9±0.3, 10.37±1.75, 18.95±2.55 respectively).

Table (4): show that; a positive correlation between nurses knowledge scores pre and after implementation of the nursing teaching protocol with mean ±SD 18.95±2.55 and with p. value<0.01.

Table (5): illustrated that; a significant statistical difference was found between nurses in relation to total and subtotal mean practice scores in all practice items pre and post implementing of nursing teaching protocol with p. value<0.01.

Table (6): show that; A positive correlation between nurses practice scores pre and after implementation of the nursing teaching protocol with mean \pm SD 209.7 \pm 0.63 and with p. value <0.01.

Table (7): illustrates that; A positive correlation between knowledge score and practice score with p. value <0.01.

Table(8): shows that; Majority of the patients(70%) their age ranged between 55 to 65 years with mean of (55.50 \pm 8.31). The majority of patients were male, living in rural area, married, and working a farmer in percentages of (80%, 73.3%, 100%, 60% and 70% respectively). More than half of the patients were illiterate (60%).

Table (9): shows that; there was statistically significant difference between pre & post in the following items (criteria of stoma, abnormalities of skin around stoma, and the characteristics of urine in appliance).

Table (10): shows that; a significant statistically difference between all patient complication after radical cystectomy surgeries pre & post implementing of the nursing teaching protocol.

Table (11): shows that; there was statistically significant difference in all items pre & post implementation of nursing teaching protocol in percentage of (15 \pm 3.77, 5.77 \pm 3.65, 5.03 \pm 1.59, 1.93 \pm 1.48, 20.03 \pm 4.93 and 7.7 \pm 4.87 respectively) as regard patients' assessment.

4. DISCUSSION

Patient education about bladder management after radical cystectomy begins before surgery and is restarted as soon as possible after surgery. While education focuses on the nurses, patient, family members and other care providers. Any educational intervention can change patients' outcomes including knowledge, skills, attitudes, behaviors, condition or status, resulting from their involvement in a program or service. Nursing teaching protocol is an important and potentially powerful tool that can have beneficial effects that include improvement in nurses' knowledge, self-care, quality of care, cost reduction, transparency of treatment, and staff satisfaction with benefits of training and education (Carroll & Susan, 2015).

The results of the present study showed that the highest percentages of nurses are female. More than half of nurses their age ranged from 20 >30 years and had diploma of nursing. The majority of nurses are married and the highest percentage of nurses not attended training programs. Less than half of nurses, their years of experience more than 10 years.

This finding in the line with study by Abd Al-Magid (2011) reported the majority of nurses aged from 20-40 years, female, have diploma in nursing and their experience more than 3 years. Also the result supported by Ahmed (2011), Marquis & Huston, (2009); stated that education and training are two components of staff development that occur after radical cystectomy (which refers to planned, guided adjustment of employee to the organization and work environment). Knowledge level and capabilities are a major factor in determining the number of staff required to carry out unit goals.

In the present study, the majority of nurses had unsatisfactory level of knowledge before nursing teaching protocol regarding contraindications to conduct the cystectomy operation, routine nursing cares given to patients after cystectomy; precautions must be met to avoid infection of wound and measuring vital signs immediately after operation. A significance statistical difference between nurses knowledge scores in relation to pre & post implementation of the nursing teaching protocol.

In this regards Lemone & Burke (2009), stressed on providing standard nursing care for patients who had radical cystectomy surgeries is grounded on a solid foundation of knowledge.

In the present study, most of nurses in the present study show unsatisfactory level of knowledge about primary nursing care given to patients before cystectomy, information about nursing care of pain and use of the abdominal belt, instruction that must be given to patients before discharge and the position for patients immediately after operation.

These findings come in accordance with studies conducted by (Mary; et al., 2016) who reported that there was a significant difference between the mean pre-test and post-test knowledge, indicating a statistically significant improvement in knowledge of the subjects after the administration of the nursing teaching protocol in his study.

Most nurses their knowledge gained while working with patients. Books that were given to them during their secondary learning years were taken from them at the end of years and there is no arabic source for updating and continuing their education. Also this may be attributed to lack of continuous education and absence of in-service training program.

Dell` Anna & Anaclerio, (2015), reported that to accomplish quality care and best possible outcome; nurses should be knowledgeable about the type of surgery planned, its course and possible complications. **Kirsten, (2012)**, stated that medical surgical nurses must recognize post-operative complications that may arise.

After implementation of the nursing teaching protocol, nurses knowledge score levels regarding patients who had radical cystectomy surgeries were significantly improved. This improvement might be related to the fact that all nurses have a strong desire to learn new knowledge. Most nurses were in young adult age; this age might have good readiness for learning new things.

These results are in agreement with those of **Meyer & Elliott (2009)**, who noted that nurses` knowledge scores were higher among younger and newly graduated, nurses who attending training program.

The current study showed inadequate level of total practice scores in all items pre implementation of nursing teaching protocol regarding pre and postoperative care for patients who had radical cystectomy surgeries. All nurses didn't perform adequate care and didn't do adequate assessment for general pre-operative nursing care, specific pre-operative nursing care, immediate post operative nursing care and preventive measures for post-operative discomfort. This may be due to all nurses didn't have enough information about absence of nursing care related to postoperative patients care who radical cystectomy surgeries.

The current study revealed a great improvement in the practice score level obtained by nurses after implementation of the nursing teaching protocol in all items. Evidenced by a significance difference between results of pre and post teaching protocol. This finding indicated that skills can be easily improved, especially if linked with their relevant scientific base of knowledge.

This result were in the same line with **Marquis and Huston, (2009)**, who reported that each organization and profession must set standards and objectives to guide individuals and practitioners in performing safe and effective care. Leader and managers also must see that subordinates know and understand the standards and employee must be aware that their performance will be measured in terms of their ability to meet the established outcomes.

Regarding patients` instructions before discharge pre implementation of nursing teaching protocol, the present results showed that nurses give inadequate instructions to patients who had radical cystectomy surgeries before discharge.

In this regards **Kumrow, (2012)**, stated that discharge teaching for postoperative patient should include information regarding the signs and symptoms of potential complications, when and how contact to the physician, written and verbal information regarding medication, wound care and follow up visits with the physician.

The current study revealed a great improvement in the practice score levels obtained by nurses after implementation of nursing teaching protocol in all items. This has been concluded by the presence of significant differences between results of pre and post teaching protocol.

Youssef, (2007), was in the same line with the current study findings who conduct the study, which revealed that an improvement in nurse`s practice after attending a continuing nursing education sessions. Research findings indicated that continued nursing education programs increase both knowledge and practice.

The present study showed highly significant relation between nurses` knowledge and practice scores post implementing nursing teaching protocol. This finding indicated that skills can be easily improved, especially if linked with their in relevant scientific base of knowledge.

In this respect, **Abd-Ala, (2012)**, documented that the in-service training program has beneficial effect in improving the nurses` knowledge and skills. They also recommended that educational programs should be organized according to the needs of nurses with continuous evaluation.

The results in the present study showed no significant difference between nurses' knowledge and their practice observed during the pre teaching protocol. This may be attributed to insufficient courses related to nursing teaching protocol for patients who had radical cystectomy surgeries included in their undergraduate curriculum of nursing education and also there is no available Arabic source for updating and continuing their education.

However, the study of **Carroll and Susan, (2015)**, demonstrated that nurses must be accountable and responsible for the assessment, planning, intervention, teaching supervision and evaluation of care to ensure that the patient will receive safe care. Also the finding of **(WHO, 2017)** which found that in order to maintain and improve the quality of patient care, continuous data collection, documentation and analyzing patient information is essential.

(Ookalkar, 2009), who recommended that nursing teaching protocol should be organized according to the needs of nurses with continuous evaluation and adopting proper checklists for work monitoring to enhance patient and staff awareness; reduced process errors, mitigating overall risks, eventually resulting in effective patient care.

In relation to age group, the present study finding revealed that the highest percentages of the study patient were in the age group ranged from 55 to 65 years. These come in agreement with **(Khalil, 2010)** who reported that, the median age for radical cystectomy was 62 years. This result not agree with **(Rawal et al., 2012)**, **Turk (2014)**, who stated that age of radical cystectomy patients ranged from 80 to 87 years (median 82 years).

The American Cancer Society estimates the incidence of bladder cancer increases with age, with the median age at diagnosis being 65 years; bladder cancer is rarely diagnosed before age 40 years **(Gerharz, et al., 2015)**. Who reported that the mean age's groups were 73.3 ± 3.01 years, (range, 70–85 yrs). Furthermore it is less commonly seen in those younger than 40 years of age and most commonly occurs in people between the ages of 50 to 70 years.

the current study finding revealed that married, males were more prevalent in the studied sample. They represent the highest percentages (100%) of the study and control group. This supporting the finding by **(John et al., 2010)** who reported that, 80% of radical cystectomy patients were male. Also **(Krishnan et al, 2016)** in his study about the radical cystectomy patients after hospital discharge stated that men have higher incidence of developing radical cystectomy surgery than women.

The results of this study revealed that, the highest percentage of patients in the studied sample were from a rural area and poor health services. Moreover, people living in rural and remote areas may have poorer health status and face greater health risk factors than people living in urban areas due to the nature of their work as a farmer.

This is supported by the findings of **(Gupta et al., 2014)** who found that, the majority of the studied sample was lived in rural areas. Concerning occupation, the present study showed that most patients of the study patients were farmer workers. This finding is contradicting with **(Davies, 2011)**, who reported that working was found in a high proportion among patients undergoing to radical cystectomy surgery.

Also, from the point of view of the researcher this result could be because that the majority of the sample was male and they needed to work to earn money for their family. Most of them are working in agriculture so they expose to pesticides and there are associations between specific pesticides and bladder cancer. This was the same line with **(Koutros et al., 2016)** who reported that in the developed world, occupational exposures are a leading cause of bladder cancer.

Regarding the educational level, the present study revealed that illiteracy was prevailing among more than half of patients in the study subjects. This may be related to the fact that the majority of the study subject came from rural areas with low economic status, interested in manual and farm work. This was in the same line with **(Abdel-Hady, 2016)**, who reported that, the highest proportion of studied patients were illiterate or read and write. In relation to family history, the finding showed that most of the patient included in both control & study group had family history of cancer or one of their families at least had cancer.

This finding is agreed with **(Chalasan; et al., 2011)** who mentioned the Canadian bladder cancer stated that most of patients with bladder cancer and undergoing to cystectomy had a positive family history of cancers, with a percentage of 50%. Also this is supported by **(Gillis, 2014)** who revealed that about half of the general population received chemotherapy or radiotherapy had a positive family history of cancer and that number increase by 20%.

This was agree with study conducted by **(Thomas; et al, 2013)** about self-care practice on patient implementation of enhanced recovery nursing teaching protocol for patients undergoing radical cystectomy, who founded that the introduction of enhanced recovery described for patients undergoing radical cystectomy has been safe and led to patient benefits including early feeding, early mobilization and more rapid discharge from hospital.

The patient had adequate level of patient assessment about cystectomy surgeries after nursing teaching protocol, but their attitude toward the disease and their care skills was not adequately favorable. It can summarize that patient teaching begins before surgery and continues after discharge until the individual can perform self-care skills to maximum skills ability. Health professionals play an important role in helping patients adjusts preoperatively and postoperatively and accepts the presence of a stoma.

In the same line with **(Toktas, 2012)** when about should patient outcomes be measured after radical cystectomy, reported that there was statistical analysis between the control and study group for general health status even at the early post-operative period. Moreover, **(Mona, 2014)** in her study about outcomes for patients undergoing radical cystectomy, reported that highly statistically significant improvement in general health of studied subjects that highlighted by decreasing complaint of them from late complications.

This finding in contrast with **(Catharina, 2014)** study about outcomes for patients undergoing radical cystectomy prospective case control and study stated that there was no statistical differences were found for general outcomes for patients and remained stable over time.

The results indicate that there was an improvement of physical patient's outcomes after implementation of nursing teaching protocol. Nursing teaching protocol was created to reduce the physical and emotional stress for patients undergoing major surgical interventions. This finding is agreed with **(Janet, 2017)** in his study about enhanced recovery after radical cystectomy and urinary diversion, who stated that enhanced recoveries after surgery pathways were reduce the physical and emotional stress for patients undergoing major surgical interventions.

Moreover, this result is supported by **(Catharina, 2014)** who reported that the physical health showed a clinically relevant difference between the two groups, indicating that at baseline, the physical health was lower for the patients who later appeared to have bladder cancer. Indicating a statistically significant improvement in care of stoma in the study group after the implementation of the nursing teaching protocol.

This finding is agreed with **(Palapattu, 2014)** in the title of assessment of preoperative for patients undergoing radical cystectomy for bladder cancer. He reported that there was a statistically significant decrease in general assessment indicating that the identification of physical distress in this population has the potential to influence health related patients outcomes as well as recovery in all individuals with bladder cancer.

(Pranav Sharma; et al, 2016) stated that mental composite score was a significant predictive variable when added to present expert model and therefore, patient self-assessment of physical health status before surgery through validated questionnaires may provide additional information useful in predicting short-term postoperative outcomes.

These results indicate that was statistically significant difference between pre & post in the characteristics of the normal and abnormal stoma.**(Deliveliotis; et al, 2001)** added that reporting the characteristics of normal stoma is important, the size, shape and color should be noted with each assessment and this agrees with the current study which revealed that in study group in pre-test minority of patients reported the characteristics of normal stoma correctly, but post-test majority of patients reported it correctly.

These results indicate that was statistically significant difference between pre & post in the (abnormalities of skin around stoma, and the characteristics of urine in appliance). **(Pullen , 2006)** this agrees with the current result reported that teaching the patient to dry the skin and stoma gently and examine the skin and stoma for soreness, ulcerations or other unusual phenomena is important for prevention of complications or treatment of existing problem.

These results indicate that was statistically significant difference between pre & post in the following items (criteria of stoma, abnormalities of skin around stoma, and the characteristics of urine in appliance).

Blackley, (2008) agrees with the current study that pouching system must be properly sized and maintain continuous contact with the peristomal skin. As in pre-test minority of the study group patients can notice appliance adherence to the skin, while post-test all of patients can notice it adherence to the skin.

These results indicate that was significant statistically difference between all patient complication (early & late) after radical cystectomy surgeries pre & post implementing of the nursing teaching protocol.

Furthermore, the nursing teaching protocol showed its impact on early detection and/ or prevention of stoma complications. **(Porth, 2000) and (Storch& Rice, 2005)**, stated that professional nurses have a large role to play in the minimization & prevention of early and late complications should be clinically well versed in all aspect of the condition, current strategies to address risk minimization and prevention management and advocates for patient safety.

Black; et al, (2016) reported that the patient is instructed to empty the pouch by means of drain valve when it is one- third full because the weight of urine will cause the pouch to separate from the skin if filled more and the current study reveled minority of study group patients, can correctly empty the pouch this is in pre-test. But post test all of the study group patients can correctly empty the pouch.

So, it can be concluded that results from this study and other studies strongly suggest that teaching should be approached in an organized manner, under pinned by sound principles of teaching and learning using teaching plans where appropriate to ensure that no vital aspects are omitted. Also, patient who undergo radical cystectomy surgeries resulting in an abdominal stoma need extensive teaching and counseling to fully recover. Finally, it can be concluded that, the teaching protocol for nurses working with patients undergoing radical cystectomy surgeries had achieved its objectives by improving nurses' knowledge and practice about postoperative monitoring of cystectomy surgeries.

5. CONCLUSION& RECOMMENDATIONS

From this study we can concluded that, Nurse's knowledge and practice regarding radical cystectomy surgeries in surgical oncology were inadequate. Nurses are potentially capable to improve their knowledge and practice after exposure to nursing teaching protocol. Application of nursing teaching protocol about care of patients undergoing radical cystectomy surgeries shows a significance improvement in nurses' knowledge and practice. Improving nurses' knowledge and practice can favorable affect the incidence and outcome of radical cystectomy surgeries. Based on the results of the present study, it can be recommended that, Continued nursing education and in service training programs in surgical oncology department should be well organized within south Egypt Cancer Institute and equipped with the necessary educational facilities and materials necessary to upgrade the knowledge and skills of nurses, which will be reflected on better outcome and service for patients.

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