

The Effectiveness of Nutritional Counseling on Recovery Outcomes among Bladder Cancer Patients undergoing Radiotherapy

¹Omima s. shehata, ²Soheir M. Weheida, ³Nabil A. Mobarek, ⁴Sanaa I. Abd E l -Gafar

^{1,4}Medical Surgical Nursing Department, Faculty of Nursing, University of Menofia, Egypt

²Medical Surgical Nursing Department, Faculty of Nursing, University of Alexandria, Egypt

³Oncology Department, Faculty of Medicine, University of Menofia, Egypt

Abstract: Aim of the study was to identify the effectiveness of nutritional counseling on recovery outcomes among bladder cancer patients undergoing radiotherapy. **Materials and method:** study was carried out on a convenient sample of 50 patients was randomly and alternatively divided into two equal groups; 25 for each group: Study group (I) were received nutritional counseling. Control group (II) were exposed to routine hospital care. **Setting ;** The study was conducted in Clinical Oncology Department of Menoufiya University Hospital, Menofia Governorate, Egypt. **Tools of the study:** Six tools were used for data collection. 1- Knowledge Assessment Sheet: Structured interview questionnaires to assess patient's knowledge about disease process. 2- Radiotherapy assessment sheet, while, 3- Scored Patient Generated Subjective Global Assessment sheet. 4- Method of Nutritional Assessment sheet. 5- Quality of life (QoL) scale by (Padilla and Grant, 1985). The last one was Inventory functional status cancer by (Tulman et al., 1991). **Results:** The majority of both study and control group were farmers, married, have 5 offspring, no family history of bladder cancer, smokers, had bilharzias infection. **Conclusions:** the study was concluded that cancer and its treatment affect nutritional status of patients to varying degrees so the patient require ongoing nutritional assessment ; need nutritional counseling and prompt nutritional intervention. **In addition,** there is a relationship between nutritional counseling and recovery outcomes among bladder cancer patients undergoing radiotherapy. **Recommendation;** further studies should be carried out on a large number of patients

Keywords: bladder cancer, functional status, nutritional counseling, quality of life-Qol , and radiotherapy,.

1. INTRODUCTION

Cancer is the second leading cause of death in the United States. It is characterized by abnormal, unrelated cell proliferations that invade healthy tissues and compete with normal cells for oxygen, nutrients and space. It can metastasize by direct extension to adjacent tissues, from lymph vessels into the tissues adjacent to lymphatic vessels, by transport from blood or lymph systems and by diffusion within a body cavity (Timby and Smith, 2003).

Black et al., (2001) added that cancer is a disease of the cell in which the normal mechanisms of The growth control and proliferation have been altered. It is invasive, spreading directly to surrounding tissue as well as to new sites in the body.

In addition, American cancer society (2007) defined cancer as it is a group of diseases characterized by uncontrolled growth and spread of abnormal cells. If the spread is not controlled, it can result in death. It is caused by both external factors (tobacco, chemicals, radiation, and infectious organisms) and internal factors (Inherited mutations, hormones, immune conditions and mutations that occur from metabolism). The causal factors may act together or in sequence to initiate or promote carcinogenesis.

In the United State, the lifetime probability of cancer is one in two for men and one in three for women. In 2007, an estimated 1,444,920 new cancer cases are expected to be diagnosed and approximately 559,650 Americans are expected to die, more than 1,500 people die a day. Bladder cancer is the fourth most common type of cancer in men and the ninth most common in women (American Cancer Society, 2003 and 2007).

Incidence rates of bladder cancer are high in African countries, most especially in Egypt, where Schistosomiasis is endemic (Muruve, 2007). This is supported by Egyptian National Cancer Institute (1997), which added that bladder cancer is frequent where *Schistosoma haematobium* is endemic namely: Egypt, Iraq, Sudan, Saudi Arabia and Yamane. The relative frequency of bladder cancer is about 20% in Egypt, 10% in Iraq and 6% in Saudi Arabia.

In Egypt, bladder cancer constituted over 30% of total cancer incidence and ranked the first among all types of cancer reported in males; this high incidence was associated with Bilharzias infection which was endemic in Egypt. Statistical records of the Egyptian National Cancer Institute from 2001 to 2002, illustrates that 2,357 (12%) new cases of urinary tract system, out of them 2,048 (86.9%) is bladder cancer, and mortality rate is 1,869 (8.7%) (Elatter, 2003). In 2004, statistical records of Menofia Oncology Department illustrate that 724 new cases of cancer were diagnosed and out of them about 115 bladder cancers (Statistical records of bladder cancer, clinical Oncology Department, Menofia University, 2004 and national comprehensive cancer network, 2003).

Betts,(2003) and national cancer institute 2005 added that bladder and liver cancers were the two most common causes of cancer mortality in Menofia, Egypt.

Radiotherapy has been used as first line radical treatment in muscle-invasive bladder cancer. The choice of treatment may also be based on preference of treating physicians or policy of the specific centers (Chong, et al., 2003).

Radiotherapy can alter nutrition because lose of appetite, nausea and vomiting are commonly associated with such treatments. In addition, it also causes fatigue that leads to decrease the amount of energy available for functional abilities. Moreover, Cancer greatly increases the body's metabolic demands and cancer cells usually compete with normal cells nutrients. Clients with cancer may experience anorexia, nausea, vomiting and depression; all of which can decrease food consumption (Graven and Hirnle, 2003).

So, prompt nutritional screening and assessment can identify patients at nutritional risk. Patients then need to receive appropriate nutritional counseling and management of treatment related side effects. Patients receiving aggressive cancer therapy also need aggressive nutritional intervention to help them to maintain quality of life (Gamil, et al 2004).

Nursing care of the patient receiving radiation therapy focuses on preparing the patient physically and psychologically for therapy. Pre treatment assessment includes knowledge of the treatment plan and goal of therapy, physical assessment with particular attention to areas that may be affected by radiation, nutritional assessment, the patient's and family's understanding of disease process and treatment plan, the patient's knowledge of possible side effects, and particular problems such as patient's transportation to the treatment center is very important. After completing an initial assessment, an individual care plan is formulated. Patient education and implementation of interventions during the course of treatment is very important (Ravasco, et al 2007).

Brooker et al., (2003) stressed that patient teaching is an essential element of cancer care. The provision of succinct information in every day, understandable language enables people with cancer to understand the disease, its treatment and potential side effects.

2. AIM OF THE STUDY

The aim of the current study is to identify the effectiveness of nutritional counseling on recovery outcomes among bladder cancer patients undergoing radiotherapy.

Operational Definitions:

- Nutritional counseling is the process of guiding a client toward a healthy nutrition life style by meeting normal nutritional needs through providing nutritional suggestions to manage the side effects of radiotherapy.

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- Recovery outcomes are represented by managing the side effects of radiotherapy through measuring quality of life (a state of wellbeing) and functional ability (capacity to perform a given function) of the patient.

3. METHOD AND MATERIAL

3.1. Research design:

The quasi-experimental design was utilized

3.2. Setting:

The study was conducted in the Outpatient Clinics of Clinical Oncology Department and Radiotherapy Unite, Menofia University Hospital, Menofia Governorate, Egypt. The setting is considered representative for patients with bladder cancer.

3.3. Subjects:

A convenient sample of 50 patients were randomly and alternatively divided into two equal groups; 25 for each group:

Study group (I) were received nutritional counseling

Control group (II) were exposed to routine hospital care.

The patients had been selected according to the following criteria:

- Adult, Conscious patients of both sexes
- Newly diagnosed with bladder cancer in third and fourth stage
- Before starting of radiotherapy
- Free from any other associated disorders

3.4. Tools:

For the purposes of the study and to collect the necessary data 6 tools were developed and utilized by the researchers based on review of literature.

It was developed and used by the researcher to assess bladder cancer patient's knowledge about disease, side effects of radiotherapy and nutritional management, after reviewing of the related literature. The sheet was comprised of 43 questions, of three parts and was written in Arabic.

* Part one: Socio demographic Data:

It was comprised of ten questions and recorded data related to patient's sex, residence area, age, level of education, employment, monthly income, marital status, family members, and care support.

* Part two: Health History:

It was comprised of eleven questions, five questions about medical history (past, present and family history) while six questions related to risk factors of bladder cancer such as chronic urinary inflammation, Schistosomiasis, abdominal radiation, coffee, cigarette smoking, and occupational exposure.

*part three: Patient's Knowledge:

It was comprised of twenty-two questions and three parts about the following:

A- Disease

It was comprised of six questions about definition, risk factors, signs and symptoms, diagnostic test, stages of the disease, and different treatment modalities. Questions were given a score out of thirty. Each question was given 5 marks if the

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patient reported correct and complete answer; 2.5 mark if the patient reported correct and incomplete answer; and zero if the patient reported an incorrect answer.

B- Radiotherapy

Five questions assessed patient's knowledge about radiotherapy: definition, types, benefits, number of sessions, side effects, and one question related to presence of recent symptoms. These questions were given a score ranged from 0 as a minimum to 30 as a maximum. Each question was given 5 marks if the patient reported correct and complete answer; 2.5 mark if the patient reported correct and incomplete answer; and zero if the patient reported incorrect answer.

C- Nutritional suggestions

Ten questions concerning nutritional suggestions for managing side effect of radiotherapy; seven questions related to general side effects of radiotherapy as anorexia, nausea and vomiting, anemia, leucopenia, bleeding tendency, fatigue, and skin reaction; and three The patient's scores were added and collected for each part separately out of thirty and were classified into: a score below 15 denoted poor or unsatisfactory action; while a score of $15 < 20$ indicated fair results and score between 20 and 30 illustrated good or satisfactory management

Tool I: Knowledge Assessment Sheet: Structured

Questions related to local side effects of radiotherapy such as diarrhea, dysuria, and urgency/frequency.

The questions were given a score ranged from 0 as a minimum to 30 as a maximum. Each question was given 3 marks if the patient reported correct and complete answer; 1.5 mark if the patient reported correct and incomplete answer; and zero if he/she reported an incorrect answer.

Finally, the patient's scores were added and collected for each part separately out of thirty and these scores of each part were classified into:

- A score below 15 denoted poor or unsatisfactory results
- A score of $15 < 20$ indicated fair results
- A score between 20 and 30 illustrated good or satisfactory results

Tool II: Radiotherapy assessment sheet

It was developed by the researcher to assess patient's side effects of radiotherapy and the actions taken by them to manage these side effects. It was comprised of fifteen questions and 2 parts. It was written in Arabic.

Part I: Identification data:

It was comprised of five questions and recorded data related to patient hospital number, duration of treatment, date of the first session, midst and last session of radiotherapy.

Part II: Side effects and actions taken by the patient:

It was comprised of ten questions, seven of them concerning to general side effects of radiotherapy as anorexia, nausea and vomiting, anemia, leucopenia, bleeding tendency, fatigue, and skin reaction. While, three questions concerning to local side effects of radiotherapy for radiation on pelvic region such as diarrhea, dysuria, and urgency/frequency.

The questions were given a score from 0 as a minimum to 30 as a maximum. Each question was given 3 mark if the patient reported correct and complete answer; and performed correct management completely; 1.5 mark if the patient reported correct and incomplete answer and not performed the complete management ; and zero if he/she reported an incorrect answer and not performed the proper management.

Nutritional risk and need appropriate intervention as the following, if the score were:

- 0-1 : No intervention required at this time
- 2-3 : Patient and family need education by dietitian, nurse or other clinician

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- 4-8 : Requires intervention by dietitian, in conjunction with nurse or physician
- >9 : Indicates a critical need for improved symptom management and/or nutrient intervention options

Tool III: Scored Patient Generated Subjective Global Assessment (PG – SGA) sheet

This tool was developed by Ottery et al., (1998) for cancer patients and was used by the researcher to determine the patients at risk for nutritional deficiency or need nutritional counseling or support. It was comprised of sixteen question and divided into seven sections as the following:

- Section one: Weight history that was comprised of five questions. The maximum score for this section was four, while, the minimum score was zero.

The following equation was used for determining the patient weight change values as the following

*Percent patient's weight change = $(\text{usual weight} - \text{present weight}) \div \text{usual weight} \times 100$.

- Section two: Food intake, it was comprised of two questions. The maximum score for this section was four, while, the minimum score was zero.
- Section three: Symptoms, it was comprised of one question about the problems that was interfered with eating enough during the last two weeks. The maximum score of this section was three, while, the minimum score was zero.
- Section four: Activities and function, it was comprised of one question about generally rating of the activities over the last month. The maximum score of this section was three, while, the minimum score was zero.
- Section five: Disease and its relation to nutritional requirements, it was comprised of two question. The maximum score was given a score of one.
- Section six: Metabolic demand, it was comprised of four scored sub items. The maximum score for this section was three, while the minimum score was zero.
- Section seven: Physical examination, it was comprised of one question the maximum score for this section was three, while the minimum score was zero.

Finally, the score for each section collected individually. Then the totally generated scores from the sheet and determining the patients who are at high

4. A side effect of radiotherapy dimension was comprised of four questions and had 40 scores.

On statistical analysis of data the 230 scores were transcribed into ten scores through dividing the total score by 23, and was leveled as follows: (a) low QOL (from 0 up to 4), (b) moderate QOL (from 4 up to 8), (c) high QOL (from 8 up to 10). As well as, a panel of senior oncology Egyptian nurses test content validity for the scale (Kandil, 1998).

Tool IV: Objective method of Nutritional Assessment sheet

It was developed by the researcher and was comprised of three parts:

Part 1: Physical Signs of Nutritional Deficiency

It was comprised of eight questions related to face, skin, hair, eyes, lips, tongue, gums and nails.

Part 2: Laboratory Investigation:

It was comprised of the laboratory investigations such as albumin, hemoglobin, and hematocrit and blood urea nitrogen. Moreover, complete blood count.

Part 3: Anthropometric Measurements:

It was comprised of height, current body weight, body mass index, triceps skin fold thickness, mid-arm circumference, and mid-arm muscle circumference.

The following equation was used for determination of body mass index (BMI) as the following

- $\text{BMI (kg/m}^2\text{)} = \text{Body weight (kg)} \div \text{Squared height (m}^2\text{)}$. (Ministry of Health, 2000)

Tool V: Quality of life scale. It was developed by Padilla and Grant (1985) for cancer patient and was translated into Arabic by Selim et al., (1995). It was utilized by the researcher and consisted of 23 questions each question was rated on a 10-point, totaling 230 scores. In addition, these questions covered the following four dimensions:

1. Physical dimension was comprised of eleven questions; and had 110 scores.
2. Social dimension was comprised of five questions and had 50 scores.
3. Psychological and Spiritual well-being was comprised of three questions and had 30 scores.

V and VI were validated by other Arabic authors.

3- Protection of Patient's Rights and consent:

At the initial interview each patient was informed about the purpose and benefits of the study, and informed that their participation is voluntary, also confidentiality and anonymity of the patients were assured. Finally, patients' formal consent for participants has been obtained.

4- Pilot study:

A pilot study was conducted on 10% of study sample (5 patients) to evaluate the developed tools and a designed booklet for clarity and applicability then necessary modification was carried out. The data that was obtained from the pilot study was not included in the actual study.

Tool VI: Inventory functional status cancer assessment scale. It was developed by Tulman et al., (1991) and translated to Arabic format by *Mohamed (2001)* then was utilized by the researcher. It was comprised of 39 items to measure functional status according to its four subscales that had relevant for cancer patients: **(a) Personal care activities** (10 items) such as bathing, dressing, eating, exercising, relaxing, resting and sleeping. **(b) Household and family activities** (15 items) such as cleaning, cooking, doing-dishes, shopping, and caring for spouse and children. **(c) Occupation activities** (8 items) such as amount of work accomplished at one's job, amount of job responsibility, and hours worked and. **(d) Social and community activities** (6 items) such as participation in community and religious organizations, socializing with friends and relatives and time spent on hobbies. Personal care activities and occupational activities subscale were used a 4-point rating scale that ranging from one (never) to four (all of the time). While household and family activities ; social and community activities subscale using other a 4-point rating scale that ranging from one (not at all) to four (full time). Possible scores ranged from 39 to 156, the higher scores, the higher functional ability status. The test-retest reliability coefficient for the scale was 98.5; in addition, content validity was 0.91.

4. METHODS

4.1. Written Approval:

Permission to carryout the study was taken from responsible authorities after explanation of the purpose of the study.

4.2. Tools development:

- Tools I, II and IV were developed by the researcher after reviewing of the relevant literature and content validity was tested by five experts in the field included nurse educator and medical specialist, then modifications were done accordingly to ascertain relevance and completeness. The other three tools III, interview. Each interview took about 30 minutes and considered as follow up phase.
- In the second and the third interview, the researcher determined the patient's knowledge about the side effects of radiotherapy and action taken related to management of the side effects of radiotherapy then the mean value were recorded according to the developed levels of management
- Two, long counseling sessions have been given by the researcher for each patients individually of the study group I at the radiotherapy unit in the first and second interview. The researcher follows the principles of counseling and focus on the side effects of radiotherapy that occur during radiotherapy period for each patient and action taken to manage it. As well as, patients were asked to accompany one of the family members who can read and write to attend the

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counseling session. Moreover, the booklet (Appendix VIII) that was designed by the researcher was given to each patient or his/her accompanying person in the study group in the first interview. Each session lasted for 30 minute.

- A comparison was done between the two groups at the end of the treatment session to determine the effectiveness of nutritional counseling on recovery outcomes among bladder cancer patients undergoing radiotherapy.

4.3. Data collection:

- ❖ Data collection was extended from April 2006 to the end of June 2007.
- ❖ Each patient who agreed to participate in the study and fulfilling the inclusion criteria has been interviewed individually by the researcher in Outpatient Clinics at Clinical Oncology Department and Radiotherapy Unite.
- ❖ A treatment schedule for patients in the radiotherapy unite was generally 5 days per week with two consecutive rest days i.e. Friday and Saturday for seven weeks.
- ❖ A convenient sample was divided randomly and alternatively into two equal groups.
- ❖ The study group (I): was received nutritional counseling for managing the side effect of radiotherapy
- ❖ The control group (II): was exposed to a routine hospital care.
- ❖ Three individually interviews were done for both groups. The first interview before the start of the treatment session of radiotherapy to collect base line data using tool I, II, III , IV , V and VI. This interview took about 60 minutes and considered as assessment phase.

The second interview was done for both groups at the midst session of treatment period after 25 days from the first interview to assess the effectiveness of nutritional counseling by using tool II, III , IV , V and VI. The third interview also was similar to the second interview but was done at the last session of radiotherapy at 25 days from the second Variables.

- Paired t-test: is a test of significance that was used for comparison between two related groups having quantitative variables.
- Anova (f) test: is a test of significance that was used for comparison between three or more groups having quantitative variables.
- Pearson correlation (r): is a test that was used to measure the association between two quantitative variables.
- Kruskal-Wallis test (nonparametric test): is a test of significance that was used for comparison between three or more groups not normally distributed having quantitative variables.
- P-value of < 0.05 was considered for statistically significant.

5. STATISTICAL ANALYSIS

Upon completion of data collection each sheet has been manually analyzed. The background data sheet has been coded and described into number calculations. Calculations were made by using IBM personal computer and statistical package SPSS version 11 (program on computer). Then, the results were collected, tabulated, statistically analyzed by two types of statistics that were described by (*Mann, 2004*) as the following

5.1. Descriptive statistics: e.g. percentage (%), mean (x) and standard deviation (SD).

5.2. Analytic statistics : e.g. —

- Chi-square test (χ^2): was used to study association between two qualitative variables.
- Student t-test: is a test of significance that was used for comparison between two groups having quantitative variables.
- Mann-Whitney test (nonparametric test): is a test of significance that was used for comparison between two groups not normally distributed having quantitative

majority of both study and control groups had poor or unsatisfactory knowledge about how to manage the side effects of radiotherapy before counseling (60% & 60% respectively).

It also shows that the majority of study group had good or satisfactory knowledge after counseling while there was slightly improved in knowledge and action taken to manage the side effects of radiotherapy in the study and control group (44% & 20% respectively).

Moreover, it demonstrates that there were no statistically significant differences existed between both study and control groups before counseling versus after counseling; P value were (0.683; 0.045 respectively).

Table one: demonstrates that overall patient's knowledge regarding nutritional management for general and local side effects of radiotherapy before and after counseling as presented by both study and control groups. It illustrates that the interview questionnaires

Table two: shows a assessment of nutritional status at three times intervals {before counseling (before first session), and after counseling (midst and end session of radiotherapy)} for both study and control groups.

It was noticed from this table that the majority of both study and control groups and their families need education (52% & 44% respectively) before the first session of radiotherapy and before counseling.

Regarding to the midst session, the majority of patients of the study group and their families still need education (44%) versus the majority in control group were needed critical intervention to symptoms management (48%). Moreover, in the latest session after counseling, the majority of patients in the study group required intervention (44%), in contrast to control group where there was obvious increasing in patients that were needed critical intervention symptoms management of radiotherapy (64%).

It also shows that, there were no significant differences were existed between study and control groups regarding nutritional status before the radiotherapy; while, there were statistically significant differences existed between study and control groups in the midst session and latest session after counseling.

Table three: Table (XXII) shows levels of QOL status as presented by both study and control groups at three times intervals {before counseling (before first session), and after counseling (midst and end session of radiotherapy)}. As seen from the table, the level of QOL for both study and control groups before the first session of radiotherapy and before counseling; QOL were high (4% & 4% respectively) ; while moderate (60% & 68% respectively) and low (36% & 28% respectively).

Also, in the midst session of radiotherapy after Counseling; QOL were high (44% & 0% respectively); while moderate (60% & 40% respectively), and low (36% & 56% respectively) for both study and control group.

The table additionally demonstrates that the majority of study group had moderate QOL versus the majority of control group had low QOL in the end session of radiotherapy (48% & 80% respectively).

There were significantly lower percent of patients with low QOL at the end sessions of radiotherapy in the study than control group, where P value = 0.024.

Table four: Table (XXIII) shows quality of life (QOL) as presented by both study and control groups at three times intervals {before counseling (pre first session), and after counseling (midst and end session of radiotherapy)}. This table displays the analysis of variance of the QOL, physical; spiritual; social and radiotherapy side effects dimensions in both study and control groups. The table also reveals that there were no significant statistically differences before starting radiotherapy and before counseling for both study and control groups, as well as significantly higher mean values of all dimensions and total QOL were existed at the midst sessions of radiotherapy and after counseling in the study than control group and also, at the end of radiotherapy after counseling, where (P= 0.028 & P= 0.027, P= 0.010 & P= 0.020, P= 0.005 & P= 0.004, P= 0.029 & P= 0.008, P= 0.023 & P= 0.025, respectively).

Table five: Table (XXIV) shows functional ability as presented by both study and control groups at three times intervals {before counseling (pre first session), and after counseling (midst and end session of radiotherapy)}. It demonstrates the

functional ability dimensions (personal, occupational, familial, and social activities) throughout the three times of assessment before for both study and control groups.

As regards of personal activities, there were significantly higher mean values of personal activities at the midst , and the end of radiotherapy after counseling, the mean values were changed from 25.84 ± 6.59 & 21.80 ± 6.19 to 23.76 ± 5.88 & 19.40 ± 2.25 , and P value= 0.030, P= 0.008 respectively and also, in occupational activities, the mean values were changed from $(21.04 \pm 5.03$ & 18.12 ± 4.73 to 19.24 ± 5.02 & 16.92 ± 4.25 , and P= 0.040, P= 0.084, respectively) in the study than control group.

In addition, there were significantly statistically differences concerning the previous mentioned dimensions throughout three times intervals before and after counseling for both study and control groups except in occupational activities; where p value were (0.140 & 0.056 respectively).

6. RESULTS

For socio demographic characteristics of both study and control groups. The majority of the sample for both study and control group was among the age group of 55 to 65 years (64% & 76% respectively). Moreover, the majority of both study and control groups were males, farmers, married and had 5 off springs (68% & 64%, 32% & 36%, 72% & 64%, 28% & 36% respectively).

It is also observed that, most of the patients in the study and control groups lived in rural areas (56% & 64% respectively) and their off spring supported them (92% & 80% respectively).

No statistical significant differences were found between study and control group, except for educational level where, there were significant higher number of illiteracy in control group 52% than the study group 20%, where, P value= 0.032. also, there was also statistical significant difference regarding income per month, where there were significant higher numbers of patients in the study group who had income per month from 200 to less than 300 pound (64%) than control group (28%), P= 0.016.

Table 1: Overall patient's knowledge regarding nutritional management for general and local side effects of radiotherapy before and after counseling as presented by both study and control groups

Patient's knowledge and action taken	Study group (n=25)		Control group (n=25)		X ² value	P value
	No	%	No	%		
* Overall patient's knowledge and action taken						
A) Before counseling (before first session)						
• Good / satisfactory	3	12.0	4	16.0	0.17	0.683
• Fair	7	28.0	6	24.0		
• Poor / unsatisfactory	15	60.0	15	60.0		
B) After counseling (midst and end session)						
• Good / satisfactory	11	44.0	5	20.0	3.31	0.045*
• Fair	9	36.0	8	32.0		
• Poor / unsatisfactory	5	20.0	12	48.0		

* = significantly

P value < 0.05

Table 2: Assessment of nutritional status at three times intervals {before counseling (before first session), and after counseling (midst and end session of radiotherapy)} for both study and control groups

Nutritional status	Study group (n=25)		Control group (n=25)		X ² Value	P value
	No	%	No	%		
* Nutritional status:						
Before counseling (before first session)						
a) Not required intervention	1	04.0	0	0.0	3.23	0.357
b) Required intervention	6	24.0	4	16.0		
c) Critical need for symptom management and/or nutrient intervention options	5	20.0	10	40.0		
d) Patient and family need education	13	52.0	11	44.0		
After counseling (midst session)						
a) Not required intervention	0	0.00	0	0.00	4.76	0.041*
b) Required intervention	8	32.0	5	20.0		
c) Critical need for symptom management and/or nutrient intervention options	6	24.0	12	48.0		
d) Patient and family need education	11	44.0	8	32.0		
After counseling (end session)						
a) Not required intervention	0	0.00	0	0.00	8.17	0.017*
b) Required intervention	11	44.0	3	12.0		
c) Critical need for symptom management and/or nutrient intervention options	7	28.0	16	64.0		
d) Patient and family need education	7	28.0	6	24.0		
X ² value		15.51		7.03		
P value		0.117		0.134		

* = significantly

P value < 0.05

Table 3: Levels of QoL status as presented by both study and control groups at three times intervals {before counseling (before first session), and after counseling (midst and end session of radiotherapy)}

QOL status	Study group (n=25)		Control group (n=25)		X ² Value	P Value
	No	%	No	%		
Before first session (before counseling)						
• High QOL	1	4.00	1	4.00	0.38	0.829
• Moderate QOL	15	60.0	17	68.0		
• Low QOL	9	36.0	7	28.0		
Midst session (after counseling)						
• High QOL	1	4.00	0	0.00	3.50	0.174
• Moderate QOL	15	60.0	10	40.0		
• Low QOL	9	36.0	15	60.0		
End session (after counseling)						
• High QOL	2	8.0	0	0.00	7.50	0.024*
• Moderate QOL	12	48.0	5	20.0		
• Low QOL	11	44.0	20	80.0		
X ² value		1.20		14.96		
P value		0.877		0.006*		

* = significantly

P value < 0.05

QOL = Quality Of Life

Table 4: Quality of life (QoL) as presented by both study and control groups at three times intervals {before counseling (before first session), and after counseling (midst and end session of radiotherapy)}.

QOL	Study group (n=25) X±SD	Control group (n=25) X±SD	Test of signify-	P Value
Physical dimension				
Before counseling (before first session)	53.12±24.07	53.80±17.37	U= 0.04	0.969
After counseling (midst session)	54.56 ± 24.67	40.04 ± 16.7	U= 2.20	0.028*
After counseling (end session)	51.40 ± 24.25	37.36 ± 16.39	U= 2.21	0.027*
Kruskall-Wallis	1.37	22.46		
P value	0.503	0.000*		
Spiritual dimension				
Before counseling (before first session)	18.40±4.97	18.36± 4.72	U= 0.03	0.988
After counseling (midst session)	24.56 ± 9.05	17.48 ± 7.01	U= 2.58	0.010*
After counseling (end session)	22.64 ± 8.84	16.64 ± 5.83	U= 2.33	0.020*
Kruskall-Wallis	4.75	4.23		
P value	0.093	0.121		
Social dimension				
Before counseling (before first session)	24.76±9.01	25.28±7.36	t= 0.22	0.824
After counseling (midst session)	18.20 ± 4.96	14.20 ± 4.65	t= 2.94	0.005*
After counseling (end session)	17.60 ± 4.86	13.68 ± 4.29	t= 3.02	0.004*
F- test	9.15	34.16		
P value	0.001	0.000		
Radiotherapy dimension				
Before counseling (before first session)	18.72±7.75	19.32±5.94	U= 0.73	0.465
After counseling (midst session)	18.60 ± 7.76	13.56 ± 6.01	U= 2.18	0.029*
After counseling (end session)	17.20 ± 7.18	11.76 ± 5.64	U= 2.66	0.008*
Kruskall-Wallis	1.29	22.04		
P value	0.524	0.000		
Total QoL score				
Before counseling (before first session)	117.00±44.76	116±31.35	U= 0.15	0.884
After counseling (midst session)	115.88 ± 45.59	86.48 ± 32.94	U= 2.27	0.023*
After counseling (end session)	109.88 ± 45.69	79.44 ± 29.95	U= 2.23	0.025*
Kruskall-Wallis	1.20	25.14		
P value	0.550	0.000		

* = significantly P value < 0.05 U = Mann-Whitney test

Table 5 : Functional ability as presented by both study and control groups at three times intervals {before counseling (before first session), and after counseling (midst and end session of radiotherapy)}

Functional status	Study group (n=25) X±SD	Control group (n=25) X±SD	Test of signify-	P Value
1-Personal activities				
Before counseling (before first session)	26.99 ± 7.70	24.05 ± 5.11	t= 4.55	0.66
After counseling (midst session)	25.84 ± 6.59	21.80 ± 6.19	t= 2.23	0.030*
After counseling (end session)	23.76 ± 5.88	19.40 ± 2.25	t= 2.76	0.008*
Kruskall-Wallis	7.70	4.46		
P Value	0.000*	0.000*		
2-Occupational activities				
Before counseling (before first session)	22.10 ± 6.22	21.80 ± 5.12	t= 3.22	0.069
After counseling (midst session)	21.04 ± 5.03	18.12 ± 4.73	t= 2.12	0.040*
After counseling (end session)	19.24 ± 5.02	16.92 ± 4.25	t= 1.76	0.084
Kruskall-Wallis	1.53	2.01		
P value	0.140	0.056		

3-Familial activities				
Before counseling (before first session)	22.09 ± 6.99	22.04 ± 5.05	U= 2.28	0.439
After counseling (midst session)	20.12 ± 4.94	20.72 ± 9.46	U=1.19	0.235
After counseling (end session)	19.40 ± 4.80	18.04 ± 8.40	U=0.79	0.428
F-test	4.07	2.89		
P value	0.000*	0.008*		
4-Social activities and community activities				
Before counseling (before first session)	13.96 ± 4.02	13.99 ± 4.35	t= 2.99	0.779
After counseling (midst session)	12.80 ± 3.14	12.24 ± 3.23	t= 2.62	0.537
After counseling (end session)	11.16 ± 2.88	10.04 ± 3.19	t= 1.30	0.199
Kruskall-Wallis	5.58	2.67		
P value	0.000*	0.013*		
-Total score				
Before counseling (before first session)	81.67 ± 11.33	79.66 ± 13.41	t=2.55	0.333
After counseling (midst session)	79.60 ± 15.64	72.92 ± 15.70	t= 1.51	0.138
After counseling (end session)	72.96 ± 14.23	66.20 ± 14.14	t= 1.69	0.099
Kruskall-Wallis	7.22	5.62		
P value	0.000*	0.000*		

* = significantly

P value < 0.05

U = Mann-Whitney test

7. DISCUSSION

Cancer was estimated to account for about 7 million deaths (12% of all deaths) worldwide in 2000. In addition, it was estimated to account for almost 6% of the entire global burden of disease in the same year. More than 70% of all cancer deaths occurred in low and middle-income population, although the risk of developing or dying from it is still higher in the developed regions of the world (WHO, 2006). In fact, Kumar and Clark 2005 have projected a 30% increase in the number of cancer deaths in developed countries and more than twice this amount (71%) in developing countries between 1990 and 2010 due to demographic changes alone. The result of the present study revealed that there were no statistical significant differences in the basic data between the study and control groups as regards to age, sex, occupation, and marital status except in education and income per month where the control group shows higher number of illiterate patients with low income than the study group. .

Findings of the current study revealed that age of the majority of the sample were ranged from 55 to 65 years. Finding is in line with Shehata (2004), who reported that the highest peak age of bladder cancer was in 60 years of old. On the contrary, Khalefa (2003) reported that the greatest percentage of the age was ranged from 45 to 54 years.

Concerning to sex, the current study found that more than two-third of the sample were males while one-third were females. This finding is consistent with Shehata (2004) and Tawfek, (2000) who stated that male patients represent the majority of the sample while female represent the minority. Also, the research findings by Sarhill, et al (2003) and khalefa, 2000. Are supported to this finding, because they stated that cancer bladder affect males five times more frequently than females, primarily because of male are exposed to bilharzias is as they work in the field. .

Moreover, the findings of this study approved that, approximately one third of the sample were farmers while two-thirds were married. In addition, the majority of the sample lived in rural areas. Furthermore, it was noticed that, the income of the majority of the patients were less than 300 been speculated and established between bladder tumor and urinary bilharzias is.

Moreover, it is observed from the current study that about half of the sample were smokers, this was supported by the results that found by Shehata (2004) and Tawfek (2000) who stated that about two-thirds of the sample were smokers..

Furthermore, Russell, et al (2004) reported that the people at high risk for developing bladder cancer are textile workers, painters, hairdressers, leather and metal workers as they are exposed to industrial carcinogens.

The current study revealed that more than half of the sample had unsatisfactory knowledge regarding to disease and management of the side effects of the radiotherapy. These findings revealed that patients with bladder cancer are in need of counseling concerning to previous mentioned items. However, there was significant statistically differences among

both study and control group concerning to level of education, where the majority of the study sample had basic and secondary education while in the control group, the majority were illiterate; although, this finding does not affect self-management of the disease for the study group. This is not consistent with Tisdale (2003) who emphasized that education may improve knowledge but does not necessarily improve self-management. Moreover, this result is consistent with Gupta (2005) who reported that although the severity of the side effect were somewhat bad, the patients did not have enough information to overcome these problems and also he found that the majority of the patients did not receive any information about precautions during the therapy.

Furthermore, Cohen and Taylor (2005) mentioned that Verbal counseling can be extremely effective in assisting patients to choose calorie-dense foods and treat symptoms that interfere with oral intake. A number of self-care actions have been proposed for treatment of cancer induced nutritional problems. Patient's education commonly includes interventions for decreased appetite, nausea, vomiting, constipation, taste changes, and mucositis, but there have been few researches that are exploring the effectiveness of most of these actions..

Has been reported to occur in the majority of individuals receiving radiation therapy and has been related to length of treatment, pain, depression and weight loss. Radiation therapy has a cumulative effect and many individuals report worsening symptoms later in their treatment. A study of cancer patients receiving radiation therapy found that after radiation therapy, fatigue either increased or remained stable while depression decreased (Buchsel and Yarbow, 2005 and Tango and McAninch 2004

Furthermore, a study was applied on 96 subjects of cancer patients during radiation therapy weekly and then monthly for 3 months after completing the treatment. The patients were receiving radiation for cancer of the bladder, chest, and prostate. Overall, the majority of the patients reported fatigue that gradually increased and was continuous by the last 2 weeks of treatment and that persisted for several months (Dudek, 2006).and Ellis, et al 2003 .The present study stressed that there were some patients and families needed education and counseling, others needed nutritional interventions, while others needed critical management to the symptoms of the side effects of radiotherapy. This findings are consistent with, Christensen and Kockrow (2003) who reported that Patient generated-subjective global assessment can identify outpatients at nutritional risk or patients who need to receive appropriate nutritional counseling and management of treatment related side effects; or Patients who need receiving aggressive nutritional intervention to help them maintain quality of life. Furthermore, this study showed that the majority of both study and control group had the most physical signs of malnutrition. These results are supported by Ottery, et al 1998) who mentioned that the physical signs of malnutrition are 1) dark skin under eyes in face. 2) Dull, dry, and sparse hair. 3) Pale, cloudy and red eyes. 4) Fissures or scars in lips. 5) Pale, and fissured in tongue 6) spongy, bleed easily and inflamed gums.7) dry, pale, and cracks in skin. 8) Pale and spoon-shaped ridged nails.

As well as Mohamed (2001); and Dixon (2003) argued that malnutrition is common in patients with advanced neoplastic disease as well as between half and more of cancer patients lost their starting radiotherapy.

The current study found that the majority of the sample had moderate QOL status and there were no significant statistically differences between study and control groups before counseling and before starting radiotherapy. These results were on the contrary with Kandil (2004) and Waitzberg and Correia 2003 who found that the majority of the sample had low QoL.

In addition, this study showed that, there were significantly higher percentages of patients with low QOL at the end sessions of radiotherapy in control group than study group after counseling. This findings of the study are explained by American institute for cancer research ,2003 and association of cancer online resources 2005 who emphasized that all patients in control group complained of fatigue which has an impact on all aspects of life because it is a multifaceted problem. As well as, it is a consequential side effect of cancer therapy that influences on all dimensions of an individual's QOL and can even hamper one's capacity for self-care. In addition, it has been variously characterized as tiredness, exhaustion, and lack of energy; sleepiness; confusion; and a sense of inadequacy

Moreover, the physical symptoms such as nausea, vomiting, diarrhea, pain, fatigue, etc; can result in significant distress that has a marked impact on the patient's QOL. It is important to realize that the patient's perception of cancer and its treatment will influence how the individual reacts and ultimately adapts. The side effects impair a patient's abilities to function at work or at home, and engage in social activities (Caribe games, et al, 2004 and ; Young and Soloway, 1998

While in the study group who were received nutritional counseling about management of the side effects of radiotherapy had lower percentage of patients with low QOL at the end session of radiotherapy than control group. This finding of the study is supported by a study done by Dixon (2004) and selim,et al 1995 who looked at using specialized nutritional counseling to help managing side effects in people who are receiving radiation therapy for treatment of gastrointestinal and; head and neck cancer. The results showed that people who met with dietitian to receive nutritional counseling did not experience harmful weight loss, had a lower risk of suffering from malnutrition during treatment and had a better with adults such as eating, dressing, and exercising frequently is impeded during the radiotherapy.

In addition, it is astonishing that the results of the current study documented the presence of significantly negative correlation between nutritional status and both of QOL and functional ability. It is not surprising for finding that one explanation is the more score, the more bad of nutritional status and need for nutritional support; so the more bad of nutritional status; the more bad of QOL and functional ability for bladder cancer patients and vice versa. This is supported by Interstitial cystitis network ,2007 who argued that the scored PG-SGA is a nutrition assessment tool that identifies malnutrition in ambulatory oncology receiving radiotherapy and can be used to predict the magnitude change in QoL; PG-SGA score and global QoL were correlated ($r = -0.66$, $P < 0.001$) at a base line

From the forgoing discussion, it can be concluded that Nurses providing care to cancer patients should be prepared to manage side effects of radiotherapy. This includes careful assessment, providing patients with essential information, assistance with behavioral and physical nursing interventions that prevent and alleviate patient's side effects of treatment. Monitoring of QOL and functional ability among bladder cancer patients receiving radiotherapy is an important nursing role that could assist in about early identification and proper management of patients' problems. Furthermore, the counseling care plan must encompass the entire process of radiotherapy and include the purpose and side effects of it, In addition to, the intervention and nutrition counseling to alleviate the side effects.

8. CONCLUSIONS

Based on the findings of the current study, it can be concluded that:

- There were no differences between study and control groups regarding characteristics of the sample were detected except level of education and income per month; and as regards to risk factors presence of higher numbers of study group had smoked for ≥ 20 years There were no differences concerning nutritional management of the side effects of radiotherapy

9. RECOMMENDATIONS

Based on the findings of the current study the following recommendations are derived and suggested:

A) Recommendation for the patients:

1. Providing counseling for patients to help them to overcome and manage the side effects of radiotherapy.
2. A booklet about side effect of radiotherapy and action taken should be distributed for each patient.

B) Recommendation for the nurses:

1. Developing a structured counseling program for oncology nurses about counseling and action taken to manage the side effects of radiotherapy
2. Encouraging nurses for using scored subjective global assessment tool to determine the patients who are at high risk for malnutrition or who are malnourished

C) Recommendation for administration:

Counseling clinics and trained nursing team should be available at radiotherapy unite.

Manual guidelines that illustrate action taking for managing side effect of radiotherapy should be available in counseling clinics.

d) Recommendation for future researches:

1. Replication of the study using a larger probability sample from different geographical areas to attain more generalizable results
2. Developing further researches about correlation between nutritional counseling and different nutritional support methods to overcome the side effect.

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