Impact of nursing management protocol on radiotherapy induced GIT side effects (nausea, vomiting, and diarrhea)

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Abstract:

Background: Gastroinstinal side effects are the most frequently reported adverse effects of antineoplastic and significantly affect patients' daily functioning, quality of life, and compliance with therapy. Therefore, **the aim** of the study was to examine the impact of nursing management protocol on radiotherapy induced GIT side effects (nausea, vomiting, and diarrhea). **Research design:** A quasi-experimental research design was conducted. **Setting:** Clinical Oncology and Nuclear Medicine Department at Main Mansoura University Hospital. **Sample:** The data were collected from two hundred adult patients who selected according to inclusion criteria and divided into two groups. **Tools:** Three tools were utilized which are a questionnaire sheet, Nausea and vomiting assessment scale, and Diarrhea Assessment Scale. **Results** the result indicates increased total knowledge score for patients immediate after protocol implementation compared with after protocol implementation. Also it was found decreased incidence and severity of GIT side effects at post and follow up tests. **Conclusion:** The implementation of nursing management protocol has a positive effect on the studied patients' total knowledge scores and incidence and severity of GIT side effects in the study group. **Recommendations;** it was recommended that, nursing management protocol should be integrated within the plan of care for patients undergoing radiotherapy.

Key words: Nursing management protocol, Radiotherapy, GIT side effects

Introduction:

Cancer therapies increasingly achieve cure, but result in chronic moderate or severe gastrointestinal side effects in millions of patients worldwide. (1)

Nausea and vomiting are the most frequently reported adverse effects of antineoplastic and significantly affect patients' daily functioning, quality of life, and compliance with therapy. Nausea and vomiting usually occurs within a few hours of treatment if radiation field' include the whole abdomen, extended pelvic fields, the epigastria or par aortic region in rare cases. Radiation induced nausea and vomiting (RlNV) occurs in 40%, to 80% of patients who receive radiation, particularly to the upper torso or whole body.(2) Contributing factors of nausea and vomiting (NV) include the radiation therapy, its dosage, site, frequency, and length of administration. Additional factors include, surgery, anxiety, gender, smoking, and age. Among other potential causes of emesis are metabolic abnormalities, electrolyte imbalance, and infections. (3,4)

The most common acute side effect of radiation is diarrhea which can affect up to 80% of patients treated. (5) Diarrhea can develop during radiotherapy if the treatment beams irradiate part of the lower gastro-intestinal tract. Its severity is related to the volume of bowel irradiated and the total dose and dose rate of radiation

that the bowel receives. Diarrhea can occur as either an acute or late effect of radiation therapy. (6)

Prophylactic treatment of RINV will improve quality of life and compliance to therapy. Decrease costs, and influence patient survival. There are various non pharmacologic techniques for management of RINV including biofeedback, relaxation techniques, guided imagery, and dietary interventions.(7) Non pharmacological interventions can be used to reduce the dose and frequency of drug requirements. (8) Without adequate assessment of the symptom experience and appropriate intervention, symptom occurrence and symptom distress may increase, causing additional problems and affecting patients' quality of life. (9)

The nurse often has a better opportunity than any other member of the health-care team to spend the necessary time with patients and their families to develop the required rapport for effective educational efforts. Such education includes structured and unstructured experiences to assist patients to gain information about prevention, diagnosis; and to develop skills, knowledge, and attitudes to maintain health status. (10)

Moreover, nurses in all settings are essential in helping patients manage the side effects of treatment and maintain their quality of life. (11)

Delivery of supportive care is often a low priority in low- and middle-income settings, and is also dependent on resources available.Failure to address supportive care during cancer treatment can lead to decreased compliance and worsened outcomes, thereby diminishing the value of therapeutic interventions. (12) Providing information that is congruent with patients' needs is an important determinant for patient satisfaction and might also affect health-related quality of life (HRQoL) and anxiety and depression levels of cancer survivors.(13)

Significance of the Study:

It has been estimated that 50%–60% of patients diagnosed with cancer will receive radiation therapy at some point in their treatment. Although radiation therapy can play a significant role in the cure or control of cancer, and the palliation of symptoms, it also has side effects. Side effects of radiation therapy can interfere with patient quality of life and daily functioning. Severe side effects can lead to delays in treatment, potentially affecting the outcome of treatment. (11)

Health care providers must pay more attention to patient-centred information provision. (13) So, This work is an attempt to move forward to prevent much radiation- induced gastrointestinal morbidity.

Aim of the study:

The study was conducted to examine the impact of nursing management protocol on radiotherapy induced GIT side effects (nausea, vomiting, and diarrhea).

Research Hypothesis:

Decrease incidence and severity of GIT side effect and improve of patients' knowledge after implementation of nursing management protocol on radiotherapy induced GIT side effect.

Subjects and method

Research design

A quasi-experimental research design was utilized.

Subjects:

A purposive sample of patients who received radiotherapy post cancer

conditions and complain from side effect of gastro- intestinal tract and had the following inclusion criteria:

- Both sexes (male& female).
- Age 20-60 year.
- Side effect nausea, vomiting and diarrhea.

Total sample was 200 adult patients, those patient divided randomly into two groups, study group (100 patient) those who attended the nursing management protocol to reduce GIT side effect post radiotherapy and control group (100 patient) who received the hospital routine management.

Setting:

The study was conducted at inpatient and out patient of the Clinical Oncology and Nuclear Medicine Department at Main Mansoura University Hospital.

Tools of the study:

Three tools were used in the study as following:

Tool (I): Questionnaire sheet: was developed by the researchers in Arabic form and composed of two parts:

- **First part:** It concerned with demographic characteristics and clinical data of patients such as: age, sex, education, and occupation marital status, duration of disease, data related to previous hospitalization of the patient, in additional to family history related to disease, diagnosis, grade of cancer, previous methods of treatment if present, type of radiotherapy used, schedule of sessions of radiotherapy planed to take, and problems (side effects) occurred during radiotherapy.
- **Second Part:** It was prepared for the purpose of assessment of patient's knowledge throughout the study for both study and control group. It entailed questions about patient's knowledge about radiotherapy and its side effects in form of 66 multiple questions.

Scoring system:

- **Patient's knowledge about radiotherapy:** Each item in the sheet was given a score. One mark was given to correct answer, and a zero for the incorrect one or unknown. Then the scores were summed up. The higher scores indicate a good knowledge. The total score in this part was 66 grades divided as following: ≤ 39 - poor, 39.5-42 accepted, 42.5- 49 good, and 49.5- 55 very good, and ≥56 excellent.
- **Patient's knowledge related to side effects of radiotherapy:** The patients were asked about measures to overcome the side effects of radiotherapy. Every item has numbers of point to the control side effect. One grade was given to every chosen answer. Then the scores were summed up and the high scores indicate a good knowledge. The total score ranged from 17 to 117. The mean score was calculated for all patients and compared among the scores.

Tool (II): Nausea and vomiting assessment scale: Developed by American Society of Clinical oncology [14]. It was used to assess the incidence and the severity of nausea and vomiting in all phases of assessment for both groups (study and control).

Scoring system:

Regarding nausea assessment, it ranged from zero to four: (zero) none, (1) loss of appetite without alteration in eating habits, (2) oral intake decreased without significant weight loss, dehydration, or malnutrition, (3) Inadequate oral caloric or fluid intake; IV fluids, tube feedings, or total parental nutrition (TPN)

indicated, and (4) Life-threatening consequences.

For vomiting assessment, its scoring system ranged from zero to four. (Zero) none, grade (1) - one episode per 24 hours, grade (2) means 2 to 5 episode per 24 hours, grade (3) means ≥ 6 episodes per 24 hours; IV fluids, or TPN indicated, and grade (4) Life-threatening consequences.

Tool (III): Diarrhea Assessment Scale: Developed by American Society of Clinical oncology [14] and adapted by the researchers for assessing the incidence and the severity of diarrhea.

Scoring system:

This scale scoring ranged from grade (one) to grade (five) as the following; grade (1) < 4 times pass stool per day over baseline, grade (2) > 4-6 stools per day over baseline; IV fluids indicated, grade (3) > 7 stools per day over baseline; incontinence; IV fluids, hospitalization, grade (4) Life-threatening consequences e.g. hemodynamic collapse, and grade (5) death.

Content validity and reliability:

Content validity of tool was confirmed by sending tool for jury (9experts) in same specialty in two universities (4 Alexandria and 5 Mansoura universities) who revised the tool for clarity, relevance, comprehensiveness, understanding and ease for implementation. Modifications were applied according to their opinions. Reliability of the tools were done by test and retest with score 0.83.

Pilot study:

A pilot study was carried out on 10% of the subjects (20 patients) undergoing radiotherapy for testing the clarity and applicability of the study tool and to determine the time needed to complete the questionnaire sheet for each participant. The needed modifications in the form of omission and addition of some words were made. Patients included in the pilot study were excluded from the study.

Field work:

The field work was performed over a period of eleven months started from September 2010 to July2011.

- **Assessment phase**: The researcher initiated data collection by interviewing each patient of both groups separately for assessing patient's and collect data used the study tools (Tool I, Tool II, and Tool III).The time taken for filling out questionnaire varied between 15-20 minutes and 5 minutes foe each one of the other tools.
- **Implementation phase**: The nursing management protocol was applied for the patients during waiting time of their radiation sessions. It included information related to effect of radiotherapy on different body systems and measures to control it. Also included measures to apply for patients constituted oral care protocol, progressive relaxation technique, and nutritional modifications to control oral problems, nausea, vomiting, diarrhea and fatigue. The nursing management protocol was conducted on 4 teaching sessions. Each session was conducted for 5 to10 patients sometimes for each patient individually according to his condition, one session per day; the time allowed varies between 20-30 minutes. All sessions were ended before second phase of assessment (post-test). The teaching methods include lectures and group discussion. Teaching aids include a colored booklet was distributed among patients of the

study group in the first session in addition to lap top presentation.

- ***The first session***: Was planned to cover data related to meaning of radiotherapy, aim, rout of administration, types of radiotherapy, meaning of planning and important of it. Also a part of GIT side effects oral complications as dry mouth, difficult in swallowing, ulcerative mouth, loss of taste, oral self examination, and nutritional modifications that help in control these problem.
- ***The second session:*** Was conducted to provide the patients with information related to gastroinstinal side effects of radiotherapy and measures to overcome. It entailed nausea, vomiting, loss of appetite, diarrhea.
- ***The third session:*** Aimed at covering data related to genitourinary problems and demonstrate progressive relaxation technique. This session need 40-50 minutes to cover.
- ***The fourth session:*** In this session the patients were asked to redemonstrate the relaxation technique, oral assessment technique in front of the researcher. This session need 30-45 minutes to cover

- **Evaluation phase**: The tools were applied three times. The first evaluation was done immediately after conducting the teaching sessions of nursing management protocol for the study group (***post test)***. The second evaluation was carried out after 16th session of radiotherapy (follow up I) while the last evaluation was done after 30th session of radiotherapy (follow up II).

Administrative and ethical considerations:

A permission to conduct the study was obtained from the Oncology and Nuclear Medicine Department administrator and head of department at Mansoura University Hospital. Ethical approval was obtained from Research Ethics Committee at the Faculty of Nursing Mansoura University. An informed oral consent was obtained from all participants after explaining the purpose of the study. Confidentiality of the collected data was assured.

Statistical analysis:

Data were collected, computed and statistically analyzed using Statistical Package for Social Sciences (SPSS) version16.0. For continuous variables (mean ±SD) were used for comparison a t test, paired t test, and a series of a nova t tests were used for detection of significances difference for independent groups, same group (pre& post) and more than two groups respectively. For categorical variable comparison between group using chi-square test, the difference was considered significant at $P \leq 0.05$.

Results:

Table (1): Reveals that 52% of patients in the study group were in the age group of 50 years and over with mean age 46.92±8.64. Forty nine percent of patients in the control group were in the same age group with a mean age (45.53±10.84). Most of study subjects were females. They constituted 60% of the study and 58% of the control group. Concerning level of education, Secondary education was prevailing among 38% of the study group and 40% of the control group. Thirty percent of the study group and 24% of the control group were illiterate. The majority of patient in the study and control groups 83% and 82% were married.

Table (2): According to the table, breast cancer and GIT cancer were the most prevailing among the study group (40% and 28%) and (28% and 38%) of the control group. In relation time of disease discovery, less than one year discovery were prevailing among 70% and 78% of the study and control groups respectively. In relation to grades of cancer, grade 2 was the most prevalent in the study subject; they constituted 78% of the study group and 82% of the control group. Grade 3 represented 20% of the study group and 17% of the control group. Concerning the site of radiotherapy, chest wall radiation was prevailing among 50% of the study group and 43% of the control group. Twenty two percent of the study group and 27% of the control group were prone to pelvic radiation.

Table (3): Displays that, post implementing nursing management protocol; patients in the study group had a highly statistically significant improvement in total knowledge score about radiotherapy (54.84±7.81), with a highly statistical significant difference at before vs. immediate after test (t= 28.018 at p≤0.001**) and the gains were maintained throughout the period of after tests (after I 53.44 ± 8.1and after 2 52.1 ± 8.88). It could be mentioned that, the differences between the study and control groups at immediate post, follow up 1, and follow up2 were statistically significant (p≤0.001**) respectively. Also the table revealed that, no statistically significant difference was found between the study and control groups as regards knowledge score about radiotherapy at pre test (t= 3.76 at p>0.05).

Table (4): Clarifies that, there were significant differences between scores of the study group before and after implementation of nursing management protocol in relation to all items of GIT radiotherapy side effects including nausea, vomiting, and diarrhea where t=(55.649, and 58.896) at p≤ 0.001**.

Regarding pre applying nursing management protocol the table revealed that, the differences between scores of the study and control groups were not statistically significant in all items of GIT radiotherapy side effects (p>0.05). on the other hand, differences between scores for all items of GIT radiotherapy side effects of the study and control groups after, after1, and after 2 testes after applying nursing management protocol sessions were statistically significant where (p≤ 0.001**).

Table (5): It was observed from the table that, all patients in the study and control groups had no incidence of nausea and vomiting; no statistical significant differences between both groups pre nursing management protocol implementation.

Concerning to incidence of nausea and vomiting at immediate post, follow up 1 , and follow up2, patients in the study group showed significant decreased in their mean scores regarding incidence of nausea and vomiting according nausea and vomiting assessment scales post implementing relaxation technique and diet modifications, while incidence of nausea and vomiting increased significantly by increased mean scores for those in the control group in at immediate after, after 1, and after 2 testes, testes as revealed in table (VIII). In addition, at after 1, and after 2 testes, there were highly statistically significant difference between the study and control group where p value was found to be (≤ 0.001**).

Table (6): illustrates that, decreased incidence of diarrhea in the study group after applying diet modification was maintained in post and follow up 1 (0.0± 0.0& 0.0± 0.0)

respectively. Whereas patient in the control group had significant increased in incidence of diarrhea at immediate after (0.06±0.023), and these deterioration was maintained and increased at follow up 1, and follow up2 (0.30±0.66&0.71±1.15) respectively.

Figure (1): Shows total patient's knowledge score about radiotherapy of the study and control groups at immediate after implementation protocol. It noticed that, 98 percent of the patients in the control group had poor knowledge score. On the other hand, there were 52% of patients had excellent score and twenty two percent very good knowledge score in the study group at immediate after.

Figure (2): presents severity of diarrhea as radiotherapy side effect of the study and control groups at the end of study. It found that, 16% percent of the study group have diarrhea less than 4 times per day, compared to 16% have > 4-6/day diarrhea frequency, and 13% more than 7 / day diarrhea frequency in the control group.

Discussion:

Nursing care of the patient receiving radiation therapy focuses on preparing the patient physically and psychologically for therapy. Pretreatment assessment includes knowledge of the treatment plan and goal of therapy. Provision of information about presentation, prevalence, and duration of side effects reduce the patient's anxiety level, enhance self-care and improve patient outcome.[15] Therefore, the aim of the present study is to examine the impact of nursing management protocol on radiotherapy induced GIT side effects (nausea, vomiting, and diarrhea). The present study findings revealed that nearly one half of the study subjects were in the age group of 50 years and more. This is in agreement with American Cancer Society, (2009) which reported that most cases occur in adults who are middle aged or older, about 78% of all cancers are diagnosed in persons 55 years of age and older.[16] Females constituted about two third of the study subjects, this may be related to the high incidence of breast cancer among cancer patients according to Mansoura University hospital statistical report.[17] This finding is contradicted by Brenner et al who agreed with American cancer society that, the incidence of cancer is higher in men than in women. Concerning to the level of education the present study revealed that most of the study subjects had middle level of education, this is may be related to the fact that, majority of the study subject came from rural area with low socioeconomic level, interested in manual and farmer work.[16-18]

Incidence of breast cancer and gastrointestinal cancer were higher in the Egyptian population. [16] This goes with the finding of the present study where more than one third of the subjects had breast cancer and about one third had GIT cancer. In the present study about three quadrate of the study subjects were discovered with incidence of disease time less than one year. This is in line with the Canadian Cancer Society which indicates that, with time there will be an increase in the rates of incidence of cancer for both males and females. [19] Also this in harmony with report of National Cancer Institution who found that, about 100,000 new cases of cancer discovered per year in Egypt.[20]

In the same point Julie et al studied the effect of patient education on coping more effectively with treatment-related stresses and complications. [21] This study added additional empirical support to claims

for the value of procedural and sensory information provided before a stressful medical procedure. The results of this study indicated that, patient education in a radiation therapy setting can effectively increase patients' treatment-related knowledge and ameliorate the degree of side effects and general emotional distress experienced during treatment. Although the educational intervention consisted of a relatively simple audiovisual presentation at the beginning of treatment, it yielded of treatment and in general condition. (22)

The present study revealed that there was a highly statistical significant improvement in the total knowledge score of the study group after applying nursing management protocol sessions in comparing with the control group. This is in harmony with the study done by Häggmark et al., who noted that, knowledge scores were consistently increased for the nursing consultation group. Also this study shown that, the patient information was a significant important in preparing the patients for the procedure of receiving radiation therapy.(23)

Concerning the control group, the present study found that, there is no improvement in total knowledge score when assessed at the same time with the study group, this may due to many of reasons as large numbers of patient, greet shortage in nursing number with many responsibilities, also no unite, center or person responsible for patient education. Regarding the patient knowledge related to side effects of radiotherapy and measures to overcome, the present study clarifies a highly improvement in patient knowledge with a highly statistical significant difference between the study group and the control group after implementation of nursing management protocol sessions. These go in line with Glanz et al who noted that education plays a vital role in helping patients and their families to become involved in their cancer treatment and dealing with side effects.(22) On the same line McGuire and Ropka, reported that, cancer patients who have an educational session with oncology nurses in advance of the initiation of treatment will learn how to reduce the risk of and manage adverse effects and maximize well-being. Helping patients to manage their side effects reduces adverse events and recognize the need for urgent or inpatient care.(23)

Management of anticancer treatment-related nausea and vomiting should incorporate both pharmacologic and nonpharmacologic approaches, whenever appropriate, with the overall goal of improving and/or maintaining the patient's quality of life. (24)

As regards nausea and vomiting, the results of this study confirm the idea that, the progressive muscle relaxation and patient teaching are effective non pharmacological intervention for nausea and vomiting, which developed during the course of radiotherapy. The study group subjects had a significant reduction in the incidence and severity of the nausea and vomiting.

This result was in agreement with the finding of Arakawa who reported that, relaxation techniques, including progressive muscle relaxation training, had been shown in several research studies to be helpful in alleviating the nausea and vomiting.(25) Moreover, progressive muscle relaxation training was effective in decreasing the frequency of radiotherapy-related nausea, vomiting and anorexia.(26)

One of the unfortunate side effects of radiation therapy for cancer patients under doing radiotherapy is the development of diarrhea.[27] It can be managed by a combination of preventive measures such as; diet and nutrition.[28]

It could be pointed that, scores of stomatitis did not show any statically significant differences between study and control groups pre implementation oral care (0.0±0.0&0.0±0.0). On the other hand, there were statistically significant differences between the two groups at after 1, and after 2 tests of implementing oral care for stomatitis where p value was found to be ≤ 0.001**, and ≤ 0.001** respectively.

The present study portrays that, all the subjects of the study group follow diet and nutritional counseling had been a significant reduction in incidence and severity of diarrhea than the control group. This result is in accordance with the evidence from the study by Ravasco et al and Pierce et al which suggests that, individualized dietary counseling can be successful in enabling patients at high risk of diarrhea to maintain good status of life which is accompanied by a reduction in symptoms and improved health-related quality. [29, 30]

Additionally Yeoh *et al* found that patients in their prospective longitudinal study on the effects of pelvic radiotherapy on gastrointestinal function may benefit from the avoidance of milk products due to the high prevalence of lactose malabsorption.[31] Also Dest added that, Patients having pelvic radiotherapy are often advised to implement a low-residue, low-fat, in addition to lactose-restricted diet to prevent radiation-induced diarrhea.[28] In the same point, National Cancer Institute reported that, Diet sheets are generally given to the patients either before or at the commencement of treatment so that they can modify their diet prior to the onset of the radiation-induced diarrhea which help in prevent it.[20]

On the other side, there were no differences in the prevalence of diarrhea between the study and control group after diet modification. This finding is contradicted the result of the present study.[32]

Conclusions:

Based on the present study findings, it can be concluded that a marked gap in the knowledge of patient with cancer receive radiotherapy. Moreover, the implementation of a nursing management protocol based on their profiles and needs was successful in improving patient's knowledge score of the study group. Furthermore, these benefits are maintained to the end of radiotherapy course.

In addition, the results of the current study revealed that, both incidence and severity of GIT were significantly decreased in the study group after implementation of nursing management protocol.

Recommendations:

On the basis of the most important findings of the study, the following recommendations are suggested:

- Patients with cancer should be given a written instructions plan for their radiotherapy steps and self-management measures to radiotherapy.
- Nursing management protocol should be integrated within the plan of care for Patients with cancer going to radiotherapy.

- Development of cancer education center in nuclear- medicine department is essential to provide inpatient and outpatients nursing management protocol for cancer patient receive different type of treatment modalities.

- Developed illustrated booklet should be available and distributed for each Patients with cancer admitted to the hospital.

- Further research is needed to document the positive effect of self care on the prevention of radiotherapy induced GIT side effects.

Table (1): Distribution of demographic characteristics among study and control groups

Demographic Data	Groups		Total N= 200	
	Study group N= 100	Control group N= 100		
Age group	**%**	**%**	**N**	**%**
▪ **20-**	4	10	14	7.0
▪ **30-**	20	17	37	18.5
▪ **40-**	24	24	48	24.0
▪ **50-**	52	49	101	50.5
Mean± SD	46.92 ± 8.64	45.53± 10.84		
Gender				
▪ Male	40	42	82	41.0
▪ Female	60	58	118	59.0
Residence				
▪ Rural	62	58	120	60.0
▪ Urban	38	42	80	40.0
Level of education				
▪ Illiterate	30	24	54	27.0
▪ Read &write	8	9	17	8.5
▪ Secondary	38	40	78	39
▪ University	24	27	51	25.5
Marital status				
▪ Single	10	12	22	11
▪ Married	83	82	165	82.5
▪ Widow	7	6	13	6.5
Occupation				
▪ Employee	22	14	36	18.0
▪ Student	4	6	10	5.0
▪ Worker	18	19	37	18.5
▪ Farmer	4	5	9	4.5
▪ House wife	52	54	106	53.0
Occupation state				
Not affected	2	2	4	2.0
Affected (take sick leave)	98	98	196	98.0
Family size				
▪ 1-3	44	50	94	47
▪ 4-6	52	48	100	50.0
▪ 7+	4	2	6	3.0

Table (2): Distribution of health relevant data among study and control groups

Health relevant data	Groups		Total N: 200	
	Study group N= 100	Control group N= 100		
	%	%	N	%
Medical diagnosis				
▪ Head& neck cancer	16	17	33	16.5
▪ Breast cancer	40	28	68	34.0
▪ GIT cancer	28	38	66	33.0
▪ Bladder cancer	6	3	9	4.5
▪ Lung cancer	8	10	18	9.0
▪ Cervix cancer	2	4	6	3.0
Date of disease discovery :				
▪ Less than one year	70	78	148	74.0
▪ More than one year	30	22	52	26.0
Grades of cancer :				
▪ G 2	78	82	160	80.0
▪ G 3	20	17	37	18.5
▪ G 4	2	1	3	1.5
Site of radiotherapy :	16	17	33	16.5
▪ Head & neck				
▪ Chest	50	43	93	46.5
▪ Abdominal	12	13	25	12.5
▪ pelvic	22	27	49	24.5

Table (3): Comparison between patient's total knowledge of both groups (study & control groups) before and after nursing management protocol implementation

Item / Total Knowledge Score		Study group	Control group	t	P- value
		Mean ± SD	Mean ±SD		
Before implementation		22.92 ± 7.9	18.3 ±9.02	3.76	>0.05
▪ **Immediate after**		54.84 ± 7.81	24.15 ± 8.86	25.986	≤ 0.001**
▪ **Before vs. after**	**t**	28.018	4.321		
	p	< 0.001**	< 0.01		
▪ **After 1**		53.44 ± 8.1	27.8 ± 8.72	21.479	≤ 0.001**
▪ **After 2**		52.1 ± 8.88	30.27± 9.47	16.812	≤ 0.001**

Table (4): Comparison between patient's knowledge concerning dealing with GIT radiotherapy side effects (nausea, vomiting, and diarrhea) of both studied groups (the study and control) before and after nursing management protocol implementation

GIT radiotherapy side effects		Group: Study group Mean± SD	Group: Control group Mean± SD	t	P- value
Nausea and vomiting:					
▪ Before implementation		1.15±0.77	1.04 ± 0.66	0.320	>0.05
▪ Immediate after		11.0±1.57	1.55±0.93	51.701	≤ 0.001**
▪ before vs. after	t	55.649	7.913		
	p	≤ 0.001	≤ 0.001		
▪ After 1		10.38±2.34	1.71±1.16	33.126	≤ 0.001**
▪ After 2		10.26±2.26	1.82±1.25	32.639	≤ 0.001**
Diarrhea :					
▪ Before implementation		0.98±0.79	0.87±0.46	0.218	>0.05
▪ Immediate after		7.6±0.80	1.35±0.68	59.092	≤ 0.001**
▪ Before vs. after	t	58.896	5.85		
	p	≤ 0.001	≤ 0.001		
▪ After 1		7.4±1.04	1.57±1.04	39.433	≤ 0.001**
▪ After 2		7.18±1.40	1.71±1.26	28.954	≤ 0.001**

Table (5): Impact of relaxation technique and diet modifications on incidence of nausea and vomiting radiotherapy side effect of the study and control groups at pre, post, and follow up tests

Nausea assessment scale	Pre test 1st assess	Post test 2nd assess	Follow up1 3rd assess	Follow up2 4th assess
▪ **Study group** Mean± SD	0.0±0.0	0.0±0.0	0.02±0.14	0.08±0.27
▪ **Control group** Mean± SD	1.0±0.0	0.06±0.23	0.36±0.48	0.48±0.502
T		2.514	6.766	7.001
P		< 0.05	≤ 0.001**	≤ 0.001**
Vomiting assessment scale	**Pre test 1st assess**	**Post test 2nd assess**	**Follow up1 3rd assess**	**Follow up2 4th assess**
▪ **Study group** Mean± SD	0.0±0.0	0.0±0.0	0.0±0.0	0.02±0.14
▪ **Control group** Mean± SD	0.0±0.0	0.03±0.17	0.11±0.31	0.22±0.56
T		2.514	6.766	6.766
P		< 0.05	≤ 0.001**	≤ 0.001**

Table (6): Impact of diet modifications on incidence of diarrhea as radiotherapy side effect of the study and control groups' pre, post, and follow up tests

Diarrhea assessment scale	Pre test 1st assess	Post test 2nd assess	Follow up1 3rd assess	Follow up2 4th assess
Study group Mean± SD	0.0±0.0	0.0±0.0	0.0±0.0	0.16±0.37
Control group Mean± SD	0.0±0.0	0.06±0.23	0.30±0.66	0.71±1.15
T		2.514	6.766	7.001
p		≤ 0.05	≤ 0.001**	≤ 0.001**

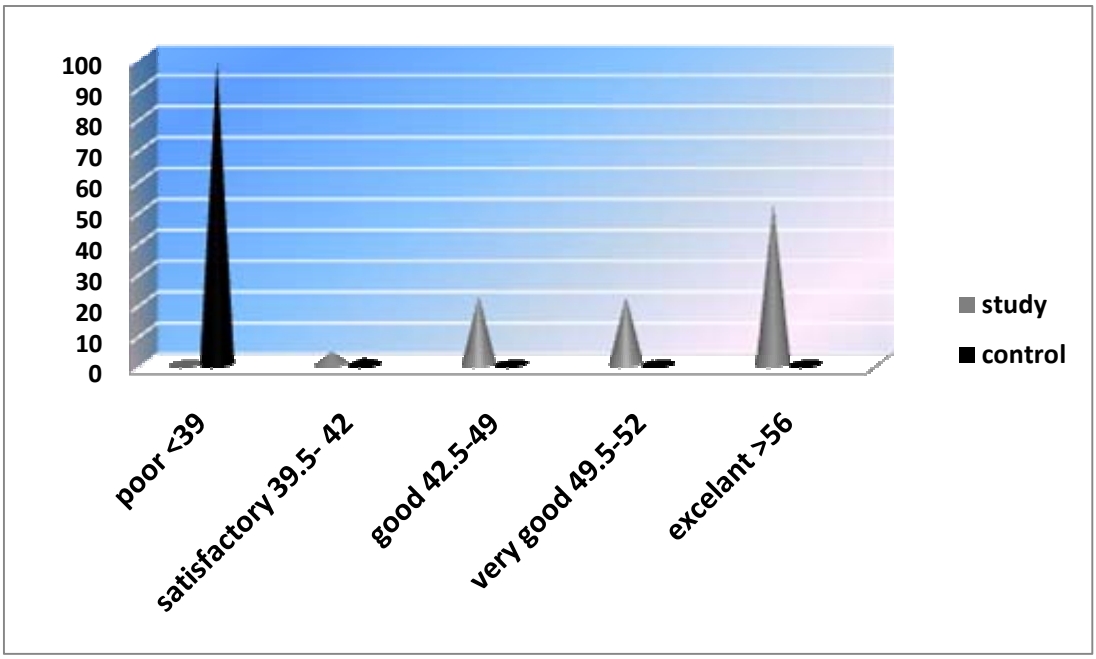

Figure (1): Total patient's knowledge scores for both studied groups (the study and control) before and after nursing management protocol implementation

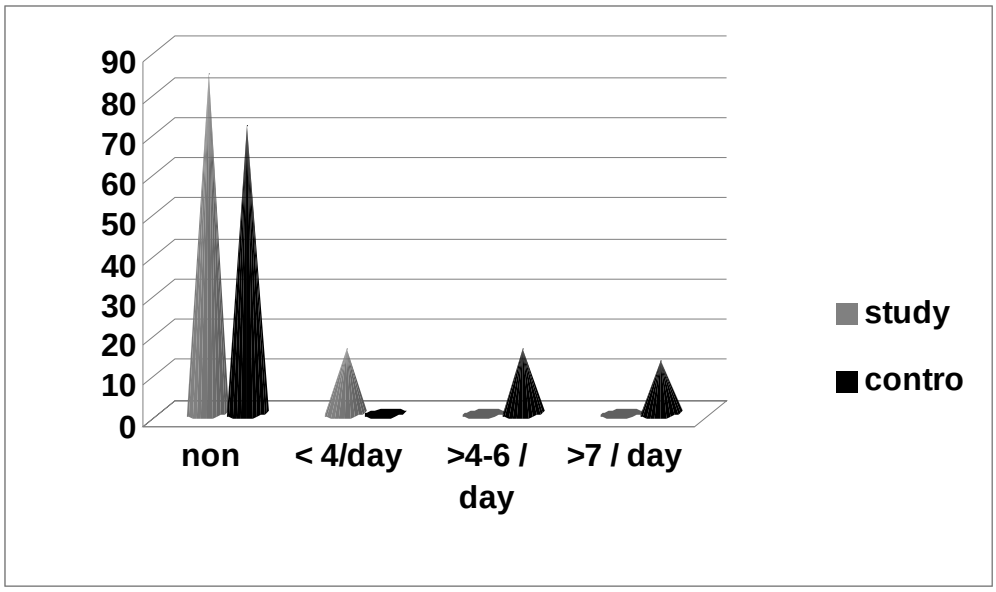

Figure (2): Severity of diarrhea as radiotherapy side effect for both studied groups (study and control) after implementation of the nursing management protocol and at the end of radiotherapy sessions

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تأثير برتوكول الرعاية التمريضية على الآثار الجانبية بالجهاز الهضمي الناتجة عن العلاج الاشعاعى (غثيان، قئ، و الإسهال)

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المقدمة:
تعتبر مضاعفات الجهاز الهضمي الناتجة عن العلاج الاشعاعى (الغثيان، القيء، والإسهال) من الآثار السلبية الأكثر تكرارا لعلاج الأورام و تؤثر تأثيرا كبيرا على حياة المرضى اليومية، نوعية الحياة ، وكذلك الاستمرارية مع العلاج .

الهدف الدراسة:
هدفت الدراسة إلى فحص تأثير بروتوكول خاص بالرعاية التمريضية للآثار الجانبية بالجهاز الهضمي الناتجة عن العلاج الاشعاعى.

مكان الدراسة:
أجريت الدراسة فى قسم الأورام والطب النووى- مستشفى جامعة المنصورة.

عينة البحث:
اشتملت عينة البحث علي ٢٠٠ من المرضى البالغين المصابين بمرض السرطان (رجال ونساء) وسوف يخضعون للعلاج الاشعاعى.

أدوات جمع البيانات:
تم استخدام ثلاث أدوات لجمع البيانات و هى كالتالى:

- **الأداة الأولى: استمارة استبيان:** وقد صممت هذه الاستمارة بواسطة الباحث وتنقسم إلى جزئيين:
  - **الجزء الأول:** ويشمل الخصائص الاجتماعية للمريض مثل السن، النوع، مستوى التعليم، الحالة الاجتماعية، والوظيفة. كذلك تشتمل على التاريخ الطبي للمريض ويتضمن التشخيص، تاريخ اكتشاف المرض، درجة تقدم المرض، عدد الجلسات، ومكان العلاج الآشعاعى.
  - **الجزء الثانى:** ويهدف إلى تقييم معلومات المريض حول العلاج الآشعاعى وكذلك تقييم معلومات المريض المتعلقة بالآثارالجانبية للعلاج الاشعاعى وكيفية التغلب عليها
- **الأداة الثانية:** مقياس حدوث الغثيان والقيء لدى مرضى العلاج الاشعاعى.
- **الأداة الثالثة:** مقياس حدوث الإسهال لدى مرضى العلاج الاشعاعى.

تم تجميع البيانات على أربع مراحل، المرحلة الأولى قبل تطبيق برتوكول العناية التمريضية للمرضى، المرحلة الثانية بعد تطبيق برتوكول العناية التمريضية للمرضى مباشرة، المرحلة الثالثة بعد ١٦جلسة من العلاج الاشعاعى، المرحلة الرابعة بعد انتهاء العلاج الاشعاعى مباشرة. يطبق بروتوكول العناية التمريضية لمرضى السرطان بمجمل أربع جلسات تتراوح مدتها من ٢٠-٤٠ دقيقة لكل مجموعة من المرضى(٥-١٠للمجموعة) وعلى حسب حالة المريض، باستخدام الوسائل التوضحية و التعليمية المساعدة (الشرح، مناقشات، الكتيب الارشادى).

نتائج البحث: أسفرت نتائج البحث عما يلى:

- أن متوسط العمر للمرضى فى مجموعة الدراسة كان٦٤,٩٢±٨,٦٤ بينما كان ٤٥,٥٣ ± ١٠,٨٤ للمجموعة الضابطة. تمثل الاناث أغلبية العينة (٦٠%) لمجموعة الدراسة و ٥٨% من المجموعة الضابطة. كما كانت أغلبية العينة فى المجموعتين متزوجين (٨٢,٥%). بالنسبة لمستوى التعليم فكان التعليم المتوسط هو السائد فى كلا المجموعتين (٣٨% من مجموعة الدارلسة و ٤٠% من المجموعة الضابطة).
- أن سرطان الثدى وسرطان الجهاز الهضمى يمثلا أكثر من ثلثى المرضى (٣٤%،٣٣% على الترتيب).
- أن ٧٤% من المرضى فى كلا المجموعتين كانوا فى السنة الأولى من أكتشاف المرض لديهم.
- وجود ارتفاع ذو دلالة احصائية فى معلومات المرضى عن العلاج الاشعاعى ومضاعفاته، حيث تحسنت معلومات المرضى فى مجموعة الدراسة بعد تطبيق برتوكول الرعاية التمريضية. واستمر هذا التحسن أيضا بعد الاختبار الثالث و الرابع ولكن أقل

نسبيا من الاختبار الثانى مع وجـود دلالـة احصائية.

- انخفاض معدل حدوث الآثار الجانبية للعلاج الاشعاعى وكذلك درجة خطورتها بـصورة ملحوظة فى مجموعة الدراسـة عنهـا فـى المجموعة الضابطة.
- وجود دلالة إحصائية بين بيانات المرضـى الشخصية والاجتماعية و معلوماتهم، حيـث يزداد درجة اكتساب المعلومة والحفاظ عليه للمرضى فى الفئة العمريـة٢٠-٣٠ سـنة، كذلك التعليم الجامعي.
- وجود دلالة احصائية بين معلومات المريض تجاه العلاج الاشعاعى وأثاره وكيفية التغلب عليها وحدوث هذه الاثار، حيث تقـل نـسبة حدوث هذه الاثـار كلمـا زادت معلومـات المريض.

الخلاصة: استنادا إلى نتائج الدراسة، فإنه يمكـن استنتاج أن

- هناك فجوة ملحوظة في معلومات المـريض تجاه العلاج الإشعاعي وأثاره الجانبية.
- أن كلا من نسبة حدوث وشدة الآثار الجانبية للعلاج الإشعاعي علـي الجهـاز الهـضمي انخفضت بشكل ملحوظ في مجموعة الدراسة بعد تنفيذ بروتوكول الرعاية التمريض.

أهم التوصيات:

فـــى ضـوء النتـائج الرئيسية للدراسـة الحاليـة تـم اقتراح التوصيات التالية:

- إعطاء المرضى إرشادات مكتوبة عن العلاج الإشعاعي وكيفية التعامل مع أثاره الجانبية.
- إتاحة وتطبيق بروتوكول الرعاية التمريضية للآثار الجانبية للعلاج الاشعاعى وجعله جزء من خطه العلاج لجميع مرضـى الـسرطان الخاضعين للعـلاج الاشـعاعى بمستـشفى المنصورة الجامعي.
- تفعيل دور مركز تعليم المرضـى لتثقيـف المرضى عن طريقه تعـاملهم مـع الآثـار الجانبية للعلاج.
- الاستعانة بكتيب الإرشـادات المعـد لـذلك لتوعية المرضى الجدد وتـدعيم معلومـات المرضى الخاضعين للعلاج الأشعاعى.
- توسيع دائرة البحث العلمي علي كيفيه منـع والتغلـب علـي الآثـار الجانبيـة للعـلاج الاشعاعى.