

The effect of education on self-care behaviors of gastrointestinal side effects on patients undergoing chemotherapy

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Abstract

Background and Objectives: Cancer is a deadly disease of humanity. One of the main curative options is the use of chemotherapy treatments. From 40 to 80 percent of chemotherapy treatment can cause complications such as nausea and vomiting, mouth sores and disorders of the bowel. The aim of this study was to evaluate the effect of education on self-care behaviors on gastrointestinal side effects in patients undergoing chemotherapy.

Methodology: This study is a randomized clinical trial of 60 women with breast cancer undergoing chemotherapy who were referred to Chamran hospital chemotherapy center. Prior to chemotherapy and after obtaining the consent for the random sampling method, patients were divided into two groups, intervention and controls. Patients in the intervention group received routine treatment to improve the side effects of chemotherapy, in the form of self-care training received from the researcher. Data was collected by a demographic questionnaire, a questionnaire on side effects of chemotherapy questionnaire and Morrow standard questionnaires were collected. Data using descriptive and inferential statistics were analysed by SPSS 21 software.

Results: The results showed that the use of self-care education to reduce mouth sores was statistically significant ($p < 0.05$). Self-care training also leads to a reduction in frequency and severity of nausea and vomiting in patients. This reduction was statistically significant ($p < 0.05$).

Conclusion: Findings of the study showed that the use of self-care training alongside drug regimen reduces the side effects of chemotherapy in patients. Therefore, it is recommended that nurses use this technique as a complementary method to reduce side effects of chemotherapy.

Key words: self-care, side effects of chemotherapy, chemotherapy, nurses

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Introduction

Cancer can be considered as one of the most dangerous diseases that affects humanity. Cancer often can be considered on equal terms with death, disfigurement and dependency (1). Cancer is a global problem that affects people regardless of age, race, and socioeconomic status. Cancer annually kills about 552,200 people worldwide (2). Treatment of cancer is complex, and includes surgery, radiation and chemotherapy, which may be combined or used separately. The most common treatment is the use of chemotherapy (3). Today, with the increasing development of medical science and pharmacy and chemotherapy, drugs have been able to greatly reduce cancer mortality and increase life expectancy in patients (4). A variety of chemotherapy regimens that are moderate to severe, can cause complications such as nausea, vomiting, bowel disorders and mouth ulcers in patients. Generally, 40 to 80 percent of patients suffer from side effects of chemotherapy. These complications cause water and electrolyte disorders, weakness and fatigue, decreased immunity, and bacterial and fungal infections can occur throughout the body (5). The severity of side effects of chemotherapy varies from person to person. Side effects in some patients, may be so severe as to cause the withdrawal of the patients' treatment (6). Other patients also have disrupted social role, withdrawal from society, physical dysfunction and depression. Therefore, it is vital that the side effects of chemotherapy in cancer patients are reduced (7).

To reduce side effects of chemotherapy in patients serotonin receptor antagonist drugs, corticosteroids, metoclopramide, laxative and industrial mouthwash have been used (8). Research has shown that in 50% of cases complications arising from chemotherapy in patients with drug use has been observed (9, 10). On the other hand, these medications are associated with increased healthcare costs and side effects such as extrapyramidal side effects, fatigue, drowsiness, hypotension, headache, increased dry mouth, and restlessness and side effects may limit the medication (8). Studies have shown that drug treatment reduces side effects of chemotherapy in patients. But the full effects are not eliminated therefore the use of non-pharmacological methods with medical methods to reduce side effects of chemotherapy in patients has been proposed. A variety of non-pharmacological methods of traditional medicine, relaxation techniques such as yoga, hypnosis and acupuncture can be named (11).

One of the non-medicinal methods to reduce side effects of chemotherapy is the use of self-care. The self-care theory of Dorothea Orem, a famous theoretician is one of the most common theories in the field of clinical nurses and nursing students used by researchers (12). In his theory of self-care, the patient needs assessment is done and the needs of patients in order to reduce the side effects of chemotherapy are determined. Then oncologists and specialist nurses of chemotherapy are trained according to the latest guidelines published by the National Cancer Institute (13). The ability to find patient care in the absence

of health centers and when there is no access to these centers to reduce the side effects of chemotherapy is a major concern. This incurs possible increased medical expenses and decreased access to health centers (14). In studies on self-care, especially its impact on chronic diseases, it has been shown that the effects of self-care in patients have been less reported (15, 16). Less studies about self-care and its impact on the reduction of side effects of chemotherapy is taken. Therefore, further research in this area appears evident. On the other hand, nurses as one of the most important health team members who are in direct contact with patients could be involved in teaching this as one of the most important tasks for such patients. Nurses with such training can be more effective and provide tips and a more sustainable model of care to patients (17). According to the above the purpose of this study was to evaluate the effect of self-care behaviors of gastrointestinal side effects in patients undergoing chemotherapy.

Materials and methods

This study is a randomized clinical trial (18) that was conducted in Chamran hospital chemotherapy centers between January 2016 to May 2017. A sample using the following formula and 95% confidence and 90% power and using the results of studies that had been done in this area (19) in each group of 30 was determined.

Sampling method was available and samples divided randomly into two groups of intervention and controls were allocated.

Inclusion criteria included in the study were over 18 years of age, a definite diagnosis of breast cancer by a physician, oncology, ability to read and to write and lack of medical and paramedical subjects in groups and not receiving formal training and previous self-care and for relieving the side effects of chemotherapy, a regimen of moderate to severe chemotherapy, the use of drugs other than drugs prescribed by a physician, lack of digestive diseases, kidney disease, liver failure, gastrointestinal tract obstruction. On the other hand, those who do not wish to continue participating in the study were excluded.

The instrument used in this two-part study of demographic and inventory side effects of chemotherapy by ten members of the university of Medical Sciences of Tehran board was examined for its validity and reliability and was confirmed was the standardized questionnaire of Morrow (1984), which has 18 questions about side effects of nausea and vomiting. We assessed the validity and reliability of the various studies and the correlation value of $R = 0.72-0.96$ was reported (20).

After obtaining confirmation from the ethics committee of Tehran University of Medical Sciences s permission was granted with 9311698006 code and IR.TUMS.FNM.REC.1395.1637 with reference to the above chemotherapy hospitals, among women with breast cancer who met the inclusion criteria after explaining the purpose of the study

and obtaining informed consent from patients to participate in the study sample.

The Morrow questionnaire and chemotherapy questionnaire were used before initiation of chemotherapy, and the side effects of chemotherapy patients in the intervention group and the control group were recorded. Patients in both groups were informed that Morrow questionnaire was to be completed in the first three days after discharge from the hospital every night and at a specified time and on the third day to complete the questionnaire on side effects of chemotherapy. After patients received chemotherapy in the first period when the questionnaires were taken then patients in the intervention group, at two sessions for 20 minutes were taught face to face. It should be noted that both groups benefits from treatment were routine. The patients in both groups after the end of chemotherapy were re-assessed Morrow questionnaires and the side effects of chemotherapy were recorded and the patients were asked in the first three days after discharge to complete questionnaires every night. In the intervention group a pamphlet based on the most serious patients were put at the disposal of the National Cancer Institute guidelines. After collecting the questionnaires, the data using descriptive statistics such as mean and standard deviation and inferential statistics, including t-test and chi-square and software SPSS genes and were analyzed. A significance level of $P < 0.05$ was considered.

Findings

The sample participating in the study included 60 patients with breast cancer who met the inclusion criteria. Demographic and clinical characteristics of both groups included age, smoking history, alcohol, opium drug use, number of sessions of chemotherapy and mastectomy, which is presented in Table 1 and 2. In surveys conducted in terms of the numbers of patients in the control group and the experimental group in terms of demographic characteristics were homogeneous.

The results showed that patients in the intervention group who had undergone training in self-care behavior compared to the control group patients, complained less of stomatitis and mouth ulcers. That's why the intervention effect of the change in the mean indices before and after the intervention and control groups was used. In the intervention group it reduced on average by 6.63 units of stomatitis and in the control group increased by an average of 0.76 units. The changes were not statistically significantly different between the two groups (Table 3 - page 168).

The results showed that the patients are prepared for the effects of fecal excretion rate of complications in the intervention group increased at a rate of 2.36 units. This control declined by 1.03 unit. These results were also statistically significant (Table 3).

The results showed that patients in the intervention group had less occurrence and severity of nausea than patients in the control group. These results are statistically significant (Table 3).

The severity and vomiting in patients in the intervention group were less likely to complain of side effects and these results were also statistically significant (Table 3).

Discussion and Conclusion

This study aimed to investigate the effect of self-care education on complications of chemotherapy. The results showed that the effects of stomatitis and complications associated with nausea and vomiting in patients in the intervention group compared to the control group of patients decreased significantly. In this regard Karbaschi et al in their study reached the same conclusion that stated the patients who were under the self-care of the side effects of chemotherapy had a better quality of life (21). Masoudi et al's study results are consistent with results in 8 sessions of a self-care program based on the needs of patients for patients considered to be based on self-care training was conducted for patients. Patients before the study in terms of quality of life in the intervention group and the control group differed significantly but after the tasks involved, those in the intervention group scored better quality of life than patients in the control group reported (22). Golchin et al. achieved similar results. Demographic variables of patients were similar but regarding the presence of side effects of chemotherapy, there was no communication with each other. After training patients in the intervention group more than the control group patients, had better quality of life. The design and implementation of training programs was based on the training needs of patients as well as the extensive care-self program outlined in this study had been proposed (23).

The results of this study showed that nausea, and its frequency and severity in the intervention group after execution of training required receiving less care than patients in the control group. The results of the study were consistent with Karbaschi et al's results (21). Similar results were obtained in the study of Williams and Sherir. This means that education about self-care by nurses often reduces nausea in patients and patients who were admitted to this training had better quality of life (14). The results of this study showed that patients who had trained in self care had a lower rate of complications than patients in the control group and complained less of nausea and vomiting. These results were consistent with the Komatsu et al. Komatsu in his study suggested a self-care program by offering a package of educational and face-to-face performing of self-care training.

In the present study, the effects of too much intervention of patients in the intervention group had side effects of chemotherapy. Intervention on the side effects of nausea, vomiting and stomatitis had a direct effect and less side effects of chemotherapy where patients expressed complaint. On the other hand, patients can use the program without referring to self-care health centers to relieve their symptoms (24). The results of the study correspond with Williams self-care training that can improve physical and mental intensity of patients in the intervention group more than the control group (14). The study conducted by Sharif

Table 1: Compared and related demographic data of the sample of women with breast cancer who referred to Chamran Hospital in 2016-17

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Chi-square test result to search homogeneous group	Significant level	Total		Control		Case		GROUP Background information	
		Percent	Number	Percent	Number	Percent	Number		
Homogeneous	0.818	8.3	5	6.7%	2	100%	3	Single	Marital status
		83.3	50	83.3%	25	83.3%	25	Married	
		8.3	5	10.0%	3	6.7%	2	Died or divorced	
Homogeneous	0.904	8.3%	11	16.7%	5	16.7%	6	Middle school	Education
		15.0%	9	16.7%	5	13.3%	4	Diploma	
		66.7%	40	66.7%	20	66.7%	20	higher diploma	
Homogeneous	0.414	38.3%	13	46.7%	14	30.0%	9	Employee	Employment status
		11.7%	7	10.0%	3	13.3%	4	Retired	
Homogeneous	0.584	50.0%	30	43.3%	13	56.7%	17	Householder	History of smoking
		66.7%	40	70.0%	21	63.3%	19	NO	
Homogeneous	0.237	33.3%	20	30.0%	9	36.7%	11	Yes	History of Opium
		95.0%	57	90.0%	27	100%	30	NO	
		5.0%	3	10.0%	3	0.0%	0	Yes	

Table 2: Compared and related demographic data of the sample of women with breast cancer who referred to Chamran Hospital in 2016-17

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Result of t-test to check the homogeneity of the two groups.						
Test result	The significance level	Degrees of freedom	t-statistic	Control Standard deviation	Case Standard deviation	group Demographic information
Homogeneous	0.533	58	1.992	6.668	6.682	Age
Homogeneous	0.089	58	1.964	1.690	2.219	Sessions

Table 3: Comparison of the mean and standard deviation of chemotherapy side effects in women with breast cancer undergoing chemotherapy in Chamran hospital 2016-17

T test result		The control group		The intervention group		Variable	
Significant level	Statistics	Standard deviation	Mean	Standard deviation	Mean		
.007	-2.796	3.58	31.46	3.237	33.93	Before intervention	Stomatitis
.000	4.408	4.082	32.23	4.572	27.30	After intervention	
.000	7.784	3.55	.7667	3.80	-6.63	Before-after difference	
.487	-.699	2.58	18.43	3.28	18.96	Before intervention	Bowel disorder
.001	3.571	3.048	19.46	3.168	16.60	After intervention	
.000	-4.738	2.870	-1.033	2.68435	2.36	Before-after difference	
.003	-3.11	.556	2.36	.430	2.766	Before intervention	Nausea
.000	7.249	.746	2.166	.365	1.066	After intervention	
.000	8.831	.761	-.200	.534	-1.70	Before-after difference	
.089	-1.727	1.582	5.66	1.235	6.30	Before intervention	The frequency of nausea
.000	7.611	1.77	4.93	.994	2.10	Before intervention	
.000	7.968	1.89	-.733	1.44	-4.20	Before-after difference	
.011	-2.617	1.455	5.46	1.302	6.40	Before intervention	Nausea severity
.000	7.916	2.046	5.13	1.063	1.80	After intervention	
.000	8.858	1.631	-.333	2.073	-4.60	Before-after difference	
.028	-2.257	.691	2.06	.681	2.46	Before intervention	Vomiting
.000	5.814	.691	2.26	.639	1.26	After intervention	
.000	5.640	1.030	0.20	.886	-1.20	Before-after difference	
.154	-1.444	1.423	5.200	1.436	5.73	Before intervention	The frequency of vomiting
.000	6.695	1.748	4.90	1.349	2.20	After intervention	
.000	6.923	1.822	-.300	1.79	-3.53	Before-after difference	
.057	-1.943	1.337	5.266	1.575	6.00	Before intervention	Vomiting severe at every turn
.000	6.680	1.743	5.166	1.129	2.63	After intervention	
.000	7.87	1.423	-0.11	1.77	-3.367	Before-after difference	

et al., indicated a significant difference between all physical and psychological side effects of chemotherapy in the experimental group after intervention (25). These results are quite consistent with the findings of Iconomou et al. that implemented education and intervention programs to increase the quality of life and reduce side effects of chemotherapy (26).

According to the results of this study it can be stated that the use of self-care training on the side effects of the therapy can be used to mitigate side effects of chemotherapy. Orem self-care program based on a non-drug, non-invasive and low cost can be used to control the side effects of chemotherapy patients. Learning self-care practices can be given by nurses to the patients families. Self-care unit nurses of chemotherapy should be based on Orem's comprehensive program that includes comprehensive training and support to clients including their main tasks considered and first by examining the educational needs of patients which is actually an essential component of the educational process to help clients achieve maximum health and learn to maintain it and side effects of chemotherapy. According to the results of this research it is essential, nurse managers should understand the importance of education and the concept of self-care in the field of chemotherapy to alleviate complications, as well as to be aware of the importance of self-care to improve quality of life and reduce side effects of chemotherapy and support the participation of patients in

treatment. This knowledge enables nurses to understand these concepts in the care of cancer patients and instituting it and thus provide optimal care, taking into account ethical considerations, and provide support to patients and their families.

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