Short Communication

The Effect of Peer Education on Management of Chemotherapy Side Effects in Patients with Cancer

Abstract

Background: Chemotherapy drugs may have numerous side effects for patients. Thus, this study was conducted with the aim to determine the effect of peer education on the management of chemotherapy side effects in patients with cancer. **Materials and Methods:** This randomized, controlled trial was conducted on 80 patients with cancer in 2018. They were allocated to two groups of intervention and control. The self-care education on chemotherapy side effects was provided by the peers to the individuals in the intervention group. The data collection tools included a demographic characteristics form and the Self-Care Diary (SCD). Data analysis was performed using independent t-test and Chi-square test in SPSS software. **Results:** The results showed that the mean scores of the effectiveness of self-care behaviors were significantly higher in the intervention group compared to the control group after the intervention ($p < 0.05$). **Conclusions:** Peer education is recommended for cancer patients undergoing chemotherapy.

Keywords: *Neoplasms, education, Iran, self care*

Leyla Alilu[1], Leila Heydarzadeh[1], Hossein Habibzadeh[1], Javad Rasouli[2]

[1]Department of Medical Surgical Nursing, Faculty of Nursing and Midwifery, Urmia University of Medical Sciences, Urmia, Iran, [2]Department of Biostatistics and Epidemiology, Faculty of Medicine, Urmia University of Medical Sciences, Urmia, Iran

Introduction

Cancer has become one of the most serious causes of disease-related death, accounting for about 15% of total human deaths every year.[1] In Iran, cancer is the third major cause of mortality and disability[2] Chemotherapy is an important component of treatment for many cancers.[3] The administration of chemotherapeutic drugs may have numerous short-term and long-term side effects.[4]

Peer education is used as a tool for patient educatiosn.[5] It consists of emotional, social, and practical help provided by nonprofessionals, who have a condition similar to that of the patient and, are currently managing their condition effectively, to assist patients in sustaining health behaviors.[6]

Studies carried out in Iran have focused on investigating the effect of peer education on knowledge, comprehension, and knowledge application of patients regarding chemotherapy complications, but the management of side effects of chemotherapy has not been investigated.[7] Patients with cancer and their families lack knowledge of chemotherapy, its expected side effects, and patient care or self-care for minimizing the side effects, and thus, require the necessary education on the nature of the disease as well as control and prevention of treatment side effects.[8] Thus, this study aimed to determine the effect of peer education on the management of side effects of chemotherapy in patients with cancer undergoing chemotherapy.

Materials and Methods

This randomized clinical trial (IRCT2016111603092N2) was conducted at Urmia University of Medical Sciences, Urmia, Iran, in 2018. The research population consisted of patients with cancer visiting the clinic and oncology department of Imam Khomeini Medical Education Hospital, Urmia, for the first time.

We calculated that the sample size for each group should be 40 individuals (total: 80 participants) at an alpha of 0.05, power of 0.80, d = 4 (the minimum mean difference for each of the variables between the two groups), and s1 = 7.44 and s2 = 3.71 (based on the results of a similar study).[9]

The participants were selected using a convenience sampling method and

How to cite this article: Alilu L, Heydarzadeh L, Habibzadeh H, Rasouli J. The effect of peer education on management of chemotherapy side effects in patients with cancer. Iran J Nurs Midwifery Res 2021;26:81-4.

Submitted: 26-Sep-2019. **Revised:** 18-Dec-2019. **Accepted:** 28-Sep-2020. **Published:** 18-Jan-2021.

Address for correspondence:
Leila Heydarzadeh, Department of Medical Surgical Nursing, Faculty of Nursing and Midwifery, Urmia University of Medical Sciences, Urmia, Iran. E-mail: heydarzadeh.l@umsu.ac.ir

Access this article online

Website: www.ijnmrjournal.net

DOI: 10.4103/ijnmr.IJNMR_227_19

Quick Response Code:

blocked randomization methods. The size of the blocks was determined as eight in this study (a combination of AAAABBBB). Based on the sample size, the number of the required blocks was considered as 10.

Data collection tools used were demographic characteristics form and the self-care diary (SCD) designed by Williams and Schreier.[10] The SCD examines the number of side effects experienced, number of self-care behaviors performed to reduce side effects, and the effectiveness of self-care behaviors.

The validity of the SCD was assessed by Neil. The reliability of the SCD was calculated by Foltz *et al*. using an 80% test-retest in 1996.[10] In the present study, to determine the content validity of the SCD, it was distributed among 10 faculty members of Urmia University of Medical Sciences (content validity ratio = 0.98, content validity index = 0.98), and its reliability was calculated using Cronbach's alpha ($\alpha = 0.80$).

In the stage of peer selection, three cancer patients with a history of chemotherapy were selected as peers based on less involvement with chemotherapy side effects upon the doctor's approval. In the first meeting, the demographic questionnaire was completed. In the intervention group, in addition to the routine care provided at the hospital, the patients also received peer training. The education sessions were held during two chemotherapy sessions; 1 h prior to the first and second sessions of chemotherapy, the patients were individually instructed by peers under the supervision of the researcher on various issues. The control group only received the routine care of the chemotherapy clinic. After the end of peer education, both groups were instructed on how to complete the SCD. The patients were asked to complete their SCD during the first course of chemotherapy, and training pamphlets that contained the content of the sessions were also given to the patients. The collected data were imported into SPSS software (version 16, SPSS Inc., Chicago, IL, USA) and the independent t-test was used to compare the quantitative data between the intervention and control groups [Figure 1].

Ethical considerations

The permission for research was acquired from the Vice-Chancellor for Research, and a code of ethics was obtained from the Ethics Committee of Urmia University of Medical Sciences (IR.UMSU.REC.1397.118). Written informed consent forms were obtained from participants before the study.

Results

Demographic findings indicated that most participants in the two groups of women, were aged 46–65 years, and had Genital Urinary cancer, and a history of cancer in their family; The groups were homogeneous in terms of all the characteristics (χ^2, $p > 0.05$). According to

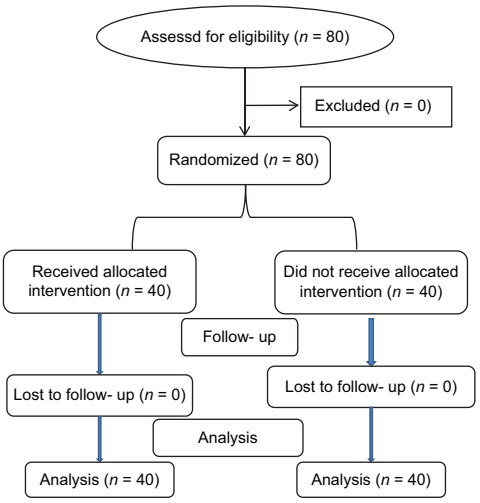

Figure 1: Consort diagram

the results, after the intervention, the mean score of the frequency of chemotherapy side effects was significantly lower in the intervention group compared to the control group (χ^2, $p < 0.05$) [Table 1]. The results of the statistical analysis showed that, in the intervention group, the mean score of the effectiveness of self-care behaviors after the intervention for each item separately (sleeping, decreased appetite, constipation, etc.,…) was significantly higher in the intervention group compared to the control group ($p < 0.05$) [Table 2].

Discussion

This present study was conducted to determine the effect of peer education on the management of the side effects of chemotherapy in patients with cancer. Based on the results of the data analysis, no statistically significant difference was observed between the two groups in terms of demographic and disease characteristics. In fact, the results of the statistical tests confirm the random allocation of subjects in the two groups. According to the results, after a peer-based education program during the first course of chemotherapy, a significant difference was found in all aspects between the intervention and control groups, This indicates the effect of peer education on the effectiveness of self-care behavior in cancer patients. Williams *et al*. reported that the side effects of fatigue, nausea, vomiting, and changes in taste had the highest frequency and the side effects caused by chemotherapy were reduced in women who received training through the voice tapes and telephone calls; These findings were not in agreement with that of the present research in which anxiety was high in both groups.[11] Fathollahi-Dehkordi and Farajzadegan examined the effect of peer group interventions on clinical breast examination in women with a positive history of breast cancer and reported the positive effect of this educational method This was in line with the results of the present study. However, their study differed from the present study in terms of the research population and their

Table 1: Comparison of frequency of chemotherapy side effects in cancer patients undergoing chemotherapy after the intervention in the control and intervention group

Side effects	Intervention group *n* [%]		Control group *n* [%]		χ^2	*p*
	yes	no	yes	no		
Difficulty sleeping	11 (27.50)	29 (72.50)	29 (72.50)	11 (27.50)	16.20	<0.001
Decreased appetite	20 (50)	20 (50)	36 (90)	4 (10)	15.23	<0.001
Constipation	20 (50)	20 (50)	32 (80)	8 (20)	7.91	0.009
Diarrhea	11 (27.50)	29 (72.50)	21 (52.50)	19 (47.50)	5.20	0.03
Mouth sores	16 (40)	24 (60)	35 (87.50)	5 (12.50)	19.52	0.001
Nausea and vomiting	29 (72.50)	11 (27.50)	40 (100)	0 (0.00)	12.75	0.001
Changes in food taste and smells	20 (50)	20 (50)	36 (90)	4 (10)	15.23	0.001
Anxiety	19 (47.50)	21 (52.50)	36 (90)	4 (10)	16.81	0.001
Skin irritation	16 (40)	24 (60)	35 (87.50)	5 (12.50)	19.52	0.001
Fatigue	19 (47.50)	21 (52.50)	36 (90)	4 (10)	16.81	0.001
Hair loss	29 (72.50)	11 (27.50)	40 (100)	0 (0.00)	12.75	0.001
Numbness in hands or feet	14 (35)	26 (65)	28 (70)	12 (30)	9.82	0.003
Gum bleeding, bruises, or petechiae on the body	10 (25)	30 (75)	40 (100)	0 (0.00)	44.29	0.001
Fever	12 (30)	28 (70)	38[(95)	2 (5)	36.05	0.001

Table 2: Comparison of mean scores of the effectiveness of chemotherapy side effects management by cancer patients after the intervention in the intervention and control groups

Scope[range]	Mean [SD]		*t* test	df	*p**
	Intervention Group	Control Group			
Difficulty sleeping [0-35]	19.72 (3.10)	12.51 (12.69)	7.25	38	0.001
Decreased appetite [0-45]	22.25 (3.04)	17.13 (3.43)	5.55	54	0.001
Constipation [0-40]	16.65 (4.63)	13.87 (3.77)	2.36	50	0.02
Diarrhea [0-30]	16.36 (2.33)	9.71 (4.41)	4.64	30	0.001
Mouth sore [0-60]	32.50 (2.60)	22.02 (4.49)	8.64	49	0.001
Nausea and vomiting [0-95]	54 (6.04)	42.07 (4.59)	9.31	67	0.001
Changes in food taste and smells [0-40]	18.55 (2.89)	13.05 (2.84)	6.88	54	0.001
Anxiety [0-50]	23.89 (3.24)	13.36 (2.14)	14.45	53	0.001
Skin irritation [0-45]	21.5 ([2.09)	14.77 (3.01)	8.06	49	0.001
Fatigue [0-45]	22.52 (3.53)	15.58 (3.27)	7.28	53	0.001
Hair loss [0-30]	15.55 (2.59)	11.57 (2.66)	6.17	67	0.001
Numbness in hands or feet [0-30]	14 (3.21)	10.07 (2.14)	4.72	40	0.001
Gum bleeding, bruises, or petechiae on the body [0-35]	16.70 (2.16)	11.60 (3.42)	4.47	48	0.001
Fever [0-50]	26.83 (3.35)	17.36 (4.45)	6.75	48	0.001

**P* using independent *t*-test

lack of examination of the management of chemotherapy side effects.[12] The findings of Lu *et al*. also indicated that peer education was effective in the postoperative rehabilitation of 240 patients with laryngeal cancer.[13] In the study by Heydarzadeh *et al*., knowledge, understanding, and application of chemotherapy patients were studied, but in the present study, the management of chemotherapy complications in patients undergoing chemotherapy was investigated.[7] These studies were in line with the present study in terms of the effectiveness of training on chemotherapy side effects (nausea and vomiting), but they differed from the present study in terms of the training method and examination of a limited number of chemotherapy side effects.

One of the limitations of this research was the use of a self-report questionnaire that was only based on the statements made by participants, and thus, it was outside the control of the researcher. The small sample size and the short duration of the follow-up are among the limitations of this research. Therefore, it is recommended that future researches be conducted on a larger number of samples with a 6-month to 1-year follow-up.

Conclusion

Based on the findings of this study, it can be concluded that the use of peers and their experiences can promote the management of chemotherapy side effects in patients undergoing chemotherapy.

Acknowledgments

This research was the result of a master's thesis in internal-surgical medicine, and it was approved and

funded by the Urmia University of Medical Sciences. The researcher would like to express his/her gratitude to the Vice-Chancellor for Research of this university, the personnel of Imam Khomeini Educational Therapeutic Center in Urmia for their cooperation in the research, and all the patients who participated in this study.

Financial support and sponsorship

Research Deputy of Urmia University of Medical Sciences.

Conflicts of interest

Nothing to declare.

References

1. Wu X, Peng Y, Duan X, Yang L, Lan J, Wang F. Homologous gold nanoparticles and nanoclusters composites with enhanced surface raman scattering and metal fluorescence for cancer imaging. Nanomaterials 2018;8:819.
2. Majidi A, Majidi S, Salimzadeh S, Khazaee- Pool M, Sadjadi A, Salimzadeh H, *et al*. Cancer screening awareness and practice in a middle income country; A systematic review from Iran. Asian Pac J Cancer Prev 2017;18:3187-94.
3. Pearce A, Haas M, Viney R, Pearson S-A, Haywood P, Brown C, *et al*. Incidence and severity of self-reported chemotherapy side effects in routine care: A prospective cohort study. PLoS One 2017;12:e0184360.
4. Nies YH, Ali AM, Abdullah N, Islahudin F, Shah NM. A qualitative study among breast cancer patients on chemotherapy: Experiences and side-effects. Patient Prefer Adherence 2018;12:1955-64.
5. Shaikh MM, Nadar SK. Peer-facilitated patient education: An underutilised resource. Sultan Qaboos Univ Med J 2018;18:e1-2.
6. Urichuk L, Hrabok M, Hay K, Spurvey P, Sosdjan D, Knox M, *et al*. Enhancing peer support experience for patients discharged from acute psychiatric care: Protocol for a randomised controlled pilot trial. BMJ Open 2018;8:e022433.
7. Heydarzadeh L, Alilu L, Habibzadeh H, RasouIi J. The effect of peer education on knowledge, comprehension, and knowledge application of patients regarding chemotherapy complications. Iran J Nurs Midwifery Res 2020;25:40-6.
8. Behnaz F, Mahboubeh S, Shiva S. Evaluating the effect of instructing patient care on knowledge, attitude and performance of the attentives of cancer patients under chemotherapy referring to the university hospitals of Tehran University of Medical Sciences. Med Sci J Islamic Azad Uni Tehran Med Branch 2004;14:99-103.
9. Torkashvand J, Dadgary F, Zareiyan Z. The effect of training programs based on the patients' needs on knowledge and attitude of patients about chemotherapy. Military Caring Sci 2017;4:138-46.
10. Williams SA, Schreier AM. The role of education in managing fatigue, anxiety, and sleep disorders in women undergoing chemotherapy for breast cancer. Appl Nurs Res 2005;18:138-47.
11. Williams SA, Schreier AM. The effect of education in managing side effects in women receiving chemotherapy for treatment of breast cancer. Oncol Nurs Forum 2004;31:e16-23.
12. Fathollahi-Dehkordi F, Farajzadegan Z. Health education models application by peer group for improving breast cancer screening among Iranian women with a family history of breast cancer: A randomized control trial. Med J Islam Repub Iran 2018;32:51.
13. Lu W, Xiong N, Lyu Z, Xu W. [Effect of peer education on postoperative rehabilitation of patients with laryngeal cancer]. Zhonghua Er Bi Yan Hou Tou Jing Wai Ke Za Zhi 2014;49:632-6.