The Effect of Adjuvant Chemotherapy on Sexual Satisfaction and Quality of Life in Breast Cancer Patients and Their Partners Izmir Oncology Group (IZOG) Study

Meme Kanserli Hastalarda ve Eşlerinde Adjuvan Kemoterapinin Seksüel Doyum ve Yaşama Kalitesi Üzerine Olan Etkileri-İzmir Onkloji Grubu (İZOG) Çalışması

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ÖZET

GİRİŞ ve AMAÇ: Meme kanseri tedavisi gören kadınların ameliyat ve kemoterapi ile sıklıkla cinsel işlev bozuklukları yaşadığını gösteren kanıtlar artmaktadır. Çalışmamızın bir parçası olarak, yaşam kalitesini (YK) ve cinsel doyum düzeylerini ve ayrıca kemoterapinin Türk meme kanseri hastalarının ve partnerlerinin cinsel doyum üzerindeki etkilerini araştırmayı amaçladık

YÖNTEM ve GEREÇLER: Otuz iki meme kanseri hastasından ve partnerlerinden elde edilen verileri topladık. Üç form kullandık: biri hastaların sosyodemografik özellikleri, EORTC-QoL-C30 ve Cinsel Tatmini Golombok-Rust Envanteri (GRISS) hakkında bilgi içeriyor

BULGULAR: Meme kanseri hastalarının GRISS'e göre tedavi öncesi ve tedavi sonrası cinsel memnuniyetlerinin karşılaştırıldığında, sıklık, kaçınma, dokunma ve anorgazmi için istatistiksel olarak anlamlı alt ölçekler osaptanmıştır (sırasıyla p <0.0001, <0.0001, 0.007 ve 0.001). Buna karşılık, sadece sıklık parametreleri partnerlerinde belirgin olarak yüksekti (p: 0.001). Ayrıca, duygusal işlevsellik, sosyal işlevsellik ve bilişsel işlevsellik açısından hastalarımızda istatistiksel olarak anlamlı farklılıklar bulduk (sırasıyla p = 0.023, 0.022 ve 0.035).

TARTIŞMA ve SONUÇ: Kemoterapinin genel yaşam kalitesi puanlarını düşürmeden cinsel doyum oranlarını düşürdüğünü bulduk. Hastaların yaşam kalitesini değerlendirirken, cinsel doyumlarının kötüleşebileceği ihtimaline dikkat edilmelidir. Tüm onkoloji uzmanları, uygun tavsiyeleri yapmanın yanı sıra hastalarıyla açık diyaloğu teşvik etmeleri için çok önemlidir; kemoterapinin zararlı etkilerini en aza indirgemek ve yaşam kalitesini iyileştirmek için antikanser tedavisi öncesi, sırasında ve sonrasında izlenmelidirler.

Anahtar Kelimeler: Yaşam kalitesi, cinsel doyum, meme kanseri, bilişsel fonksiyon, kemoterapi

ABSTRACT

INTRODUCTION: There is growing evidence suggesting that women treated for breast cancer with surgery and chemotherapy commonly experience disturbances in sexual functioning. As part of the present study, we aimed to investigate quality of life (QoL) and sexual satisfaction levels, as well as the effects of chemotherapy upon the sexual satisfaction of Turkish breast cancer patients and their partners.

METHODS: We collected data were from thirty-two breast cancer patients and their partners. We used three forms: one is covering information about socio-demographic characteristics of the patients, EORTC-QoL-C30 and the Golombok-Rust Inventory of Sexual Satisfaction (GRISS).

RESULTS: A comparison of the pre-treatment and post-treatment sexual satisfaction of breast cancer patients with respect to GRISS showed statistically significant subscores of frequency, avoidance, touch and anorgasmia (p: <0.0001, <0.0001, 0.007 and 0.001 respectively). In contrast, only the frequency parameter was significantly high in their partners (p: 0.001). Also, we found statistically significant differences in our patients in terms of emotional functioning, social functioning, and cognitive functioning (p: 0.023, 0.022 and 0.035, respectively).

DISCUSSION AND CONCLUSION: We found that chemotherapy reduced sexual satisfaction rates without lowering overall quality of life scores. While assessing patients' quality of life, one should pay sufficient attention to the possibility that their sexual satisfaction may get worse. It is of crucial importance for all the oncology professionals to encourage open dialogue with their patients in addition to making appropriate

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referrals; and they should be monitored before, during, and after anticancer treatment to minimize the deleterious effects of chemotherapy and improve their quality of life.
Keywords: Quality of life, sexual satisfaction, breast cancer, cognitive functioning, chemotherapy.

INTRODUCTION

With an increasing incidence, breast cancer is the most common type of cancer among women, and it comprises 18% of all female cancers. (1,2) The adjuvant chemotherapy is commonly used because of this frequency and high resectability rate. Thanks to the adjuvant therapy modalities being developed, patients present increased survival rates and they are at the same time exposed to side effects associated with the treatment. Alongside the better-known ones, these side effects include the less-investigated ones such as the quality of life and sexual dysfunction.

Breast cancer is the cancer of an organ that symbolizes femininity and has been mostly investigated in terms of its aspects related to sexuality and intimacy. (3) In addition, the importance of quality of life (QoL) has become prominent in breast cancer survivors due to the increasing number of effective treatments. Therefore, physical and psychological aspects of QoL are important factors in survival and overall patient health. (4,5)

Breast cancer treatment creates a stressful situation, not only from the physical but also from the psychological point of view. There is growing evidence that women treated for breast cancer with surgery and chemotherapy commonly experience disturbances in sexual functioning. Recent studies have revealed that breast cancer and its treatment methods (chemotherapy or hormone therapy) have had a negative effect on the sexual life of breast cancer survivors. (6-9) The research shows that the reason for the sexual problems associated with breast cancer patients appears to be much more related to the chemotherapy treatment than the type of surgery. (10) The most common sexual disturbances experienced by these patients were decreased sexual desire and arousal, painful intercourse, and anorgasmia. (11,12) Sexuality includes a need for touch, desire for sexual activities, communication to a partner and the ability to engage in satisfying sexual activities. However, for many women, sexuality does not only signify the ability to have intercourse but also includes the phenomena of femininity, attractiveness, ideas of body image and motherhood. It can also encompass an emotional and intellectual connection and sociocultural relationship. (13)

Despite the increase in the number of studies examining the psychosocial factors in breast cancer patients, few studies have focused on the changes in both the cancer patients and their partners. Partners need psychosocial support during the treatment and examination period, as they take greater responsibility for their home and family. Partners of cancer survivors were found to have problems like fatigue, sleep disturbance, eating and mood disorders, relationship difficulties, sexual morbidity and work disruption. (14)

There are limited data available on the extent to which the adjuvant therapy (anthracycline plus taxane combination), which is utilized frequently in breast cancer, affects the patients' sexual status. No single study has so far been able to clarify how the chemotherapeutics with a high emetogenic potential and side effects such as neuropathy, fatigue and exhaustion affect the quality of life and sexual satisfaction. The aim of the present study was therefore to investigate the effect of adjuvant chemotherapy on the quality of life and sexual satisfaction of the Turkish breast cancer patients and their partners.

Materials and methods

Data collection

Thirty-two premenopausal and sexually active breast cancer patients, who received adjuvant chemotherapy in Medical Oncology Clinics of Izmir Katip Celebi University Ataturk Research and Training Hospital between May 2015 and September 2016, and their partners, were enrolled in this study. The data were collected using a series of forms covering information about the sexual satisfaction and QoL of the breast cancer patients and their husbands, which were completed by a psychologist of the clinic during face-to-face

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interviews. Out of 44 patients, twelve were excluded from the study, since ten patients and two partners refused to complete the questionnaire. Patients with any comorbidity and history of any chronic drug use were excluded from the analysis. Therefore, the data were analyzed based on a total of 32 patients and their partners. The participants were informed of the study and they provided oral and written consents.

The first form contained questions about the socio-demographic characteristics of the patients. The second form was the"European Organization for Research on Treatment of Cancer Questionnaires Quality of Life-C30" (EORTC-QoL-C30). It included 30 items measuring the QoL of cancer patients into three major domains: functional scales, global health/QoL and symptom scales. (15) The quality of life scale consists of two items and there are nine symptom scales associated with fatigue (three items), nausea and vomiting (two items), pain (two items), dyspnea, insomnia, loss of appetite, diarrhea, financial and constipation (one item each). Functional scales consist of physical (five items), social (two items), emotional (four items), role (two items) and cognitive (two items) items. (16)

The third form was the Golombok-Rust Inventory of Sexual Satisfaction (GRISS). The GRISS consists of a 28-item questionnaire used to evaluate the presence and extent of sexual morbidity. It has two different versions intended for males and females. The GRISS features 12 subscales evaluating impotence, premature ejaculation, orgasmic disorder, vaginismus, lack of communication, avoidance in males and females, non-sensuality, insensitivity in males and females and dissatisfaction in males and females. A score of five points or higher in any category indicates sexual dysfunction. (17) In the present study, we used the female versions of GRISS for breast cancer patients and male versions for their partners. Five subscales (touch, satisfaction, avoidance, communication, and frequency) are common in both versions. We compared these five subscales. The other two subscales (vaginismus and anorgasmia in females; impotence and premature ejaculation in males) were not compared. A validation and reliability study of The Golombok-Rust Inventory in Turkish population was conducted by Tuğrul et al. (18).

In the present study, we administered both EORTC-QoL-C30 and GRISS forms to our patients and their partners at the beginning of the treatment and after the end of it in order to compare the difference in the quality of life and sexual satisfaction of this cohort owing to an adverse effect of chemotherapy.

Statistical analysis:

All data were analyzed using SPSS for Windows version 20.0. Descriptive statistics summarized frequencies and percentages for categorical variables, the mean and standard deviation for continuous variables. For independent samples, T-tests were used to compare categorical variables. A value of $p<0.05$ was considered to indicate significance.

RESULTS

The mean age of breast cancer patients and their partners were 42.7±6.4 (range:35-48) and 46.6±8.3 (range:42-57), respectively. About 45% of the patients and 55% of the partners were university graduates. Nearly half of the patients (55%) and their husbands (45%) received primary education. 40% of the patients underwent a total mastectomy. All patients received four cycles of doxorubicin plus cyclophosphamide (every 21 days) and then a weekly paclitaxel therapy for a period of 12 weeks.

A comparison of the pre-treatment and post-treatment sexual status of breast cancer patients with respect to GRISS revealed significantly high levels of the frequency, avoidance, touch and anorgasmia subscores among the patients (p:<0.0001, <0.0001, 0.007, and 0.001, respectively). When we compared the pre-treatment and post-treatment GRISS subscores of their partners, we found statistically significant high levels of the frequency (p: 0.001). The GRISS scores of patients and partners are shown in *Table 1*.

On the other hand, we analyzed the quality of life for only breast cancer patients in pre- and post-treatment periods, and we found statistically significant differences in emotional functioning, social functioning, and cognitive functioning (p: 0.022, 0.023, and 0.035, respectively). The comparison of pre-treatment and post-treatment EORTC-QoL-C30 scores of the patients is shown in *Table 2*.

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Table 1. Comparison of pre-treatment and post-treatment EORTC-QoL-C30 scores of the patients

QoL	Pre-treatment(n:32) Mean± SD	Post-treatment(n:32) Mean± SD	P value
Functional Scale			
Physical functioning	80.1±14.4	82.0±11.0	0.427
Role functioning	84.0±21.2	84.0±15.3	0.99
Emotional functioning	72.4±22.7	78.4±18.3	**0.023**
Social functioning	71.6±22.05	66.0±18.3	**0.022**
Cognitive functioning	84.5±17.3	77.4±17.8	**0.035**
Symptom Scale			
Nausea and vomiting	11.7±17.0	22.3±16.1	**0.013**
Fatigue	34.0±21.8	34.0±17.3	0.99
Pain	26.5±19.3	18.7±17.3	**0.037**
Dyspnea	10.4±17.8	8.3±18.9	0.536
Insomnia	24.9±25.3	23.9±17.8	0.57
Appetite loss	20.8±23.5	24.9±16.9	0.35
Constipation	10.4±17.8	6.2±13.1	0.16
Diarrhea	10.4±17.8	20.8±21.9	**0.005**
Financial problems	28.1±32.9	32.2±36.3	0.35
Global quality of life	66.9±20.6	67.4±12.7	0.85

EORTC-QLQ-C30, European Organization for Research on Treatment of Cancer Questionnaires Quality of Life-C30. The bold values are statistically significant.

Table 2. Comparison of pre-treatment and post-treatment GRISS scores of the patients and their partners

GRISS	Pre-treatment(n:32) Mean± SD	Post-treatment(n:32) Mean± SD	P value
Patients			
Frequency	4.96±1.46	6.18±1.78	**<0.001**
Communication	5.71±2.64	6.00±2.25	0.14
Satisfaction	3.46±1.96	3.68±1.83	0.37
Avoidance	4.21±2.22	5.80±1.88	**<0.001**
Touch	4.87±2.44	5.56±2.07	**0.007**
Vaginismus	4.87±1.58	5.34±1.51	0.08
Anorgasmia	3.37±1.47	3.87±1.53	**0.001**
GRISS total	1.46±0.50	1.62±0.49	**0.002**
Partners			
Frequency	4.43±1.24	5.62±1.58	**0.001**
Communication	5.28±2.45	4.90±2.46	0.07
Satisfaction	2.96±1.44	3.28±1.37	0.25
Avoidance	1.90±1.72	1.78±1.40	0.63
Touch	3.71±2.09	3.53±2.10	0.53
Premature Ejaculation	6.21±1.31	6.09±1.27	0.45
Erectile dysfunction	4.12±1.69	4.09±1.57	0.32
GRISS total	1.71±0.45	1.78±0.42	0.32

GRISS: Golombok-Rust Inventory of Sexual Satisfaction

DISCUSSION

Cancer surgery and chemotherapy have the potential to make along-lasting impact on body image and self-respect. Social roles of the cancer patients may also be affected throughout the cancer treatment. In addition to breast cancer treatments, the traumatic nature of the cancer experience may also bring about sexual difficulties. These sexual difficulties especially appear to be commonly observed in breast cancer patients experiencing body image disturbances. (19)

Given the fact that the sexual dysfunction is a common problem among breast cancer survivors who had received chemotherapy, women should be properly informed at an early stage of treatment. (6) Much of the studies conducted so far have investigated the long-term effects of chemotherapy in terms of sexual dysfunction. However, the present study examined, in a cross-sectional manner, the effect of a specific chemotherapy protocol on the patients' quality of life and sexual satisfaction both at the beginning and end of the treatment. When we compared pre-treatment and post-treatment sexual satisfaction, we found statistical significance levels for the frequency, avoidance, touch and

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anorgasmia subscores among patients, and we determined statistical significance levels for the frequency of their partners.

In a study conducted by Alicikus et al., forty-one percent of sexually active breast cancer patients had experienced a deterioration of sexual functioning after treatment. This sexual dysfunction was found to be mainly due to loss of libido (80%), loss of interest in the partner (54%), and sexual dissatisfaction (59%). Sexual problems tended to develop in the early course of treatment. (20) Another study further showed that the adjuvant chemotherapy (FEC plus docetaxel) in young breast cancer patients had a strong negative impact on different QoL domains; especially on menopausal symptoms, sexuality and body weight.

Malinovszky et al. treated sexually active breast cancer patients at baseline with either high-dose or conventional chemotherapy and compared the groups of patients with respect to their post-treatment sexual activity. The changes from baseline were not significantly different between the changes at 6 months or 12 months in the patients treated with conventional-dose chemotherapy. (21) In contrast, Joly et al. did not find any difference in the sexual functioning of breast cancer survivors (as measured by EORTC-QoL-C30) after chemotherapy treatment. (22) After an average period of 10 years, patients included in this study were randomized in a trial comparing cyclophosphamide, methotrexate, and fluorouracil (CMF) to no adjuvant chemotherapy. They found and concluded that the negative effects of chemotherapy on sexual satisfaction may diminish over time.

In the present study, we found that standard chemotherapy regimens negatively affected the cognitive, emotional and social functioning of breast cancer patients. However, conflicting data were reported in the literature on cognitive dysfunction in women undergoing adjuvant chemotherapy for breast cancer. This difference in the cognitive functioning scores of cancer patients may be due to the utilization of different chemotherapeutics as part of those studies. While some recent studies indicated a cognitive impairment in 15–50% of adult solid tumor survivors who had received chemotherapy, Nicoletta et al. demonstrated that chemotherapy did not influence cognitive functions. (23,24) The reason for the occurrence of cognitive dysfunction after chemotherapy remains unknown. There may be different mechanisms involved, such as direct toxic injury to neurons, DNA damage, oxidative stress, menopausal status, cytokine release, and arterial or venous thrombosis in central nervous system. A study conducted by Lôbo et al. on women with breast cancer who received chemotherapy reported a significant decrease in physical, social and cognitive functioning between the beginning and end of treatment (six complete cycles of chemotherapy). (25) On the other hand, in another study, women in all treatment groups reported good emotional functioning but decreased physical functioning at the end of primary treatment for breast cancer, which was the case particularly among women who had a mastectomy or received chemotherapy (26).

The reduced sexual satisfaction scores found part of the present study were considered to be associated with the deteriorated emotional, cognitive and social functions of the patients, which refer to the quality of life scores. One should also take into account the possibility that the process associated with direct effects of chemotherapy may also play a role in this regard.

Breast cancer is a phenomenon that may have psychosocial and psychosexual effects on both patients and their partners. Although there are many studies on the sexuality and quality of life of breast cancer patients in the literature, they rather focus on a single aspect of the breast cancer. The present study includes all the treatment-related quality of life parameters including sexual satisfaction as well. However, the limited number of cases included in the present study constitutes a major limitation; and the study continues given the consideration that it will be more appropriate to evaluate the long-term findings of the study in order to reveal the long-term effects of chemotherapy on sexual satisfaction.

All these data support the need for an evaluation and management of sexual difficulties in breast cancer survivors, particularly if the patients receive treatments with a potential to alter sexual functioning. Therefore, sexual morbidity should be a regular part of the clinical care of those female breast cancer patients treated with chemotherapeutics.

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