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RESEARCH COMMUNICATION

Changes in Functional Status and Physical and Psychological Symptoms in Women Receiving Chemotherapy for Breast Cancer

Filiz Ögce^{1*}, Sevgi Özkan²

Abstract

Aims: This study was planned to determine whether there were changes in breast cancer women's functional status and presence of physical and psychological symptoms before and after chemotherapy. **Methods:** The research sample comprised 101 women with breast cancer receiving oncology services at university hospitals (Pamukkale and Ege Universities) in two cities in western Turkey (Izmir and Denizli) who volunteered to participate in the study. The Patient and Medical Information Questionnaire, Symptoms List, and the Inventory of Functional Status-Cancer (IFS-CA) were used for data collection to determine the functional status. **Results:** According to the IFS-CA in the examination of the women's functional status the after chemotherapy scores were lower and significantly different for household and family activities ($p < 0.0001$), social and community activities ($p < 0.0001$), personal care activities ($p < 0.0001$) and occupational activities ($p < 0.003$). Similarly there was also a statistically significant increase in presence of physical and psychological symptoms after chemotherapy, particularly affected the personal care activities subscale of the functional status inventory. **Conclusions:** It was determined that the worsening of the functional status of breast cancer women was associated with chemotherapy and more physical and psychological discomforts were experienced.

Key Words: Breast cancer - functional status - chemotherapy - symptom list

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Introduction

Cancer patients generally experience physical, psychological and functional symptoms. The average number of concurrent symptoms is 11-13 and a common mistake in cancer treatment is treating one symptom which may not necessarily improve functional status (Fan et al., 2005). Symptoms associated with cancer worsen after chemotherapy which may also cause new symptoms (nausea/vomiting, hair loss, etc.). Lee et al (2005) reported that almost half of patients with breast cancer stated that receiving chemotherapy caused severe disruption in their lives. The poorest functional status (including inability to perform household chores, work and social activities) is more associated with the chemotherapy phase of breast cancer treatment, in comparison with other phases of treatment (Lee et al., 2005).

When women are diagnosed with breast cancer they experience a very stressful life event associated with distressing symptoms. The presence of these symptoms may begin with diagnosis, continue for two or more years after the completion of adjuvant therapy, and may decrease their quality of life, in particular its psychological and spiritual dimensions (Manning-Wash, 2005). Symptoms

tend to multiply in a snowball fashion leading to the presence of other symptoms. As a result women's mood, psychological status, physical status, functional status, quality of life, disease progression and survival are all affected (Ahlberg, 2005; Manning-Wash, 2005; Ogce, 2007; Ozkan, 2007).

There are no studies in the Turkish literature about the effect of chemotherapy associated physical and psychological symptoms on functional status of women. For this reason our purpose was to evaluate the presence of physical and psychological symptoms and functional status of women before and after chemotherapy for breast cancer.

Materials and Methods

Sample and Setting

Questionnaires were collected just before initiation of the first cycle of adjuvant chemotherapy, and again after the second cycle of chemotherapy. The study sample included volunteer female patients who were receiving chemotherapy for breast cancer and being treated in the oncology departments of university hospitals (Pamukkale University and Ege University) in two cities in western

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Turkey (Izmir and Denizli). Of 101 patients who were initially approached to participate, 96 completed the study. Five patients were eliminated, three continued their treatment at other centers, and two patients died. Ethical approval was obtained from the Ethics Committee, and all patients gave their written consent before the beginning of the study. The breast cancer stage was classified using the American Joint Committee on Cancer (AJCC) TNM Staging System for Breast Cancer and SEER summary data (American Joint Committee, 2002).

Design

The study was designed as a longitudinal, descriptive study (2 cycles of chemotherapy treatment) to depict the physical and psychological status as well as changes in breast cancer patients’ functional status over time.

Instruments

Patient and Medical Information Questionnaire (PMIQ): This was designed by the researchers to collect demographic variables such as age, education, marital status and employment status. The PMIQ also includes questions about year of cancer diagnosis, surgery type, cancer stage, chemotherapy type and antiemetic used.

Symptom List: This list was developed taking the physical symptoms (anorexia, groin pain, lack of energy, back pain, nausea, vomiting, diarrhea, etc.) and psychological symptoms (sadness, depression, nervousness, tension, etc.) from the Rotterdam Symptom Check List as the foundation (Can et al., 2004).

Inventory of Functional Status-Cancer (IFS-CA): this inventory contains four subscales of household and family activities, social and community activities, personal care activities and occupational activities to measure functional ability. The women were asked about the activities they did before being diagnosed with cancer in the 15-item household and family activities and the six-item social and community activities subscales, and at what rate they had begun to do these activities in the last few weeks. A high score indicates a high functional status. The inventory was developed by Tulman et al. (1991) and the validity and reliability study for the Turkish version of the inventory was conducted by Ozkan and Ogce (2007).

Statistical analysis

Statistical analyses were conducted in the SPSS 11.0 program. Data were analyzed with mean, standard deviation, and frequency as well as with McNemar Chi square and paired sample t test.

Results

The participating women’s mean age was 49±11.15 years. The majority of women (74.0%) had low educational level, were housewives (60.4%) and married (80.2%), had been diagnosed for less than one year, had had a mastectomy (98%), had been diagnosed in the early phase (52.1%), were being treated with Doxorubicin+cyclophosphamide (39.6%), and were taking an antiemetic (39.6%). See Table 1 for more details

Table 1. Sociodemographic and Other Characteristics

Characteristics	N	(%)
Age group	< 49 years	48 (50.0)
	> 50 years	48 (50.0)
Educational level	< 8 years	71 (74.0)
	> 8 years	25 (26.0)
Occupation	Homemaker	59 (61.5)
	Civil servant	8 (8.3)
	Worker	5 (5.2)
	Self-employed	5 (5.2)
	Retired	12 (12.5)
	Farmer	7 (7.3)
Marital status	Married	77 (80.2)
	Widow	14 (14.6)
	Single	5 (5.2)
Time since diagnosis	<1 year	52 (54.2)
	>1 year	44 (45.8)
Type of surgery	Mastectomy	94 (98.0)
	Lumpectomy	2 (2.0)
Stage of cancer	Localized	50 (52.1)
	Advanced	4 (4.1)
	Regional	33 (34.4)
	Metastatic	9 (9.4)
Adjuvant chemotherapy	Doxorubicin+cyclophosphamide	38 (39.6)
	Methotrexate+ cyclophosphamide	
	+ fluorouracil	31 (32.3)
	Other	27 (28.1)
Antiemetic use	Yes	38 (39.6)
	No	58 (60.4)

Table 2. Changes in Functional Status before Chemotherapy and after the Second Cycle of Chemotherapy

Activities	Baseline (N=101)	After 2 cycles (N=96)	P value
Household and family	2.19 (0.85)	1.93 (0.82)	0.001
Social and community	2.47 (0.94)	2.36 (0.95)	0.001
Personal care	2.27 (0.46)	2.12 (0.46)	0.001
Occupational activities	2.47 (0.62)	2.25 (0.70)	0.003
Total IFS-CA	2.42 (0.58)	2.30 (0.62)	0.001

about the participants.

Patients’ functional status was measured by IFS-CA before and after two cycles of chemotherapy and the results are shown in Table 2. In the examination of the women’s functional status according to the cancer functional status inventory the after chemotherapy scores were lower and significantly different for household and family activities (p<0.0001), social and community activities (p<0.0001), personal care activities (p<0.0001) and occupational activities (p<0.003).

Patients’ physical and psychological symptoms were collected on a symptom list. The changes in physical and psychological symptoms before chemotherapy and after the second cycle of chemotherapy are shown in Table 3. There were significant increases in presence of both physical and psychological symptoms after the second cycle of chemotherapy. These changes were found to be statistically significant (p< 0.01).

In the examination of the effect of physical and psychological complaints before chemotherapy and after the second cycle of chemotherapy on functional status, it

Table 3. Changes in Symptoms

Symptoms	Baseline	After 2 cycles	P value
Physical			
Anorexia	9 (8.9)	38 (37.6)	<0.001
Fatigue	81 (80.2)	88 (86.1)	<0.001
Tingling	8 (7.9)	39 (48.6)	<0.001
Groin Pain	10 (9.9)	47 (46.5)	<0.001
Lack of Energy	20 (19.8)	69 (68.3)	<0.001
Back Pain	8 (7.9)	40 (39.6)	0.003
Nausea	10 (9.9)	44 (43.3)	<0.001
Vomiting	5 (5.0)	18 (17.8)	<0.001
Insomnia	20 (19.8)	49 (48.5)	<0.001
Dizziness	7 (6.9)	25 (24.8)	<0.001
Headache	14 (13.9)	51 (50.5)	<0.001
Abdominal Pain	3 (3.0)	29 (28.7)	<0.001
Diarrhea	-	10 (9.9)	<0.001
Indigestion	6 (5.9)	31 (30.7)	<0.001
Shivering	5 (5.0)	25 (36.6)	<0.001
Lack of Concentration	12 (11.9)	25 (36.6)	<0.001
Hair Loss	-	65 (64.4)	<0.001
Burning Eyes	4 (4.0)	30 (29.7)	<0.001
Shortness of Breath	9 (8.9)	29 (28.7)	<0.001
Dry Mouth	14 (13.9)	49 (48.5)	<0.001
Psychological			
Sadness	16 (15.8)	57 (56.4)	<0.001
Nervousness	23 (23.8)	60 (59.4)	<0.001
Depression	11 (10.9)	38 (37.6)	<0.001
Hopelessness	14 (13.9)	48 (47.5)	<0.001
Tension	24 (23.8)	57 (56.4)	<0.001
Fear	17 (17.0)	57 (56.4)	<0.001

was determined that physical complaints had an effect on personal care activities before chemotherapy and household and family activities after chemotherapy, and although psychological symptoms did not have an effect on functional status before chemotherapy they had an effect on personal care after chemotherapy.

Discussion

The present study determined that several physical and psychological symptoms were associated with a decrease in patients' ability to maintain their functional status during

a course of chemotherapy. In parallel with our findings, in studies by Watters et al (2003), Lee et al (2005), and Ahlberg et al (2005), it was determined that compared to patients' baseline status before chemotherapy patients had a decrease in physical functions, such as role function, social function, and global health status after adjuvant chemotherapy.

Side effects of cancer such as fatigue, anorexia, lack of energy, pain, insomnia, nervousness, depression, tension, and fear are regarded as universal and unavoidable and these symptoms tend to increase after chemotherapy (Watters, 2003). In the present study patients had many physical symptoms, including pain, nausea, lack of energy, fatigue, insomnia, lack of concentration, and dry mouth, and psychological symptoms, such as sadness, nervousness, depression, hopelessness, nervousness and fear. There was a clear increase seen in both physical and psychological symptoms after the second cycle chemotherapy. The reason why women were disappointed after chemotherapy was presumably because they did not know what to expect. It may be helpful for them to talk with other women who had also received chemotherapy. Fatigue, nausea/vomiting and hair loss are the most distressing side effects of chemotherapy, and in various studies which have examined these symptoms one by one they were found to worsen patients' functional status after chemotherapy (Farley, 1997; Watters, 2003; Lee, 2005). At the same time these symptoms associated with chemotherapy led to a decrease in activities of daily living of patients with breast cancer and caused them to lengthen their hours of rest and consequently the women were not able to fulfill their domestic responsibilities (Lee, 2005). In our study as well household and family activities were significantly decreased after the second cycle of chemotherapy compared to the women's baseline.

Reduced physical activity because of fatigue or nausea/vomiting, actually decreases physical strength and functional status to produce secondary fatigue. Smets et al (cited in Ahlberg 2005) mentioned that the degree of fatigue before the start of treatment may be the most powerful predictor of post-treatment fatigue. In general

Table 4. Effect of Physical and Psychological Symptoms on Functional Status before Chemotherapy and After the Second Cycle of Chemotherapy

		N	Household and family	Social and community	Personal care	Occupational
Physical Symptoms						
At Baseline	Yes	60	2.17 (0.79)	2.39 (0.89)	2.38 (0.46)	2.63 (0.63)
	No	41	2.22 (0.93)	2.59 (1.00)	2.12 (0.42)	2.28 (0.62)
	P value		NS	NS	0.005	NS
Post-chemo*	Yes	92	1.89 (0.77)	2.34 (0.93)	2.14 (0.45)	2.21 (0.73)
	No	4	2.91 (1.29)	3.25 (0.86)	2.15 (0.50)	2.62 (-)
	P value		0.014	NS	NS	NS
Psychological Symptoms						
At Baseline	Yes	50	2.25 (0.95)	2.34 (0.90)	2.28 (0.39)	2.01 (0.68)
	No	51	2.14 (0.78)	2.60 (0.96)	2.26 (0.53)	2.64 (0.54)
	P value		NS	NS	NS	NS
Post-chemo*	Yes	82	1.88 (0.77)	2.34 (0.96)	2.08 (0.44)	2.27 (0.74)
	No	14	2.38 (1.00)	2.57 (0.86)	2.51 (0.33)	2.12 (0.70)
	P value		NS	NS	0.001	NS

NS: Non significant, *After 2nd cycle of chemotherapy

symptoms and their level before chemotherapy may be an important variable in finding risk factors for the development of the symptoms over the course of treatment. Heidrich (2006) noticed that women do not communicate with their healthcare providers about symptoms. So nursing interventions related to symptom management need to assist women in understanding the possible cause of symptoms, which may lead to more effective coping with their symptoms.

In the present study, social function at the completion of chemotherapy was not found to be different from baseline, in line with the Waters et al study results (2003). However, physical complaints before chemotherapy affected personal care and after chemotherapy affected household and family activities and psychological symptoms also affected personal care after chemotherapy. The study is limited primarily to women with breast cancer since the original scale (IFS-CA) was examined in breast cancer patients. Further research is therefore needed to determine the functional status of patients with other types of cancer.

It was determined that the worsening functional status of women with breast cancer was associated with chemotherapy and that women experienced more physical and psychological discomfort. These problems need to be explained to women in a language they can understand at the beginning of chemotherapy so patients know what to expect and the negative effect of chemotherapy on the domestic and social activities. In addition nurses who administer chemotherapy need to keep patients' individual differences in mind when providing care according to changes that occurs before and after chemotherapy and help them improve their functional status.

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