Anxiety and Depression and Quality of Life in Young Breast Cancer Patients Receiving Radiotherapy Treatment and Their Caregivers

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Introduction

The most commonly diagnosed cancer for women is breast cancer and the most common treatment for primary breast cancer is breast surgery and adjuvant systemic treatments[1]. This is to reduce the chance of local and distant disease recurrence, but it also has the chance of affecting quality of life (QOL). More than ninety percent of people diagnosed with breast cancer receive adjuvant radiation therapy (RT)[2]. Breast conserving surgery is performed in early stage breast cancers such as stage I and II, but in some conditions, modified radical mastectomy (MRM) is preferred in stage II patients. In the case of Stage III breast cancer, the surgical procedure is chosen according to the response to neoadjuvant chemotherapy.

Radiation therapy (RT) is used as an adjuvant treatment after a breast-conserving surgery (BCS) to lower the chance of reoccurrence and to increase the odds of disease-free survival. Several side effects are prevalent during treatment, especially depression and anxiety, in addition to various physical side effects[3]. Cancer-related fatigue is experienced by 30-80% of patients and is also one of the most common side effects post-surgery. [4]These symptoms require aggressive treatment along with adjuvant radiation therapy. RT and BCS have an overall psychosocial impact that has been reported. Early menopause and possible infertility can also occur in younger patients. Poor sexual function, altered body

image, and difficulty with shoulder and arm movements may also occur and have an impact on long-term QOL[5].

The importance of depression and anxiety is as important as quality of life in breast cancer patients and their caregivers. This study, which we have conducted, shows the depression scale and the presence of near and distant future anxiety states of younger patients with breast cancer and their caregivers, by evaluating and correlating the three stages which are: before starting radiotherapy (RT0), the end of radiotherapy (RT1), with the onset of acute side effects, and three months after finishing radiotherapy (RT2) with the onset of chronic side effects. Likewise, we observed the changes in the quality of life of young breast cancer patients and their caregivers during this period. In this context, it is the first current study to evaluate the quality of life and depression and anxiety of young breast cancer patients and their caregivers.

European Organisation for Research and Treatment of Cancer Quality of Life Questionnairer EORTC-QLQ C30 is an important scale for determining the physical and functional scale of the patients[6]. EORTC QLQ-C30 version 3.0, a 30-item questionnaire, was used to assess quality of life. Global health status, five functional scales (physical, role, cognitive, emotional, social), and nine symptom scales/items (fatigue, nausea/vomiting, pain, dyspnea, insomnia, appetite loss, constipation, diarrhea, financial difficulties) are the parts of the EORTC QLQ-C30. Patients' responses were measured according to the EORTC QLQ-C30 scoring manual and then linearly transformed to a scale of 0 to 100. A high score on the functional scale represents a high level of functioning but a high score on the symptom scale represents very severe symptoms or financial impact.

It is really important to evaluate patients and caregivers depression. Beck depression and State-Trait Anxiety Inventory (STAI) scoring anxiety system scale is a safe measuring method. The Beck Depression Inventory (BDI) was used to measure the severity of depression. The scale has 21 items and a range of 0 to 63. A score of <10 means no symptoms or minimal symptoms, 10-18 means mild to moderate, 19-29 means moderate to severe, and 30-63 is severe[7]. The STAI was the third test, which provides a reliable measurement of anxiety. It was developed in the 1970s by Spielberger. It consists of two subscales: state anxiety and trait anxiety. The state anxiety subscale has twenty items and asks subjects how they feel ''right now.'' The trait anxiety subscale also has twenty items and asks subjects how they feel "in general". Responses are measured from 1 to 4, from least severe to most severe. State anxiety and trait anxiety are each scored separately and they range from 20 to 80, with higher scores demonstrating a higher level of anxiety[8].

Materials and Methods

Between March 2016 and January 2018, a survey was conducted on 105 patients between the ages of 24-39 who were treated in our clinics, and 82 young breast cancer patients and their caregivers were enrolled in the study. The research was carried out prospectively and the ethics committee approval and patient approval forms were used. The EORTC-QLQ C30, Beck Depression Scale, STAI-I and STAI-II scoring systems were applied at the time of RT0, RT1 and RT2 for patients with breast cancer. For caregivers, the RT0 EORTC-QLQ C30 was performed. The Beck Depression Scale, STAI-I and STAI-II scoring systems were applied to patients at RT0, RT1, RT2 periods. In the study conducted, each patient was asked whether they have a family history of breast cancer, and if so whether these relatives had lived or not, if they admitted to emergency room within the last month, and if so for what reason, marital status, who looked after the patient and how many people lived with the patient, whether they had a job or not, and if they live in a rural or urban environment.

Radiotherapy

34 (41.5%) patients who had undergone MRM were given 200 cGyx25=5000 cGy, 48 (58.5%) patients with BCS were given a total of 6000 cGy curative radiotherapy with 200 cGyx25: 5000 cGy, 200 cGyx5: 1000 cGy boost to the operated breast.

Statistical Analysis

All analyses were performed using IBM SPSS Statistics Version 20.0 statistical software package. Categorical variables were expressed as numbers and percentages, whereas continuous variables were summarized as mean and standard deviation and as median and minimum-maximum where appropriate. The normality of distribution for continuous variables was confirmed with the Kolmogorov-Smirnov test. For comparison of continuous variables between two groups, the Student's t-test or Mann-Whitney U test was used depending on whether the statistical hypotheses were fulfilled or not. To evaluate the change over time the Repeated Measurements Analysis was applied. The statistical level of significance for all tests was considered to be 0.05.SPSS reference: IBM Corp. Released 2011. IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.

Results

		X ± sd
Age		32 ± 4.23
Weight		78.67(46-99)
Height		165(155-178)
		N (%)
Type of Operation	BCS	48(58.5)
	MRM	34(41.5)
Pathology	Invasive Ductal Carsinoma	38(46.3)
	Invasive Lobular Carsinoma	32(39)
	Other	12(14.6)
Stage	Stage I	35(42.7)
	Stage II	26(31.7)
	Stage III	21(25.6)

Grade	Grade I	36(43.9)
	Grade II	39(47.5)
	Grade III	7(8.5)
Number of ER visits in the Last month		15(18.3)
Complaints	Shortness of Breath	7(46.6)
	Arm Pain	2(13.3)
	Tachycardia	6(40.07)
Family History	Mother	12(41.37)
	Sister	9(31.03)
	Aunt	8(27.6)
Relative with positive history is alive?	Yes	20(68.9)
	No	9(31.1)
Marital status	Single	8(9.7)
	Married	37(45.1)
	Widowed	26(31.7)
	Divorced	11(13.4)
Caregiver	Spouse	37(45.1)
	Children	37(45.19)
	Other	8(9.8)
How many people live in the household	1	4(4.9)
	2	37(45.1)
	3	14(17.1)
	4	12(14.6)
	5+	15(18.3)
Employment status	Employed	34(41.4)
	Unemployed	12(14.6)
	House wife	36(43.9)
Education	Primary	45(54.8)
	Secondary	32(39)
	University	5(6.2)
Residence	Urban	45(54.8)
	Rural	37 (45.2)

Table 1. Table showing patient demographics

Patient	RT 0 Mean ± sd Median(Min,Max)	RT 1 Mean ± sd Median(Min,Max)	RT 2 Mean ± sd Median(Min,Max)	p
STAI - I	36.60±11.42 36.00(20,62)	40.67±6.43 43(23,55)	28.04±4.59 27.50(21,36)	<0,001
STAI - II	40.45±10.72 44.00(20,64)	39.55±7.38 41.5(24,50)	30.54±6.81 28(21,42)	<0,001
BECK	23.56± 12.82 19.00(10,52)	34.43±7.31 35(12,49)	13.93±3.30 14(10,31)	<0,001
Physical Function Scale	66.91±16.47 66.67(20,100)	63.17±13.46 66.67(33.33,86.67)	91.92±6.84 93.33(73.33,100)	<0,001
Role Function Scale	73.54±20.32 66.67(16.67,100)	75.20±15.32 66.67(33.33,100)	80.48±13.80 83.33(66.67,100)	0,019
Emotional Function Scale	65.44±23.57 66.67(16.67,100)	72.67±16.7 75(41.67,100)	88.72±9.10 91.67(75,100)	<0,001
Cognitive Function Scale	65.04±27.16 66.67(16.67,100)	80.21±15.02 83.33(33.33,100)	86.38±12.31 83.33(66.67,100)	<0,001
Social Function Scale	67.07±25.11 66.67(16.67,100)	73.98±15.06 66.67(33.33,100)	82.72±12.94 83.33(66.67,100)	<0,001
Fatigue	44.30±19.16 44.44(0,100)	18.89±14.18 22.22(0,44.44)	6.77±9.52 0(0,33.33)	<0,001
Nausea and vomiting	27.44±31.13 16.67(0,83.33)	6.30±14.01 0(0,66.67)	2.24±5.71 0(0,16.67)	<0,001
Pain	41.05±21.46 50(0,100)	40.44±16.16 33,33(16.67,66.67)	5.08±9.69 0(0,33.33)	<0,001
Dyspnea	19.91±20.19 33.33(0,100)	7.32±13.88 0(0,33.33)	4.88±11.85 0(0,33.33)	<0,001
Insomnia	39.02±28.59 33.33(0,100)	41.67±33.05 33.33(0,100)	12.20±22.53 0(0,66.67)	<0,001
Apetite Loss	15.85±27.33 0(0,100)	45.12±16.03 33.33(33.33,66.67)	5.28±12.24 0(0,33.33)	<0,001
Constipation	7.72±22.40 0(0,100)	16.67±19.06 0(0,66.67)	5.28±12.24 0(0,33.33)	<0,001
Diarrhea	2.44±11.45 0(0,67.67)	5.28±12.24 0(0,33.33)	2.85±9.37 0(0,33.33)	0,186
Financial Difficulties	23.98±33.24 0(0,100)	7.82±15.15 0(0,66.67)	14.63±24.62 0(0,66.67)	0,001
Global Health Status/QoL	56.81±21.87 58.33(0,100)	66.97±19.12 66.67(16.67,100)	80.69±8.77 83.33(66.67,91.67)	<0,001

Table 2. Patients' STAI- I anxiety scale, STAI- II anxiety scale, BECK depression scale RT0, RT1, RT2 values showed significant change over time.

| Patient	MCS Mean ± sd Median(Min,Max)	MRM Mean ± sd Median(Min,Max)	p
RT0 Patient BECK	26.10±14.95 20(10,52)	19.97±7.90 18.50(11,52)	0,019
RT1 Patient BECK	33.71±7.85 34(12,49)	35.44±6.46 35(13,49)	0,294
RT2 Patient BECK	14.50±3.46 15(11,31)	13.12±2.94 12(10,25)	0,062
RT0 Patient STAI I	36.92±12.77 36(20,62)	36.15±9.36 36(20,55)	0,754
RT1 Patient STAI I	40.35±5.48 41(29,49)	41.59±7.62 43(23,55)	0,396
RT2 Patient STAI 1	28.23±5,03 30(21,36)	27.06±4.46 26(21,34)	0,352
RT0 Patient STAI II	41.48±11.19 44(20,64)	39±10.01 40(20,36)	0,305
RT1 Patient STAI II	39.38±7.34 36(24,54)	39.79±7.54 43(25,54)	0,802
RT2 Patient STAI II	31.15±6.87 31.50(21,42)	29.68±6.74 26.5(22,42)	0,339
RT0 Caregiver BECK	20.42±9,39 16.50(10,36)	16.74±5.80 14.50(11,36)	0,032
RT1 Caregiver BECK	32.75±6.47 32(12,46)	33.15±8.28 31.50(11,46)	0,816
RT2 Caregiver BECK	11.85±2.37 11(8,23)	11.21±1.09 11(10,14)	0,101
RT0 Caregiver STAI I	31.29±9.50 30(20,75)	33.29±11.41 33.50(20,78)	0,390
RT1 Caregiver STAI I	38.38±4.04 38(31,47)	40.06±4.05 40.50(31,48)	0,068
RT2 Caregiver STAI I	28.23±5.03 30(21,36)	27.76±3.95 26(21,36)	0,641
RT0 Caregiver STAI II	41.04±10.61 42(22,70)	38.32±12.32 37(21,66)	0,288
RT1 Caregiver STAI II	39.63±5.45 41(27,46)	39.94±7.63 40.50(25,56)	0,827
RT2 Caregiver STAI II	29.83±6.36 31.50(20,44)	31.62±7.39 32.50(20,46)	0,246

Table 3. Table showing after divided into two groups based on surgery BCS, MRM: patient's and the caregiver's BECK, STAI- I, , STAI -II values in RT0, RT1, RT2 time.

Caregiver	Mean ± sd	Med.(Min,Max)
Physical Function Scale	85.20±13.24	86.67(53.33,100)
Role Function Scale	76.42±13.59	83.33(33.33,100)
Emotional Function Scale	65.24±18.80	75(33.33,100)
Cognitive Function Scale	70.93±14.76	83.33(33.33,100)
Social Function Scale	87.19±12.64	83.33(50,100)
Fatigue	19.23±21.38	11.11(0,66.67)
Nausea and vomiting	3.66±6.94	0(0,16.67)
Pain	16.26±13.60	16.67(0,50)
Dyspnea	12.19±16.15	0(0,33.33
Insomnia	35.36±21.81	33.33(0,66.67)
Apetite Loss	13.82±17.33	0(0,66.67)
Constipation	8.54±14.67	0(0,33.33)
Diarrhea	0.00±0.00	0.00(0,0)
Financial Difficulties	17.07±27.83	0.00(0,100)
Global Health Status/QoL	80.39±8.91	83.33(66.67,91.67)

Table 4. Table showing the EORTC-QLQ C30 quality of life scale of caregivers in RT0 timeline.

Caregiver	RT 0 Mean ± sd Median(Min,Max)	RT 1 Mean ± sd Median(Min,Max)	RT 2 Mean ± sd Median(Min,Max)	p
STAI-II	38.91±11.35 42(21,70)	39.76±6.40 41(25,56)	30.57±6.82 32(20,46)	<0,001
BECK	18.89±8.25 15.50(10,36)	32.91±7.77 32(11,46)	11,59±1,96 11(8,25)	<0,001
STAI -I	32.12±10.31 31.5(20,78)	39.07±4.11 38.50(31,48)	28.04±4.59 27.50(21,36)	<0,001

Table 5. STAI- I and STAI- II anxiety scales of caregivers were statistically significant with respect to BECK depression scale RT0, RT1, RT2 p<0.001.
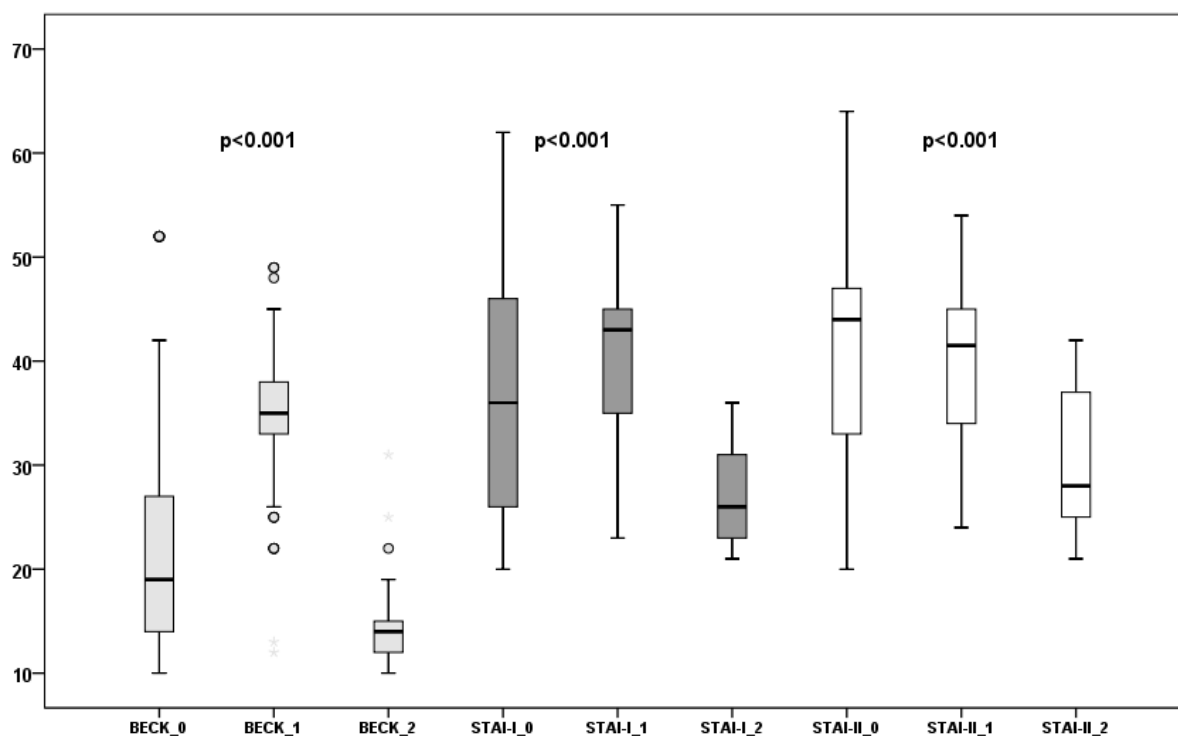
Graph 1. Boxplot of Beck, STAI-I and STAI-II for patients before RT0 at the end of RT1 and three month after RT2.

Table 1. Patients aged between 24-39 years 32 ± 4.23, weight 78.67 (46-99), height 165 (155-178) were included in the questionnaire. MCS was applied to 48 (58.5%) patients and 34 (41.5%) MRM were applied to the patients. Pathologically 38 (46.3%) had Invasive Ductal Carcinoma, 32 (39%) had Invasive Lobular Carcinoma and 12 (14.6%) had other pathological features. According to their stage, 35 patients (42.7%), Stage II 26 (31.7%) and Stage III 21 (25.6%) patients were given RT. Grade I was 31 (37.8%), Grade II was 39 (47.6%) and Grade III was 7 (14.6%). 15 (18.3%) of the patients were urgent, 7 (46.6%) were shortness of breath, 2 (13.3%) were arm pain, 6 (40.07%) were tachycardia came with complaints. When asked about breast cancer in the relatives of the patients, breast cancer was seen in the families of 29 patients, 12 (41.37%) breast cancer patients, 9 (31.03%) breast cancer patients and 8 (27.6%) in the aunt . Twenty (68.9%) of the relatives with breast cancer were living and 9 (31.1%) died. There were only 8 patients (9.7%), 37 (45.1%) married, 26 (31.7%) married and 11 (13.4%) patients who were married when the patients were questioned about the marital status. 37 (45.1%) spouses, 37 (45.19%) children, and 8 (9.8%) others were referred to the patient. When asked how many people were living in the home, 4 (4.9%) were grouped as one, 37 (45.1%) as two, 14 (17.1%) as three, 12 (14.6%) as four and 15 (18.3%) as five and over. Employed 34 (41.4%), Unemployed 12 (14.6%) and House wife 36 (43.9%) were interviewed when the patients were questioned. Primary 45 (54.8%), Secondary 32 (39%), University 5 (6.2%) and Urban 45 (54.8%) and Rural37 (45.2%) were obtained when the education status of the patients were examined.

Table 2. Patients' STAI-I anxiety scale, STAI-II anxiety scale, BECK depression scale RT0, RT1, RT2 values showed significant change over time p<0,001. EORTC-QLQ C30 physical activity score, emotional function score, grip function score, social function score, fatigue, nausea vomiting, pain, shortness of breath, insomnia, loss of appetite, constipation, general life score RT0, RT1, RT2 in the . EORTC-QLQ C30 quality of life scale the change over time was found to be significant p<0,001. The change over time according to RT0, RT1, RT2 values

was found to be significant p=0,019. According to the values of RT0, RT1, RT2, the change in time was not significant p= 0,186. According to the material difficulty RT0, RT1, RT2 values, the change over time was found significant. P= 0,001 and the change over time was found significant.

Table 3. BECK depression measurement statistically significant between the two groups of MCS-structured and MRM-RT0 patients p=0,019. Borderline was found to be significant in terms of the BECK depression measurement statistic between the two groups of MCC and MRM p= 0,062. BECK depression measurement statistically significant between the two groups of MCS-structured and MRM-treated RT0 patients p= 0,032. Among the two groups with MCS and MRM, RT1 patients were found to have borderline significance in terms of STAI-1 anxiety measurement statistic p= 0,068. Apart from these two values, other Beck depression invasive and STAI-I and STAI-II anxiety scales applied RTO, RT1, RT2 to the patient and the patient looking after radiotherapy after MCS and MRM were statistically insignificant.

Table 4. Table showing the EORTC-QLQ C30 quality of life scale of caregivers in RT0 timeline.

Table 5. STAI-I and STAI-II anxiety scales of hospitalized patients were statistically significant with respect to BECK depression scale RT0, RT1, RT2 p <0,001

Chart 1. The change in time is significant in the graphs of patients according to the Beck, STAI-I and STAI-II measurements at RT0, RT1 and RT2 p <0,001.

Discussion

A breast cancer diagnosis creates a crisis situation affecting women's life in various ways physically, psychologically, socially, and spiritually. In this crisis situation, some reactions are universal for every patient, irrespective of age, ethnicity, and stage of the illness. It has been reported that a breast cancer diagnosis and treatment causes psychological problems such as anxiety, depression, anger, uncertainty about the future, hopelessness, helplessness, fear of repetition of cancer, diminished self-esteem, deterioration of body image, fear of losing femininity, and fear of death[9].

QOL can be negatively affected by breast cancer treatment, such as surgery, chemotherapy, RT, and hormone therapy. These can lead to depression and anxiety. 3-55% of breast cancer patients werte found to have symptoms of depression 18-33% of patients were found to have symptoms of anxiety[10]. Age, marital status, educational level, menopausal status (early postchemotherapy period, and pre-existing depression and anxiety episodes), comorbidities, social support, and psychiatric history have been identified as factors in post-treatment depression and anxiety in breast cancer survivors. Additionally, disease-related factors including cancer subtype, treatment modalities, and post-treatment pain and hormonal side effects may also affect QOL.[11]

Considering that 45 of our patients (54.8%) had at least a primary education, more than half of the patients with breast cancer have primary education.. In our patients in RT0 phase does not have very high anxiety and depression scales. This can be due to low education levels of the patients, because as the education levels increase, also the awareness of the disease increases and it can cause stress and apprehension of disease, but patients with low education levels can handle the situation more easily and can be convinced by health carers[12].

A large amount of parameters affecting distress and also ethnicity may have been factors in observed results differing compared to other similar studies[13]. More than half of our patients (45 of them) live in the urban areas. (% 54.8) . One of the important parameters on depression scores was also social environment. The social environment may provide a protective layer from

the harmful effects of depression.[13] More than half of our patients live in the city Urban 45 (54.8%). Social environments may provide a protection from depression and this is an important parameter of depression. According to this, the level of education and the place of depression are affected. RT0, RT1, RT2 When the BECK depression scale was evaluated over time, RT0 23.56 ± 12.82 patients with moderate depression, RT1 34.43 ± 7.31 were severely depressed, but RT2 13.93 ± 3.30 mild psychiatric distress It was found.

According to these results, the change of Beck Depression scale over time was found to be significant p<0,001. The current study showed an independent risk factor for distress and a significant risk factor for depression. A serious illness is more likely to disrupt family and occupational roles for younger people because it is generally unexpected. Early menopause caused by the treatments can be a distressing experience and it can be more difficult for young people to accept changes in the body due to breast surgery than for older patients[14]. Alacacioglu and colleagues found that patients receiving chemotherapy according to Beck's depression scale were depressed. [8] We also found that patients who started RT were depressed and had an increase in depression levels at the end of the RT but that RT0 values were much higher than those of controls 3 months after RT .

RT0 STAI-I= 36.60 ± 11.42, RT1= STAI-I= 40.67 ± 6.43, RT2 STAI-I= 28.04 ± 4.59 p<0,001 were found to be significant in all patients with breast cancer who are operated. Patients' status, immediate anxiety level was evaluated as RT0 medium anxiety, RT1 median anxiety was still observed and RT2 was evaluated as low anxiety. In this case, it shows that patients' anxiety persisted over RT and that they were relieved three months after RT had entered the low-worry anxiety mode. In literature it is declared that as RT progresses emotional symptoms like depression is aggravated.[3] In the same way RT0 STAI-II

measurements 40.45 ± 10.72, RT1 STAI-II 39.55 ± 7.38, RT2 STAI-II 30.54 ± 6.81 were found, and p<0,001 was significant. It is seen that the continuity anxiety scale of RT0 continuity anxiety scale was not changed during RT of the patients who were evaluated as having moderate anxiety. However, RT2 patients were found to be in low anxiety mode. According to these results, the patients were relieved in their anxiety on the completion of their treatment in the following three months after the RT was over, and the future concerns about STAI-II were reduced.

Apprehension, nervousness, tension, and worry characterize anxiety states along with activation or arousal of the autonomic nervous system. Trait anxiety patients are perceiving stressful situations as being life threatening. Figure 1. Patients' BECK at RT0, RT1, RT2 STAI-I, STAI-II RT0, RT1, RT2 p <0,001.

In a study by Wittmann et al., Patients with breast cancer correlated with the STAI anxiety measure before and after surgery.[15] Body change stress and both depression and trait anxiety have been found to have a significant positive correlation 18 months after surgery. The Posttraumatic Growth Inventory is used by Wittmann and colleagues in the posttraumatic Growth Inventory subscale. In our study, BECK depression test STAI-I and STAI-II anxiety scale were administered three times in patients with young breast cancer at RT0, RT1, RT2 between the ages of 24-39 years who had radiotherapy. Patients were correlated by assessing depression, state and continuity anxiety measures. In this context, young breast cancer is the first comprehensive research feature on cancer patients. It is observed that at the beginning of the chronic effects of radiotherapy the depression levels of the patients are below their pre-RT values. Likewise, in the STAI-I and STAI-II anxiety scale, the anxiety levels of the patients were found to be below the RT0 values at the onset of the chronic effects of RT.

When the EORTC-QLQ C30 quality of life scores of the patients were examined, it was seen that the values with lower physical function score RT0 66.91 ± 16.47 were higher than RT1 with 63.17 ± 13.46 but RT2 with 91.92 ± 6.84 p=0,001 was found to be significant. According to this, after the acute effects of radiotherapy, the physical functions of the patients were improved in the following period. According to the general function score, RT0 was found to be 73.54 ± 20.32, RT1 75.20 ± 15.32 RT2 80.48 ± 13.80 and p<0,019. While the general functions of RT1 patients are increasing, it is seen that RT2 controls can solve their general functions more easily. The increasing tendency between the RT0, RT1, and RT2 (p<0,001) measures in the emotional function score suggests that patients still feel guilty and tense. The increase in values of grip function score (p<0,001) shows that patients are more comfortable doing their daily functions during their daily concentration. The increase in the social functioning scores of patients with RT0, RT1, RT2 (p<0,001) shows improvement in social activities and physical condition. Fatigue, nausea vomiting, pain, shortness of breath, insomnia, loss of appetite, constipation , RT1 and RT2 values were also found statistically significant, and patients were found to feel much more comfortable after three months of radiotherapy. The overall life scores support the above-mentioned quality of life scales in change over time. In our study, there was a significant difference in the EORTC-QLQ C30 life quality of patients who came to control after three months of radiotherapy (table 2).

As the appetite loss score increases in our patients with RT1, there is an increase in the RT1 BECK depression scale and RT1 STAI-I contingency scale. Showing that fatigue is one of the most frequent symptoms during RT and is highly linked to psychological status, so it should be screened to detect patients requiring support. SABINE

NOAL and colleagues had similar results in their previous research on breast cancer patients. [16]

Table 3. MCS, MRM RT0 BECK patient depression measurements were found to be p=0,019 when two groups were separated according to the patient's surgical condition. Depression scores of patients with MCS were higher than patients with MRM, RT0. Likewise, in patients with RT0 patients who have Beck depression, MRM is lower. Borderline significance was found in the RT3 BECK value of patients who were MCS and MRM and STAI-I measurements of the relatives of RT2 patients, but not statistically significant in other measures. According to this result, no significant difference was found between depression and anxiety scores in other measures of patients who had RT from breast cancer between ages 24-39. In the study performed by Al-Ghazal and colleagues, MCS, total mastectomy and total mastectomy applied in the surgical treatment of breast cancer psychological effects of breast reconstruction operations after mastectomy and investigated patient satisfaction; body perception, self-esteem, depression-anxiety, it is the best end result of breast conserving surgery in terms of sexual satisfaction, breast reconstruction, in this context the total number of breast reconstruction mastectomy is superior. Whereas Rowland et al. studies on similar methodology have shown that body sensation, sexuality, depression, the best results in terms of quality of life and cohabitation are found in breast-conserving surgery In this respect, breast reconstruction is superior to total mastectomy [17,18]. Although there are not enough randomized controlled trials investigating the effects of surgery types on breast cancer on body sensation, self-esteem, sexual functioning and cohabitation, Harcourt and Rumsey's breast reconstruction total mastectomy superior: Pozo et al., Noguchi et al., Al-Ghazal et al. they did not find any significant difference [19]. Our study did not reveal any

significant difference in depression and anxiety scales (excluding RT0 patients and relatives BECK) for patients with MCS and MRM. Although RT1 STAI I of relatives who had MCS and MRM did not differ in the MRM group on anxiety scale, the borderline was statistically evaluated as significant (table 3).

The RT0, RT1, and RT2 BECK depression, STAI-I, and STAI-II anxiety scores of the relatives of the patient-facing relatives showed an increase in the RT1 depression and anxiety scales, whereas the relatives of the patient-facing relatives had a higher level of life quality than the RT0 EORTC-QLQ C30 the third measure of RT2 in the minister's relative is found to be reduced. Similar results have been observed in patients with RT. This is statistically significant p<0,001. In the near-ill patients who have RT from breast cancer, the decrease in RT2 measurements indicates that they relax in their relatives after treatment. In patients with breast cancer who are exposed to intensive treatment chains such as surgery and chemotherapy before RT, there is a marked depression and anxiety chart, which continues to increase during radiotherapy, but the quality of life, anxiety and depression scales improve after three months of RT.

Conclusion

It is the first current study to examine the quality of life and depression and anxiety scale of patients with breast cancer who received radiotherapy and their caregivers. Statistical significance was found for RT0, RT1, RT2 EORTC-QLQ C30 quality of life, BECK depression, STAI-I, and STAI-II anxiety measurements, which were obtained in breast cancer patients aged 24-39 years. For patients with poor quality of life and psychological wellness in RT0 phase, the symptoms are seen to be worse in the RT1 phase. And it is recorded that they improve in RT2. Similar results were seen in caregivers of RT0, RT1, RT2 patients and anxiety analysis of BECK depression, STAI-I and STAI-II.

The increase in appetite loss score in the RT1 measurement of our patients is accompanied by an increase in the RT1 BECK depression scale and STAI-I anxiety scale. No significant difference was found between the depression and anxiety measurements of patients with MCS and MRM, and caregivers (except the RTO BECK patient and caregiver), when patients were divided into two according to the type of surgery performed.

Depression appears to have a great impact on young patients' QOL also on certain cancer outcomes, via its impact on compliance, physical activity, social support, and it remains common in young breast cancer patients. Patients undergoing RT had a higher prevalence of anxiety and/or depression in this study. Psychological symptoms have a negative effect on various aspects of a patient's QOL as the findings of this study show. Systematic screening can be performed by standardized tools or even by one or two simple questions and should be implemented due to the broad impact of these symptoms. These screenings should be followed by adequate clinical diagnoses that rely on precise identification of emotional and cognitive symptoms of depression. Because depression is so common among breast cancer patients and their caregivers, oncological teams should be expected to be able to diagnose it and make an initial prescription of antidepressant. Focusing on the nature of the anxiety (current or permanent) and the dynamic changes during the radiotherapy treatment course would help with managing distress through psychological intervention. Currently, there is very little literature available about the effect of psychiatric treatment on young breast cancer patients and caregivers to base recommendations on.

References

1-Yang T-Y, Chen M-L, Li C-C. Effects of an aerobic exercise programme on fatigue for patients with breast cancer undergoing radiotherapy. J Clin Nurs 2015;24(1-2):202-11.

2-Solin LJ. Breast conservation treatment with radiation: an ongoing success story. J Clin Oncol 2010;28(5):709e11.

3-Park JH. Patterns related factors of fatigue during radiotherapy in patients with breast cancer. *Journal of Korean Academy of Nursing* 2003;15(1):33—44.

4-Jacobsen PB, Thors CL. Fatigue in the radiation therapy patient: current management and investigations. *Seminars in Radiation Oncology* 2003;**13**(3):372—80.

5-Avis NE, Assmann SF, Kravitz HM, Ganz PA, Ory M. Quality of life in diverse groups of midlife women: assessing the influence of menopause, health status and psychosocial and demographic factors. Qual Life Res 2004;13:933–46.

6- Jan J.Heimans Martin J. B. Taphoorn Impact of brain tumour treatment on quality of life. . J Neurol (2002) 249 : 955–960 DOI 10.1007/s00415-002-0839-5

7-Tulay Kus , Gokmen Aktas , Hatice Ekici, Gulcin Elboga ,Sabire Djamgoz. Illness perception is a strong parameter on anxiety and depression scores in early-stage breast cancer survivors: a single-center cross-sectional study of Turkish patients. Support Care Cancer DOI 10.1007/s00520-017-3753 1

8-Ahmet Alacacioglu ,Tugba Yavuzsen . Meliha Dirioz , Ugur Yilmaz. Quality of life, anxiety and depression in Turkish breast cancer patients and in their husbands. Med Oncol (2009) 26:415–419 DOI 10.1007/s12032-008-9138-z

9-Landmark BT ,Wahl A.Living with newly diagnosed breast cancer :A qualititative study of 10 women with newly diagnosed breast cancer ,Journal of Advanced Nursing 2002;40(1):112-121

10 Somerset W, Stout SC, Miller AH, Musselman D (2004) Breast cancer and depression. Oncology (Huntington) 18:1021–1034

11- Wong-Kim EC, Bloom JR (2005) Depression experienced by young women newly diagnosed with breast cancer. Psychooncology 14:564–573.

12- Mehnert A, Koch U (2008) Psychological comorbidity and healthrelated quality of life and its association with awareness, utilization, and need for psychosocial support in a cancer register-based sample of long-term breast cancer survivors. J Psychosom Res 64:383–391

13- Moyer A, Salovey P (1999) Predictors of social support and psychological distress inwomen with breast cancer. J Health Psychol 4:177–191

14-Politi MC, Enright TM, Weihs KL. The effects of age and emotional acceptance on distress among breast cancer patients. Support Care Cancer 2007;15:73–9.

15- Victoria Wittmann, Melinda Látos, Zoltán Horváth, Zsolt Simonka, Attila Paszt, György Lázár, Márta Csabai. What contributes to long-term quality of life in breast cancer patients who are undergoing surgery? Results of a multidimensional study. Qual Life Res DOI 10.1007/s11136-017-1563-z. Accepted: 24 March 2017 Springer International Publishing Switzerland 2017

16- Sabine Noal, M.D, Christelle Levy, Agne`s Hardouin, Chantal Rieux, Natacha Heutte, Carine Se´ Gura, *et al.*. One-Yaer Longitudinal Study of Fatigue, Cognitive Functions, and Quality of Life After Adjuvant Radiotherapy For Breast Cancer. Int. J. Radiation Oncology Biol. Phys., Vol. 81, No. 3, pp. 795–803, 2011 Copyright _ 2011 Elsevier Inc. Printed in the USA. All rights reserved 0360-3016/$–see front matter. doi:10.1016/j.ijrobp.2010.06.037

17- Ruşen Nur Arıkan:Travmatik bir yaşantı :Meme kanseri ve Mastektomi. Kriz dergisi,2000:8(1):39-46;

18-Al-Ghazal SK ,Followfield L,Blamey RW (1999)Does cosmetic outcome from teratment of primary breast cancer

influence psychosocial morbidity ? Eur J Surgical Oncology, 25:571-573

19-Al-Ghazal SK ,Followfield L,Blamey RW (2000) Comparison of psycholojical

aspects and patient saticfaction following breast conserving surgery ,simple mastectomy and breast reconstruction .Eur J Cancer ,36:1938-1943.