

ORIGINAL ARTICLE

Comfort and quality of life in patients with breast cancer undergoing radiation therapy

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Summary

Purpose: Radiation therapy is generally applied after surgery for the treatment of breast cancer, which is among the most frequently observed types of cancer in females. Radiation therapy may have some negative effects on the quality of life due to various side effects such as changes in the skin, mucositis and fatigue. Our study was planned as a descriptive study, in order to examine the relationship between comfort and quality of life in breast cancer patients undergoing radiation therapy.

Methods: This study involved 61 patients with breast cancer undergoing radiation therapy. Data were collected using "Patient Information Form", "Radiation Therapy Comfort Questionnaire" and "EORTC QLQ-BR23". The scales were applied twice, before the start and at the end of treatment. Data were evaluated via Wilcoxon test and Spearman correlation analyses.

Results: No statistically significant difference was determined between comfort and quality of life average score before and after radiotherapy ($p>0.05$). A positive relationship was determined between the pain and symptom quality of life ($p<0.05$). Although a positive relationship was determined between comfort score and the functional and general quality of life areas, a negative relationship was detected with the symptom quality of life ($p<0.01$).

Conclusion: Radiation therapy applied to breast cancer patients did not affect comfort and quality of life. On the contrary, the quality of life of patients increased along with their comfort levels and that comfort levels decreased as the experienced symptoms increased.

Key words: breast cancer, comfort, quality of life, radiation therapy

Introduction

Breast cancer is frequently observed among females and comprises 27% of the new cancer cases. Breast cancer is known as a slow advancing cancer and is related with hormonal, genetic and environmental factors, as well as with lifestyle [1,2]. It is still an important cause of mortality and morbidity despite the advances in early diagnosis and treatment [3,4]. Surgery, chemotherapy, radiation therapy and hormone treatment are used to treat breast cancer [1,5]. Radiation therapy, used as an adjuvant therapy following surgery, decreases the recurrence rate while increasing dis-

ease free survival rate [1,6-8]. Radiation therapy affects normal tissues as well as cancer cells, thus the ideal target in this treatment is to destroy the tumor completely without causing any structural and functional damage on the surrounding tissue [3]. Changes in the skin, fatigue, pneumonia, pericarditis, lymphedema can be observed as undesired effects despite this target [1,9]. In addition, emotional symptoms, such as depression and anxiety, are also very frequently observed, as 1/3 of the patients who undergo radiation therapy show symptoms of depression [6,7].

Comfort

The comfort theory is one of the moderate level nursing theories developed by Kolcaba (1994) [10]. Even though comfort is a multifaceted concept that is difficult to define, it is a desired and acceptable result that one seeks to reach with effective nursing care. Attaining and sustaining the comfort of the patient as well as therapeutic nursing interventions lie at the heart of nursing and nursing functions [11]. Kolcaba has determined comfort levels as relief, ease and transcendence according to the intensity of meeting the individual comfort requirements. She has also explained comfort levels as physical, psycho-spiritual, environmental and socio-cultural according to the holistic viewpoint [10,12,13]. The stress and anxiety observed in early stage breast cancer female patients, as well as the side effects of treatment, have negative effects on their comfort [14]. The growing tendency of patients with increased comfort, either consciously or unconsciously, towards health seeking behavior, poses a justification for the application of comfort increasing interventions. The determination of radiation therapy to comfort, the application of interventions that will increase the comfort level of the patient and the attainment of its continuity are among the fundamental responsibilities of nurses [13].

Quality of Life

Quality of life is an important measure in the evaluation of health, physical condition and the effects of treatment and continues to gain importance [4,15]. According to the definition of WHO, health does not only mean being free of any diseases but is also a state of general well-being in terms of physical, mental and social attributes. Health related quality of life (HRQOL) gives information about the experiences (physical and psychological) of the patient related with the disease and the applied treatments, as well as the potential prognosis [15]. It is known that breast surgery and its combination with oncological treatment causes negative changes in the patients' psychosocial well-being and quality of life [4]. It is important that patient centered nursing care and optimized adaptation is ensured and that the state of well-being is continued during every stage after breast cancer diagnosis, until cure or death [1].

The objective of our study was to determine the comfort and quality of life levels of breast cancer patients undergoing radiation therapy.

Methods

Design and sample

A cross-sectional and descriptive correlational design was used. The study was carried out during January 2012-March 2013 at the Gaziantep University Oncology Hospital, Radiation Oncology Unit, on breast cancer patients undergoing radiation therapy. Breast cancer patients who agreed to take part in the study, were those who applied to the Radiation Oncology Unit to start their treatment and who were able to communicate, as well as to fill out the survey. Two patients undergoing treatment during this period did not agree to take part in the study and did not fill out the survey following radiation therapy.

Data collection

A patient information form prepared by the researchers (Radiation Therapy Comfort Scale) and EO-RTC-BR23 quality of life scale were used during the study. The scales were applied to the patients twice; once before and once after the end of treatment.

The patient information form included information about the sociodemographic properties, disease, radiation therapy treatment and pain of the patients in addition to the pain evaluation scale according to Visual Analog Scale (VAS).

Radiation Therapy Comfort Scale: Radiation Therapy Comfort Questionnaire (RTCQ, 1999) is a scale developed by Kolcaba (1999) [14], which is adapted from the General Comfort Questionnaire (GCQ), in order to measure the nursing care results for early stage breast cancer patients undergoing radiation therapy. It was adapted to Turkish society by Karabacak (2004) [16] following a reliability and validity study. The scale has been prepared as a six-point Likert type scale ranging from "I definitely agree-6" to "I definitely disagree -1". The scale consists of positive (11 items) and negative (15 items) expressions for a total of 26 items. The negative values were calculated inversely and the comfort score is calculated by calculating the total score and dividing it by the number of questions. The score that one can take from the scale varies between 1-6; the comfort increases with increasing score [14,16].

European Organization for Research and Treatment Center QoL Questionnaire-Breast cancer module (EO-RTC-BR23): In 2011 Demirci et al. have carried out a validity and reliability study for our country. The scale includes 23 questions related to treatment (surgery, chemotherapy, radiation therapy and hormonal treatment), body perception, sexual functions and perspective of the future, as well as side effects. A high score in functional and general health indicates a high quality of life, whereas a high score of symptoms indicates a low quality of life [17-19]. It can be used in patients with changing stages of disease and treatment type (i.e. surgery, chemotherapy, radiation therapy and hormo-

nal treatment) [18].

Data collection procedure

The data of the study was acquired via face-to-face interview by the researchers. Information regarding the disease of the patients (stage, previous treatments, type of surgery etc.) was taken from the patient folder and recorded in the survey form.

Statistics

The data was analyzed using SPSS for Windows version 16.0 software (SPSS, Inc., Chicago, ILL). Wilcoxon and Student's t-test were used for sociodemographic characteristics analysis and the relationship between comfort and quality of life. These were analyzed by the Spearman's product moment correlation coefficients. $P < 0.05$ was considered as statistically significant.

Ethical considerations

Approval was taken from the Gaziantep University Ethics Committee to commence the study. Required consents were obtained from the institution and the patients prior to the study.

Results

Characteristics of the sample

The average age of the individuals who participated in the study was 50.37 ± 11.88 years, 37.7% were primary school graduates, 68.9% were married and 82% were living in cities. The average disease duration from the time of diagnosis was 1.60 ± 0.50 years, 59% had stage II, 80.3% had undergone chemotherapy and surgical treatment, while 53.1% of the surgical operations were prophylactic (Table 1).

It was determined that 82% of the individuals included in the study had been informed about radiation therapy, 40% of whom were informed by the doctors, 63.8% had experienced problems related with radiation therapy, whereas 37.7% experienced pain in the application area (Table 2).

The relationship between comfort and quality of life

Results on comfort, quality of life and pain score averages before and after radiation therapy can be seen in Table 3. No statistically significant difference was determined between the comfort and quality of life score averages of individuals before and after radiation therapy, applied for breast cancer treatment ($p > 0.05$) (Table 3).

The average comfort and quality of life scores following radiation treatment and their correla-

Table 1. Attributes of individuals included in the study (N=61)

	N (%)
Age, years (mean \pm SD)	50.37 \pm 11.88
Level of education	
Literate	18 (29.5)
Primary school	23 (37.7)
Secondary school	9 (14.8)
University	11 (18.0)
Marital status	
Married	42 (68.9)
Single	19 (31.1)
Place of residence	
Rural-village	11 (18.0)
Urban-city	50 (82.0)
People they live with	
Alone	6 (9.8)
Spouse and kids	42 (68.9)
Family, elderly	13 (21.3)
Stage	
I	6 (9.8)
II	36 (59.0)
III	14 (23.0)
IV	5 (8.2)
Previous treatment	
Chemotherapy	12 (19.7)
Chemotherapy + Surgery	49 (80.3)
Applied surgical method (N=49)	
Prophylactic mastectomy	26 (53.1)
Radical mastectomy	23 (46.9)
Getting mental health related help	
Yes	9 (14.8)
No	52 (85.2)

Table 2. Radiation therapy attributes of individuals included in the study

	N (%)
Received information about RT	
Yes	50 (82.0)
No	11 (18.0)
Received information from (N=50)	
Doctor	20 (40.0)
Nurse	18 (36.0)
Both	12 (24.0)
Any problems related with RT	
Yes	45 (63.8)
No	16 (26.2)
Problems related with RT if any (more than one choice has been selected)	
Pain at the application area	23 (37.7)
Erythema on the skin	19 (31.1)
Fatigue	16 (26.2)
Dryness in the mouth, change in taste	15 (24.6)
Oedema in the arm	8 (13.1)
Dysphagia	7 (11.4)
Hair loss	5 (8.2)
Nausea-vomiting	4 (6.5)

tion with age, duration of disease, average pain score are displayed in 4. A positive correlation was determined between age and functional/gen-

Table 3. Distribution of comfort, quality of life and pain score averages before and after radiation therapy

	Before radiation therapy Mean±SD	After radiation therapy Mean±SD	Statistical analysis
Comfort	3.75±0.61	3.75±0.71	Z=0.058, p=0.954
Quality of life			
Functional	45.92±18.26	48.94±14.35	Z=-0.875, p=0.382
Symptom	64.64±18.39	60.85±16.31	Z=-1.275, p=0.202
General health	55.19±10.83	54.83±7.72	Z=-0.565, p=0.572
Pain	25.55±24.41	30.18±27.16	Z=-1.185, p=0.236

Table 4. Correlation of comfort and quality of life average scores according to some properties after radiation therapy

	RTCS r, p	Functional r, p	Quality of life Symptom r, p	General health r, p
Age	0.150, 0.279	0.336, 0.013	-0.024, 0.865	0.310, 0.024
Duration of disease	-0.154, 0.268	-0.215, 0.118	0.037, 0.795	-0.066, 0.637
Pain	-0.193, 0.161	-0.215, 0.119	0.273, 0.048	0.139, 0.320
RTCS	-	0.272, 0.046	-0.361, 0.008	0.169, 0.026
Quality of life				
Functional	0.272, 0.046	-	-0.422, 0.002	0.413, 0.002
Symptom	-0.361, 0.008	-0.422, 0.002	-	0.594, 0.000

RTCS: Radiation therapy comfort scale, r: correlation coefficient, p: p value

eral health quality of life average score ($p < 0.05$). No statistically significant relationship was found between the educational status, marital status, place of residence, duration of disease, stage of disease, previous treatments applied, type of surgery, being informed about radiation therapy and experiencing problems during the treatment period and comfort and average quality of life score ($p > 0.05$).

A positive and statistically significant relationship was determined between pain and the symptom quality of life average score of individuals with breast cancer included in the study ($p < 0.05$). A positive relationship was also determined between the average comfort score after radiation therapy and general health quality of life, whereas a negative relationship was observed between the average comfort score and symptom quality of life ($p < 0.01$).

Discussion

No statistically significant difference was established between the average comfort and quality of life score before and after radiation therapy ($p > 0.05$). A positive relationship was determined between the average comfort score and general

health quality of life of the patients, whereas a negative one was detected with symptom quality of life ($p < 0.01$). The majority of the individuals included in the study experienced problems due to radiation therapy, as there was pain in the application area. There was a positive and statistically significant relationship between age and functional and general health quality of life, pain and symptom quality of life score averages ($p < 0.05$). In the light of these findings, it can be stated that radiation therapy does not have an effect on the comfort and quality of life but age, pain and comfort level have negative effects on the quality of life of these patients.

It is known that patients have to deal with many different symptoms and problems during the diagnosis and treatment of breast cancer. Urgent hospitalization of the patient may be required starting from the diagnostic stage, due to the partial or complete removal of the breast, radiation therapy requirement following surgery, chemotherapy requirement if necessary, not to mention the complications that might develop due to these treatment methods. These may cause sudden and severe problems in the daily activities of the patients [5]. Since femininity is related with sexuality, attractiveness and motherhood, loss of

breasts is equivalent to the destruction of the concept of self and the body image [20]. Many studies have been carried out to establish what women with breast cancer experience during diagnosis and treatment. These studies focus on factors that affect the quality of life.

Radiation therapy is an important component of breast cancer treatment [8]. Even though various long-term side effects can be seen in irradiated patients, the most permanent and frequent one is fatigue and it is visible in 60-93% of such patients [2,6]. In 2013 Kim et al. [6] have observed, during studies on women undergoing radiation therapy for cancer, that there is a relationship between fatigue and quality of life. Fatigue has not been evaluated as a separate parameter in our study, thus a relationship between experienced symptoms and quality of life could not be examined, while 26.2% of the patients included in the study stated that they experienced fatigue.

Late symptomatic complications that occur after radiation therapy, such as lymphedema, pain, change in skin color, have negative effects on the patients' quality of life [8,9,11]. Ishiyama et al. [21] have determined that 73% of the breast cancer patients undergoing radiation therapy experience pain which in turn has negative effects on their quality of life, also rendering the cosmetic factors that affect the quality of life useless. Of the patients, 37.7% claimed that they had pain in the region where the radiation therapy was applied to and that there was a relationship between the pain and the symptom quality of life.

There are many studies indicating the negative effect of radiation therapy on the quality of life [6,7,22,23]. A study evaluating the quality of life of prostate cancer patients undergoing radiation therapy four times (prior to treatment, at the end of treatment, and at the 12th and 36th months) during a 36-month follow-up showed that it was lower in comparison to that at the beginning of the study. It was determined that the initial value was attained at the 36th month of evaluation [22]. In a study dealing with cervical cancer patients undergoing radiation therapy, it was revealed that the physical and role function areas of the quality of life score decreased following radiation therapy and that the emotional function and financial difficulties scores increased [23]. In 2014, Luutonen et al. have determined in their study that the quality of life in breast cancer patients undergoing adjuvant radiation therapy is low [7]. We have also observed that there was no statistically significant change in the quality of life following radiation

therapy, and that the quality of life was lower in comparison to other studies [7,24].

According to the comfort theory it is known that relaxing interventions (directional dreaming, massage, therapeutic touch, etc.) will increase the comfort of the patient. Changes such as relaxation, positive thinking, feeling well and happy are observed in patients with increased comfort [12,25]. These patients are more successful in seeking health behavior and applications, thereby increasing the success rate of the treatment [12]. It has been determined in early stage breast cancer patients undergoing radiation therapy that comfort and mental state, fatigue, psychological stress, radiation therapy and cognitive coping, muscle strain are all related [14,25]. It has also been found that the comfort levels and quality of life scores of patients are related.

Finding a correlation between the comfort and quality of life scores of breast cancer patients is important for evaluating the changes in the status of the patients and their health, following the determination of their comfort level. Nurses should determine both the comfort needs of the patients they give holistic care to, as well as their comfort levels and holistic comfort needs (physical, psychospiritual, sociocultural and environmental). Various interventions should be applied to meet these needs and the comfort levels of each patient should be evaluated before and after the interventions. It should not be forgotten that the variables that are outside the control of the nurse (such as the financial status of the patient, social support level, prognosis etc.) have a significant effect on the success of the comfort interventions [13]. It is expected that patients undergoing radiation therapy will step out of the role of the patient in a different way from the patients undergoing chemotherapy. That is why the healing of the patient and his/her return to daily activities should be supported. Supportive and protective interventions should be applied after completing adjuvant radiation therapy to ensure a faster return to normal activities [7].

Conclusion

It has been determined that radiation therapy applied to breast cancer patients does not affect the comfort and quality of life, but that their life qualities increase with increasing comfort and that comfort decreases with increasing symptoms. Information about the quality of life of the patient can be acquired when the comfort levels of the pa-

tients are determined. Nurses are responsible for the planning and executing the interventions in order to increase the comfort and life qualities of the patients. It is especially important to take the symptoms that have negative effects on the comfort and quality of life of patients, such as pain, under control. Accordingly, nurses should cooperate with the family in order to determine the comfort and quality of life levels of patients during treatment and to control the negative factors that

affect this process.

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Conflict of interests

The authors declare no conflict of interests.

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