Assessment of Quality of Life in Female Patients with Breast Cancer

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ABSTRACT: Breast cancer is an oncological disease which affects to a large group of women. Despite being more aware of the disease now-a-days than it was in the past, a lot of women still die from the disease. The aim of the survey was to assess the quality of life among women suffering from breast cancer. To achieve this aim, a survey based on the EORTC QLQ-C30 questionnaire and the QLQ-BR23 module, which measured respondents´ physical, psychological and social functions, were used. Female breast cancer patients from the "Turčianske Venuše "Citizens Association and those attending the "Ligaprotirakovine" Cancer Centre in Martin were included in the study. Elderly female patients average in their sixties, mostly with cancer in remission were involved. According to our findings, most of the female patients have had some difficulty doing physical activities and taking long strolls. Sleep problems and pain are also making the quality of their life worse. Lot of them have been getting a pain in their swollen arm and oversensitive breast. Most of the female patients reached an average QL2 score, which means an average quality of life. There were only two female patients with a QL2 score of 0, which means a very bad quality of life. However, three female patients had a QL2 score of 100, which means a very good quality of life. Based on our results, the quality of life for most of our female patients was average despite having some problems.

Key words: Breast Cancer, Quality of Life, EORTC QLQ-C30, EORTC-QLQ-BR23

INTRODUCTION

Oncological diseases are the most serious and insidious affecting not only physical, but also psychology. These diseases cause significant social and financial difficulties for many patients. After being diagnosed with such disease, the whole patient´s life, including their family members' life, will be changed dramatically. Breast cancer is still the most common cancer of the female population, and the most frequent cause of death of malignant diseases among women.[1] Breast cancer may occur in men, but to a much lesser extent. The incidence is the highest in North America, Australia, New Zealand, Western Europe and the lowest in Asia and some regions of Africa. This is the result of different lifestyle, e.g. food intake rich in fat, the first

menstruation, the age of first birth, the number of pregnancies.[2] Breast cancer usually starts off in the inner lining of milk ducts or the lobules that supply them with milk. Breast cancers can be classified into different types based on the presence of lobular and ductal components.[3]

Types of breast cancer. As per the World Health Organisation, malignant breast tumours are classified into non-invasive and invasive breast cancers.[1] Non-invasive ones are intraductal carcinomas and lobular carcinomas.[4]

Intraductal carcinomas:

1. Ductal carcinoma in situ (DCIS) starts in the epithelial cells of ducts.[2] It is usually unicentric. The treatment is aimed at the prevention of development of invasive breast cancer. DCIS is surgically treatable.[3] Besides surgery, radiotherapy is also indicated in such cases. The

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risk factors increase with age. Ductal carcinoma in situ is easily diagnosed from a mammogram.[5]

2. Comedocarcinoma is characterized by the presence of central necrosis and micro calcifications detected from a mammogram as specks in a shape of tiny trees or strips.[6]

3. Paget´s disease of the nipple means eczematous changes in the nipple or in the areola. The nipple area might become hard. Paget´s disease is often connected with DCIS.[5]

TNM classification. The TNM classification follows the rules of the International Union Against Cancer (UICC) to classify the extent of cancer. T describes tumour (carcinoma), N describes nodules (nodes) and M describes metastasis. There are two TNM classifications: Clinical (cTNM) and pathological (pTNM). L0 or more precisely L1 describes the presence or absence of the infiltration of lymph vessels by malignant cells (lymphangitiscarcinomatosa).[5]

Signs and symptoms of breast cancer. Many breast cancers may develop without any symptoms. Some tumours can be detected from a mammogram even before having any symptoms.

In most cases, the most common symptom is a painless lump, which is usually found by female patients themselves or after the health care professional´s examination. Such a lump is the first sign of breast cancer in ¾ of female patients. That´s the reason why women must be aware of changes in the appearance, shape, texture and feeling of their breasts to detect breast cancer as soon as possible. Females should watch out for the following changes:

- New lumps
- Swollen glands in the breast or the armpit
- Nipple pain
- Nipple discharge
- Nipple retraction
- Scaliness of the nipple
- Persistent breast or nipple pain
- Skin irritation or dimpling or puckering
- Swelling, warmth, redness of the breast with a rash like an orange peel

- Persistent backache or headache

Diagnosis of breast cancer. The most common symptoms of breast cancer include: breast resistance, nipple retraction, irregular nipple edges, orange peel, asymmetry, nipple discharge, ex-ulceration, visible vascularity. Breast self-examination (anamnesis, inspection, palpation) is very important, followed by mammography- which is recommended as a preventive and basic screening for breast cancer in women over 40 years old. Ultrasound is a basic examination in women under 40 years old. CAT scans can detect distant metastasis, tumour infiltrations into the chest wall. PET or MRI scans (multifocality, high accuracy) or biopsy are also important to diagnose breast cancer.[7]

Treatment. When a female patient has been diagnosed with a malignant tumour, its type and ability to infiltrate into cells will be determined. Depending on how advanced it is, an appropriate treatment will be recommended for the female patient.[8] Now-a-days treatment may include local methods (surgical and radiation treatment) and general methods (chemotherapy, hormonal and biological therapy). If distant metastases are not present, it is localized cancer (Stage I-III). If metastases are present, it is advanced cancer (Stage IV). For localized cancer, curative treatment is used to cure the patient. The most frequent treatment for that kind of cancer is surgery. If metastases are present, palliative treatment will be chosen to limit or prevent the tumour from spreading out, and this way patient´s life might be prolonged.[9].\

Quality of life. The World Health Organization (WHO) defines Quality of Life (QOL) as individual´s perception of their position in life in the context of cultural and value systems in which their live, and in relation to their goals, expectations, standards and concerns. It is a wide-ranging concept affected in a complex way by the person´s physical health, mental state, independence level, social life, personal beliefs, and their relationship to salient features of their environment.[10] WHO, with the aid of 15 collaborating centres around the world, has therefore developed two instruments for measuring quality of

life (the WHOQOL-100 and the WHOQOL-BREF), that can enable us to compare results from different populations and countries. The WHOQOL instruments focus on individuals´ opinions and their well-being. The instruments have many forms for various uses. Furthermore, their modules are being developed to get more detailed assessments for specific groups, such as breast cancer patients. The structure of the WHOQOL-100 includes the questions that a group of scientists as well as laymen doing fieldworks considered important. It consists of 6 larger domains and 24 quality of life facets.

1) Physical health
   - Energy and fatigue
   - Pain and discomfort
   - Sleep and rest
2) Psychological health
   - Bodily image and appearance
   - Negative feelings
   - Positive feelings
   - Self-esteem
   - Thinking, learning, memory and concentration
3) Level of independence - Mobility
   - Activities of daily living
   - Dependence on medicinal substances and medical aids
   - Work capacity
4) Social relationships - Personal relationships
   - Social support
   - Sexual activity
5) Environment - Financial resources
   - Freedom, physical safety and security
   - Health and social care: accessibility and quality
   - Home environment
   - Opportunities for acquiring new information and skills
   - Participation in and opportunities for recreation/ leisure activities
   - Physical environment (pollution, noise, traffic, climate)
   - Transport

6) Religion, personal beliefs - Religion, Spirituality, Personal beliefs.[10]

The WHOQOL-BREF is a shortened version of the WHOQOL-100 and contains a total of 24 questions and 4 domains are assessed: physical health (pain, fatigue, mobility, ability to perform daily activities), psychological health (enjoyment of life, negative feelings, personal satisfaction), social relationships (personal relationships, friendships, sex life) and environment (access to health care, transport, hobbies, financial situation).[10,11] To assess health-related quality of life, various questionnaires are available. One of them is the SF-36 questionnaire. This questionnaire contains 36 items grouped into 8 dimensions: physical functioning, physical limitations, bodily pain, general health, vitality, social functioning, emotional problems and psychological health. Other questionnaires are, e.g. the Euro Qol EQ-5D and the National Population Health Survey Household.[12,13] A specific questionnaire is the EORTCQLQ-C30 questionnaire. It is a quality of life questionnaire developed by the European Organisation for Research and Treatment of Cancer. It contains 30 questions on limitations caused by cancer and assesses 5 domains: physical functioning (physical performance, the need for rest), work functioning (hobbies/leisure activities and employment limitations), cognitive functioning (memory, concentration), emotional functioning (stress, depression) and social functioning (affected family and social life).[14]

Research studies dealing with QOL assessments for patients with breast cancer show that one of common adverse reactions of cancer treatment is lymphedema. After the axillary dissection of lymph nodes, lymphedema occurs in approximately 20% of female patients. Although a sentinel lymph node biopsy is associated with a lower risk of lymphedema, approximately 6% of female patients still develop lymphedema postoperatively.[15] A study which assessed QOL within the first year after general treatments shows that 63% of female patients reported one or more unmet needs. Other studies are similar. It ranges from 47 to 54%, where 31.3% of

females needed emotional encouragement, 25.9% needed to help with adverse reactions or after-treatment complications, 23% needed to overcome fears for cancer recurrence. Supervision by medical practitioners needed 22%, the support of breast cancer survivors was required by 22 and 19.8% asked for up-to-date information. Also, 19.6% needed some help with working/doing activities. It also shows that the longer time after the treatment passes, the less unmet needs there are. From psychosocial characteristics, higher levels of anxiety were associated with several unmet needs.[16] A study on the connection between the endurance and QOL of patients with breast cancer found out that psychological endurance influences various aspects of QOL. Enduring patients have much better QOL almost in all aspects.[17] Results of the analysis in Kosovo showed that there were no big differences in statistic data among patients with different stages of cancer. According to education, patients with a university degree had better cognitive functions. Women with a university degree had better overall QOL.[18] One of the instruments to assess QOL in women with breast cancer is the EORTC QLQ-C30.

MATERIALS AND METHODS

To assess QOL in breast cancer patients, we used the 3rd version of standardized EORTC-C30 QLQ

questionnaire, which assesses overall QOL in cancer patients and the QLQ-BR23 module, which assesses specifically QOL in patients with breast cancer. The questionnaires are compiled by the European Organization for Research and Treatment of Cancer (EORTC). The questionnaire survey was approved by the Ethical Committee for biomedical research, Faculty of Pharmacy, Comenius University in Bratislava, the number of desicion: 3/2015. We gathered up female patients 'data from March until December 2015. Anonymous questionnaires were filled out by female patients in the "Turčianske Venuše" Citizens Association, and those attending the "Ligaprotirakovine" Cancer Centre in Martin.

We evaluated the data under the European Organisation for Research and Treatment of Cancer manual and created clearly arranged tables.

RESULTS AND DISCUSSION

Our survey included a total of 68 female respondents suffering from breast cancer. Mostly, elderly female patients averagely in their sixties with cancer in remission were involved. We provide outcomes in clearly arranged tables.

Table 1. Difficulties in daily activities.

	Not at all		A little		Quite a bit		Very much	
	No. of patients	%	No. of patients	%	No. of patients	%	No. of patients	**%**
Do you have any trouble doing strenuous activities, e.g. carrying a heavy shopping bag or a suitcase?	10	14.7	22	32.3	28	41.2	8	11.8
Do you have any trouble taking a long walk?	14	20.6	30	44.2	22	32.3	2	2.9
Do you have any trouble taking a short walk outside of the house?	39	57.3	21	30.9	8	11.8	0	0
Do you need to stay in bed or a chair during the day?	28	41.2	27	39.7	10	14.7	3	4.4
Do you need help with eating, dressing, having a wash or using the toilet?	58	85.3	8	11.8	2	2.9	0	0

Table 2.Difficulties during the last week.

	Not at all		A little		Quite a bit		Very much	
	No. of patients	%	No. of patients	%	No. of patients	%	No. of patients	%
Were you limited in doing either your work or other daily activities?	25	36.7	32	47.1	10	14.7	1	1.5
Were you limited in pursuing your hobbies or other leisure time activities?	32	47.1	23	33.8	11	16.2	2	2.9
Were you short of breath?	27	39.7	26	38.2	12	17.7	3	4.4
Did you have a pain?	18	26.5	26	38.2	21	30.9	3	4.4
Did you need to rest?	12	17.7	37	54.4	13	19.1	6	8.8
Did you have any trouble sleeping?	14	20.6	22	32.3	23	33.8	9	13.3
Did you feel weak?	18	26.5	30	44.2	15	22	5	7.3
Did you lack appetite?	39	57.3	20	29.5	7	10.3	2	2.9
Did you feel nauseated?	36	53	15	22	13	19.1	4	5.9
Did you vomit?	54	79.4	13	19.1	0	0	1	1.5
Were you constipated?	40	58.8	18	26.4	9	13.3	1	1.5

Table 3. How would you rate your overall health during the last week.

	Number of patients	%
1 Very poor	2	2.9
2	6	8.8
3	12	17.7
4	18	26.5
5	21	30.9
6	6	8.8
7 Excellent	3	4.4

Table 4. How would you rate your overall quality of life during the last week.

	Number of respondents	**%**
1 Very poor	4	5.9
2	4	5.9
3	12	17.7
4	16	23.5
5	19	27.9
6	10	14.7
7 Excellent	3	4.4

Table 5. Difficulties in breast, arm and shoulder during the last week.

	Not at all		A little		Quite a bit		Very much	
	No. of patients	%	No. of patients	%	No. of patients	%	No. of patients	%
Did you have any pain in your arm or shoulder?	14	20.6	24	35.2	20	29.5	10	14.7
Did you have a swollen arm or hand?	25	36.7	25	36.7	10	14.8	8	11.8
Was it difficult to raise your arm or to move it sideways?	19	27.9	20	29.4	18	26.5	11	16.2
Did you have any pain in the area of your affected breast?	22	32.4	23	33.8	18	26.5	5	7.3
Was the area of your affected breast swollen?	32	47.1	18	26.5	12	17.6	6	8.8
Was the area of your affected breast oversensitive?	15	22	31	45.6	12	17.7	10	14.7
Did you have skin problems on or in the area of your affected breast (e.g., itchy, dry, flaky)?	23	33.8	27	39.7	11	16.2	7	10.3

Table 6. Assessment of overall quality of life.

Patients	1	2	3	4	5	6	7	8	9	10
QL2 score	41.67	66.67	50.00	75.00	33.33	75.00	33.33	50.00	58.33	66.67

Patients	11	12	13	14	15	16	17	18	19	20
QL2 score	33.33	50.00	100.0	58.33	16.67	50.00	33.33	33.33	66.67	75.0

Patients	21	22	23	24	25	26	27	28	29	30
QL2 score	58.33	58.33	83.33	58.33	33.33	50.00	33.33	41.67	75.00	66.67

Patients	31	32	33	34	35	36	37	38	39	40
QL2 score	0.00	41.67	50.00	58.33	66.67	33.33	16.67	66.67	58.33	16.67

Patients	41	42	43	44	45	46	47	48	49	50
QL2 score	16.67	66.67	41.67	66.67	41.67	50.00	66.67	100.00	66.67	66.67

Patients	51	52	53	54	55	56	57	58	59	60
QL2 score	66.67	0.00	83.33	41.67	50.00	16.67	66.67	83.33	50.00	58.33

Patients	61	62	63	64	65	66	67	68		
QL2 score	8.33	83.33	33.33	66.67	83.33	50.00	66.67	66.67		

According to the outcomes of anonymous questionnaires, we found that the overall quality of life of female patients was above average, because the scale is from 1 to 7, where 1 means "very poor" and 7 "excellent", and the most frequent response was 5 (27.9%) or 4 (23.5%). The female patient srated their overall health likewise, 30.9% chose 5 and 26.5% picked 4. The QL2 scores of 66.67 (15 female patients) or 58.33 (9 female patients) or 50 (10 female patients) were the most common. This may be caused by the fact that our female respondents were mainly in remission at the time of completing the questionnaire. The first part of the QLQ-C30 questionnaire pointed out their difficulties doing daily activities. As per our findings, those were strenuous activities, such as carrying heavy bags or suitcase, or long walks. The QLQ-C30 second part showed their limitations at work or in leisure time activities. Surprisingly, it did not cause such trouble for our female patients and they mostly chose 2, which means "little". The answers of other questions revealed that the females mostly complained about getting pains - 38.2% "a little" and 30.9% "quite a bit". A serious problem is sleeping difficulty since

33.8% of the females responded "quite a bit "and 32.3% "a little". Frequent adverse reactions of cancer treatment, such as nausea, vomiting, constipation and anorexia, did not bother our female patients much. And again, this can be caused by the fact that our female respondents were mainly in remission and were not receiving any treatment at that time. Up to 34 respondents achieved a NV score of 0, which means that they did not feel sick or vomited at all. 39 respondents reached a AP score of 0, which means that they did not suffer from any lack of appetite. And 42 respondents got a CO score of 0, which means that they were not constipated at all. Up to 57.3% of the female patients complained about having difficulty in remembering and concentrating "a little" and 16.2% "quite a bit". According to a study from 2016, a decrease in cognitive functions, including memory, concentrating and paying attention may be related to endocrine therapy. The study was conducted with a sample of 2,756 female patients. 2,381 of those were taking hormonal therapy and the rest of 375 served as a test sample. It was found that endocrine therapy is accompanied by altered cognitive functions.[19]

The findings of the QLQ-BR23 questionnaire show that this disease has a huge impact on females´ mental state. 30.9% of the females feel less feminine due to their disease. 29.4% is "quite a bit" and 26.5% "a little" dissatisfied with their body. For 20.6% is "quite a bit" and for 25% "a little" difficult to look at themselves in the mirror when naked. 35.3%is "a little" and 23.5% "quite a bit" concerned about their health in the future. According to a study from 2015 by Chong, on average 20-30% of cancer patients suffer from anxiety and depression. However, the level of anxiety dramatically reduces within 6-12 months after being diagnosed with cancer (20). Another adverse reaction of chemotherapy is hair loss, which annoys a lot of people, especially women, and that was included in our questionnaire too. The question "Are you losing your hair?" was answered by 36.7% "a little", by 10.3%"quite a bit", by 5.9% "very much", and by 47.1%,"not at all". When confirming their hair loss, we asked if that had made them upset, and 38.9% said "a little", 16.7% "quite a bit", 5.5% "very much" and 38.9% "not at all". Another part of the questionnaire applied to sexual activity. The question "To what extent do you need sex?" was answered by 72.1% "not at all", by 22.1% "a little", by 2.9% "quite a bit" and by 2.9% " very much". The question "To what extent are you sexually active?" was answered by 73.6% "not at all", by 23.5% "a little" and by 2.9% "very much". Up to 48 female patients achieved a BRSEF score of 0. We asked sexually active females about their enjoyment of sex and 5.6% said" not at all", 55.6% "quite a bit", 27.7% "a little" and 11.1% "very much". The findings show that the females had little libido or poor sex life. This could be caused, besides their serious disease, by the fact that most of them are elderly and/or widows. The last seven questions in the QLQ-BR23 were aimed at having difficulties in their affected breast or arm or shoulder. Getting a pain in their shoulder or arm confirmed 35.2%" a little", 29.5%, "quite a bit" and 14.7% "very much". 36.7% had their arm swollen "a little", 14.7% "quite a bit" and 11.8% "very much". Also, Takahashi and Tsuchiya´s study says that lymphedema is a frequent adverse reaction while treating breast cancer.

According to this study, after the axillary dissection of lymph nodes, lymphedema occurs in approximately 20% of female patients. Although a sentinel lymph node biopsy is associated with a lower risk of lymphedema, approximately 6% of female patients still develop lymphedema postoperatively.[15] 29.4% had difficulty in raising their arm or moving it sideways "a little", 26.5% "quite a bit" and 16.2% "very much". 33.8% had pain in their affected breast "a little", 26.5% "quite a bit" and 7.3% "very much". 26.5% had the area of the affected breast swollen "a little", 17.6% "quite a bit" and 8.8% "very much". 45.6% had their affected breast over sensitive "a little", 17.7% "quite a bit" and 14.7% "very much". 39.7% had skin problems on or in the area of their affected breast "a little", 16.2% "quite a bit" and 10.3% "very much".

CONCLUSION

Breast cancer is still the most common cancer of the female population, and the most frequent cause of death of malignant disease for women. Breast cancer significantly affects physical and psychological health of female patients suffering from this disease. Breast self-examinations and regular check-up at the gynaecologist are the most effective forms of prevention and detection of this disease.

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