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Depression, Anxiety and Quality of Life of Women with Breast Cancer Undergoing Radiotherapy

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Abstract

Background: Breast cancer is the most common cancer in women and the second cause of death after lung cancer. One in eight women will become ill during their lifetime. Deaths from breast cancer made up around 7.2% of all deaths from cancer while among women, breast cancer accounted for 16.2% of all deaths from cancer. To assess anxiety, depression in women with breast cancer undergoing radiotherapy. **Material & Methods:** The study was conducted in the Department of Clinical Oncology, Enam Medical College & Hospital from March 2020 to April 2021. A total number of 120 women diagnosed with non-metastatic breast cancer were recruited for this cross-sectional survey. Following informed consent, patients were asked to complete demographics and clinical data questionnaire comprising with, the Dass-21 scale, the Hospital Anxiety and Depression Scale- HADS. Data was analyzed using IBM SPSS software system. **Results:** The incidence of depression and anxiety for breast cancer patients is high. Results highlight similar prevalence of depression with HADS (37.5% mild and moderate depression and 62.5% serious depression) DASS-21 (39.2% mild and moderate 60.8% serious depression) but not similar for anxiety. **Conclusions:** The psychological complication in breast cancer patients was remarkable. Efforts to detect and treat depression and anxiety should be a priority, since they contribute to better tolerance and effectiveness in anti-neoplasmatic therapies.

Keywords:- Depression, Anxiety, Quality of Life, Breast Cancer, undergoing radiotherapy.

INTRODUCTION

Breast cancer is the most common cancer in women and the second cause of death after lung cancer. One in eight women will become ill during their lifetime. Deaths from breast cancer made up around 7.2% of all deaths from cancer while among women, breast cancer accounted for 16.2% of all deaths from cancer.[1] In Greece it has been estimated that approximately 4.500 new cases occur per year and 1.500 deaths per annum are reported.[2] Approximately one in two cancer patients have psychiatric morbidity due to their disease, with reactive depression and reactive anxiety occurring in 70 % of cases. On the other hand, in 10 – 15 % of cases, major depression and organic psycho-syndromes are experienced. Studies have shown very different breast cancer outcomes based on patient age

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with younger women typically to have more aggressive tumors and older women more commonly to have less aggressive disease.[3] The incidence of breast cancer is strongly correlated with age, with the highest rates occurring at an older age (>55 years). The incidence of the disease is lower for women around 40 yrs, and higher for ages between 55-69.[4] Breast cancer treatment may involve surgery and radiotherapy, as well as systemic therapy including chemotherapy, hormone therapy and immunotherapy.[5] The choice of the most appropriate treatment method depends on the stage of the disease and on a number of prognostic factors such as the histological characteristics of the primary tumor (degree of differentiation, histological type of neoplasm), the infiltration of axillary lymph nodes, the expression of hormone receptors, over-expression of HER2 inhibitors, the patient's age as well as the general condition of the patient.[6] Radiotherapy is a complementary treatment that is applied locally to the breast and axillary lymph nodes, always administered postoperatively in cases of breast retention. Radiotherapy after mastectomy is applied in the case of lymph node filtration, in tumors larger than 5 cm, T3 or T4 disease, or in proximal or infected surgical incisions. The side effects of radiotherapy are either immediate or distant. The time interval that separates the immediate from the later complications is, on average 90 days from the start of the radiotherapy. Direct complications may occur during or after the completion of radiotherapy, and last up to a few weeks. The acute side effects of radiation therapy include skin eruption and irritation throughout the radiated area (in 100% of the cases), fatigue (in 50% of the cases), radial pneumonitis in 1% of the patients, especially those that undergo lymph node radiation, and bladder lymphedema in less than 7% of all breast cancer cases.[7,8] Women with breast cancer regardless of age, ethnicity or disease stage, have the same problems in adaptation to the diagnosis of cancer. Their treatment options are influenced by personality and the particular concerns and life stage of the patient. Psychological processes such as focusing on the problem and solving it, searching for information, designing a new course of life, interpreting and confronting the disease, seeking social support, expressing emotions, linking to religion, searching for meaning and hope and, ultimately, accepting the disease, take place in a difficult period for patients as they try to reconcile both the occurrence of the disease as well as the painful therapeutic processes.[9] Problems arising during this period can be mitigated or exacerbated by particular psychosocial interventions. Depression cannot be declared a predisposing factor in breast cancer.[10,11] However, other studies have shown a negative impact of depression to the course of the disease and to its progression.[12] This can be attributed to the negative effect of depression on the patient's behaviour resulting in her noncompliance with treatment and preventative control.[13] Women with breast cancer have to adapt and withstand physical malformations, side effects of chemotherapy, emotional insecurity, and changes in family, work and social roles.[14] The incidence of psychological morbidity in cancer patients is high. Inability to recognize the comorbidity of psychiatric conditions can have an aggravating effect on patient compliance in therapeutic interventions, resulting in often long treatment delays and an impact on overall survival.[15]

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MATERIAL AND METHODS

The study was conducted in the Department of Clinical Oncology, Enam Medical College & Hospital from March 2020 to April 2021. A total number of 120 women diagnosed with non-metastatic breast cancer were recruited for this cross-sectional survey. Following informed consent, patients were asked to complete demographics and clinical data questionnaire comprising with, the Dass-21 scale, the Hospital Anxiety and Depression Scale- HADS. Data was analyzed using IBM SPSS software system. Patients should be in good mental state with an ability to read and complete the questionnaire. The age range of patients participating in this study was patients up to 65 years of age. The study includes patients with Stage I / II / III breast cancer.

RESULTS

In [Tables 1,2] we can see that 55.8% of the participants are aged 36-45, 49.2% are married, 66.7% are primary education graduates, 45.0% are at disease stage II while 51.7% had undergone partial mastectomy. At the same time, 55.8% have done additional chemotherapy, and 40.8% say they have not noticed side effects from the treatment. Regarding the frequency of drug use, 50% declare they use painkillers very often, 39.2 % use no tranquillizers followed by 34.2% who say they take tranquilizers very often while 41.7% say they do not take any antidepressants.

Table 1: Demographic data (age; marital status; education) (n=120).

Age	**N**	**%**
<35	14	11,7
36-45	67	55,8
46-50	39	32,5
Total	120	100
Marital Status		
Single	38	31,7
Married	59	49,2
Divorced	13	10,8
Widowed	10	8,3
Total	120	100
Education		
University	40	33.3
High School	80	66.7
Total	120	100
Disease Stage		
in situ	12	10
I	41	34,2
II	54	45
III	13	10,8
Total	120	100

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Type of surgical procedure		
Lymphectomy	47	39,2
Partial Mastectomy	62	51,7
Total Mastectomy	11	9,2
Total	120	100

Table 2: Disease Stage; Type of surgical procedure; Chemotherapy; Side – Effects; Frequency of painkiller use; Frequency of tranquilizer use; Frequency of antidepressant use (n=120).

Chemotherapy		
No Chemotherapy	24	20
Pre-surgical Chemotherapy	29	24,2
Complimentary Chemotherapy	67	55,8
Total	120	100
No Side - Effects	49	40,8
Skin problems	36	30
Hypoesthesia of same – side arm	24	20
Lymphedema	11	9,2
Total	120	100
Frequency of painkiller use		
No painkillers used	29	24,2
Rarely	14	11,7
Often	10	8,3
Very often	60	50
Daily	7	5,8
Total	120	100
Frequency of tranquilizer use		
No tranquilizers used	47	39,2
Rarely	25	20,8
Often	7	5,8
Very often	41	34,2
Daily	0	0
Total	120	100
Frequency of anti-depressant use		
No anti-depressants used	50	41,7
Rarely	24	20
Often	12	10
Very often	21	17,5
Daily	13	10,8
Total	120	100

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Table 3: DASS 21 level distribution (n=120)

	DASS 21 (anxiety)		DASS 21 (depression)	
	N	%	N	%
Normal	19	15,8	23	19,2
Mild	13	10,8	24	20,0
Moderate	66	55,0	35	29,2
Severe	5	4,2	23	19,2
Extremely Severe	17	14,2	15	12,5
Total	120	100	120	100

Table 4: HADS level distribution (n=120)

	HADS (anxiety)		HADS (depression)	
	N	%	N	%
Normal	72	60.0	27	21.7
Borderline abnormal	4	3.3	18	15.8
Abnormal	44	36.7	75	62.5
Total	120	100	120	100

Table 5: DASS21 and HADS scales with demographics (n=120)

	Disease Stage	Age groups	Marital Status	Education	Type of surgical procedure	Chemotherapy	Frequency of tranquilizer use	Frequency of anti-depressant use	Side-effects	Frequency of painkiller use	Number of drugs used
DASS21 (depression)	,203*	,079	,075	,140	,385**	,193*	,047	,706**	,225*	,292**	,315**
DASS21 (anxiety)	,181*	,036	-,106	-,044	,052	,132	,339**	,101	,009	,057	,353**
HADS (depression)	,169	,049	,088	,026	,393**	,140	,229*	,628**	,183*	,281*	,374**
HADS (anxiety)	,332**	,075	,068	-,203*	,142	,071	,935**	,124	,175	,209*	,614**

Table 6: α-Cronbach and quality of life (n=120)

Quality of life	Mean	Std. Deviation	95% Conf. Interval	α
Financial difficulties (FI)	34,44	29,60	29,09 - 39,79	1,000
Diarrhea (DI)	40,27	30,22	34,82 – 45,74	1,000
Constipation (CO)	35,83	29,04	30,58 – 41,08	1,000
Appetite loss (AP)	42,78	29,68	37,41 – 48,14	1,000
Insomnia (SL)	31,11	29,86	25,71 – 36,51	1,000
Dyspnea (DY)	30,00	25,71	25,35 – 34,65	1,000
Pain (PA)	42,50	31,30	36,84 – 48,16	0,744
Nausea and vomiting (NV)	21,53	21,76	17,60 – 25,46	0,753
Fatigue (FA)	46.20	28.04	41,13 – 51,27	0,831
Role functioning (RF)	53,19	29,41	47,88 – 58,51	0,714
Social functioning (SF)	55,69	30,06	50,26 – 61,13	0,827

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Cognitive functioning (CF)	53,47	27,49	48,50 – 58,44	0,792
Global health status/QoL (QoL)	41,81	19,83	38,22 – 45,39	0,882
Emotional functioning (EF)	40,14	20,27	36,48 – 43,80	0,734
Physical functioning (PF)	49,61	18,43	46,28 – 52,94	0,702

The DASS21 (anxiety) scale correlates positively with the disease stage (r = .181, p = .048), as with the frequency of use of tranquilizers (r = .339, p = .000). The correlation of this variable with the medications received by the patient (r = .353, p = .000) is moderately positive. On the other hand, the HADS (depression) scale correlates positively with the disease stage (r=.169, p=0.064), with the frequency of use of tranquillizers (r = .229, p = .012), with the side-effects of treatment (r=.183, p=.046) and the frequency of use of painkillers (r =.281, p =.002). It is moderately correlated with the type of treatment (r= .393, p=.000) and a number of drugs taken by the patient (r =.374, p=.000). It, also, exhibits a strong correlation with the frequency of use of antidepressants (r =.628, p=.000). The HADS (anxiety) scale correlates positively with the educational level (r =.-203, p = .026) and the frequency of use of painkillers (r=.209, p=.022), moderately positively with the disease stage r=.332, p=.000), strongly with the number of drugs received by the patient (r=.614, p=.000) and particularly strongly with the frequency of use of tranquilizers (r =.935, p= .000). Diarrhea, constipation and anorexia are not associated with depression or anxiety (HADS, DASS21). Insomnia correlates positively with anxiety (HADS (strong positive correlation: r=.435, p=.000)), as are dyspnea, pain and nausea - vomiting (HADS: DY: weak positive correlation: .227, p=.013, PA: weak positive correlation: r=.206, p = .024, NV: moderate positive correlation: r=.262, p = .004), DASS21 (DY: strong positive correlation: r= .560, p = .000, PA: moderate positive correlation: r = .273, p = .003, NV: moderate positive correlation: r = .304, p = .001)). The latter also correlate positively with depression (HADS (DY: weak positive correlation: r = .207, p = .023, PA: moderate positive correlation: r = .340, p = .000, NV: weak positive correlation: r = .210, p = .021)) as is fatigue with depression (HADS (strong positive correlation: r = .503, p = .000), DASS21 (strong positive correlation: r = .445, p = .000)) and anxiety (HADS (moderate positive correlation: r = .265, p = .004)). Using both DASS 21 and HADS, we observe that approximately 40% of the sample appears to have mild depression, while the remaining 60% appear to have significant, intense or very significant depressive symptoms (Error! Reference source not found, 4). DASS 21 scale (depression) correlates positively with the disease stage (r = .203, p = 0.026), with the type of chemotherapy (r = .193, p = 0.035) with the side effects of the treatment (r = .225, p = .013) and the frequency of use of painkillers (r = .292, p = 0.001). The correlation of DASS21 (depression) is moderately positive with the type of surgery (r = .385, p = .000) and the number of medications received by the patient (r = .315, p = .000). The correlation of the DASS21 scale (depression) is strong with the frequency of use of antidepressants (r = .706, p = .000) [Table 2-6].

DISCUSSION

Especially for breast cancer among Western patients, studies have reported rates of depression ranging from very low to very high

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and a medium level of anxiety. According to the results obtained the occurrence of mental disorders is common in patients suffering from non-metastatic breast cancer corresponding to findings of similar studies conducted in the past in patients with neoplastic disease.[16] Results from depression assessment scales show an increased risk of developing psychiatric symptoms in the first year of diagnosis and gradual decrease over time. The personality of the patient and his adaptive capacity determine the respond to the diagnosis of a life-threatening illness. Previous studies have shown that low levels of anxiety and depression correlated with a better quality of life for.[17,18] However, the incidence of anxiety and depression shows significant differences between studies something which is often due to the differences in it's as assessment methods.[15] Recent studies have shown that there is a tendency to overestimate the symptoms of depression by between 10% and 25%.[19] The present study showed a higher rate of anxiety in Stage II and III patients compared to those with lower stages, while patients with insitu breast cancer show high levels of anxiety when compared to Stage I patients (HADS). Also the stage of the disease is positively correlated with the treatment of economic problems and negatively with the emotional functioning of patients. While others argue that patients undergoing screening after completing adjuvant therapy, have a tendency to neglect the anxiety and symptoms of depression they experience.[20] Increased anxiety and depression is also seen in patients undergoing preoperative or adjuvant chemotherapy as well as in heavier surgical procedures such as partial or total mastectomy.[21] Regarding the educational level of the participants in the study it was found that primary education patients are less stressed than those with higher education. The type of surgery performed by the patients appeared to be negatively related to their physical and emotional functionality as well as their quality of life. However, a recent study reported that chemotherapy patients reported more stress than non-chemotherapy but not statistically significant.[22] This finding is not consistent with research findings, which found that 31% of patients with depressive symptoms have completed only primary education.[23] However, in a previous study, 15% of depressive symptoms were reported among primary education patients compared to upper-secondary education patients.[24] A large part of the literature regarding the investigation of breast cancer is related to the researchers' involvement in the quality of life of these patients. The psychological complications in breast cancer patients are remarkable. The psychological burden of patients with breast cancer, mostly associated with depression, anxiety and low emotional functioning in nearly all studies, has been associated with poor quality of life. Breast cancer affects the dimensions of quality of life.[25,26]

CONCLUSIONS

The diagnosis of the illness and the accompanying fears such as fear of death, fear of relapse, impairment of body image, alteration of femininity, sexuality and attractiveness are factors that can cause unexpected psychological discomfort even for years after diagnosis of the disease. Patient quality of life studies should take into account the clinical morbidity that originates from the disease being studied and how the symptoms of side effects from treatment affect daily activity and impact

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patient satisfaction. However, the data provide important evidence for therapeutic decisions when considering the psychological state of patients and the quality of life they enjoy. The psychological complications in breast cancer patients are remarkable. Efforts to detect and treat depression and anxiety should be a priority, since they contribute to better tolerance and effectiveness in anti-neoplasmatic therapies.

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