

THE IMPACT OF DEPRESSION AND ANXIETY ON THE QUALITY OF LIFE IN NONMETASTATIC BREAST CANCER PATIENTS IN POSTOPERATIVE EVALUATION

BIANCA-IASMINA DRAGOMIR^{1,2}, LIANA FODOREANU², ALIN RANCEA^{1,3}

¹Iuliu Hațieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania

²Psychiatric I Emergency County Hospital, Cluj-Napoca, Romania

³“Ioan Chiricuță” Institute of Oncology, Cluj-Napoca, Romania

Abstract

Aims. To evaluate the impact of psychiatric comorbidities on the quality of life of early stage breast cancer subjects, in the first post-surgery week, the prevalence of those psychiatric disorders in this group, the correlation between pain and adjustment disorders and between the STAI-X1 (State Trait Anxiety Inventory 1) and BDI (Beck Depression Inventory) scales and the psychopathological findings.

Patients and methods. We conducted a clinical study at the Ocological Institute “Ioan Chiricuță” Cluj-Napoca on a group of 56 patients (mean age 53.51 years old) with nonmetastatic breast cancer, who underwent surgical intervention in the week prior to the psychiatric evaluation. Patients received a complete psychiatric evaluation during their hospitalization. The STAI-X1, BDI, Numeric Rating Scale and QLQ 30 (Quality of Life Questionnaire 30) plus BR 23 (Breast 23) questionnaires were administered.

Results. The prevalence of adjustment disorders in the group was 28.58%. The psychiatric diagnosis significantly and inversely correlated with the emotional functioning, the cognitive functioning and future perspective. The existence of psychiatric disorders significantly and directly correlated with fatigue, pain, insomnia, appetite loss, constipation, arm symptoms and global health status.

Conclusions. Depression and anxiety have an important prevalence in the breast cancer population and they significantly alter the quality of life of these patients and caregivers by reducing their functional abilities and by generating a higher level of symptomatology and subjective suffering.

Keywords: depression, anxiety, quality of life, breast cancer, postoperative.

Introduction

A number of reviews estimate the prevalence of depression in the oncologic population between 1.5 and 45% [1]. Other trials mention a prevalence of depression and anxiety of 25-40% in the first year of diagnosis [2], with significant influence on the quality of life of the subjects and on the family relations. Breast cancer is the most frequently encountered form of malignancy in women and it represents around 28% of the reported cancers in Europe [3]. In Romania over 6,000 new cases, usually at an advanced stage, are diagnosed every year, with an incidence of 56.84/100,000 and a reported mortality of 39.28/100,000. Moreover, a recent study of the International Agency for

Cancer, published in 2010 in the British Medical Journal, describes a 17% increase of the mortality generated by breast cancer in Romania in the last few years [4], most probably due to the dysfunctional strategies of early detection and treatment. According to the last WHO report, in 2011 [5] 3,225 subjects died of breast cancer in Romania.

The majority of breast cancer patients experience an intense subjective emotional distress shortly after the announcement of their diagnosis, but only a subgroup develops significant psychopathological disorders [6], the reported percentage of the depressive spectrum disorders varying between 10-25% [7], according to the evaluation instruments that were used. In 2005, Burgess et al. described a decreasing annual prevalence of depression and anxiety of 50% in the first year, 25% in the second, third and fourth year and 15% in the fifth year after being diagnosed with breast cancer [8]. Having a psychiatric comorbidity predicts

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Address for correspondence: yasmina63us@yahoo.com

a worse outcome and survival rate in this population group, it generates a poorer quality of life for both patients and caregivers [9] and increases the number of somatic complaints.

Aims

The main objective of the study was to evaluate the correlation between psychiatric depressive and anxious comorbidities and a modified quality of life of early stage breast cancer subjects, in the first postoperative week. The secondary objectives were to evaluate the prevalence of those psychiatric disorders in this group, the correlation between pain and adjustment disorders and between the STAI-X1 and BDI scales and the psychopathological findings.

Patients and methods

This clinical study was carried out at the Oncological Institute "Ioan Chiricuță" Cluj-Napoca, from January 2011 to November 2012, in the surgery ward, on a group of 56 patients who underwent surgical intervention in the week prior to the psychiatric evaluation and who signed a written informed consent. The subjects were diagnosed in the last 12 months with nonmetastatic nonrecurring breast cancer, and they underwent sectorectomy or mastectomy in the 7 days before the evaluation. The metastatic or recurrent breast cancer patients, those with psychiatric history and those unable or unwilling to sign the informed consent were excluded from the study. Patients underwent a complete psychiatric evaluation (according to the DSM-IV [10] and ICD [11] diagnosis requirements for adjustment disorders) during their hospitalization. The study was approved by the medical ethics commission of the Iuliu Hațieganu University of Medicine and Pharmacy.

The evaluated items were the age, the living environment, the marital status, social support, financial difficulties, the histological type of cancer, the time from the announcement of the diagnosis, the type of surgical intervention, the use of tamoxifen/aromatase inhibitors, the somatic comorbidities and the chemo and radiotherapy. We administered the BDI [12], a 21-question multiple choice self report inventory, one of the most widely used instruments for measuring the severity of depression, the STAI-X1 [13], a self report scale evaluating the level of anxiety generated by a certain event, the Numeric Rating Scale for pain (NRS-11) [14], and the QLQ 30 and BR 23 questionnaires [15] for the quality of life, scored according to the authors recommendations [16]. For the statistical analysis we used the SPSS package. We used the student's T test and correlation coefficients. The distribution of the variables was tested with Skewnes and Kurtosis, and the general data were analyzed with the Chi Square test.

Results

The mean age of the group was 53.51 years, ranging

between 33 and 74, and the mean duration since diagnosis was 6 months. No statistical differences were found concerning the general demographic data; 78.6% were married, 1.8% unmarried, the other 19.6% being divorced or widows.

Table 1. Marital status.

	frequency	percent
unmarried	1	1.8
married	44	78.6
divorced	4	7.1
widow	7	12.5

Most of the patients (76.8%) lived in the urban area and had in important social support (92.9%). Financial difficulties were identified in half of the subjects.

Table 2. Living environment, financial and social situation.

	frequency	percent
Urban	43	76.8
Rural	13	23.2
Financial diff.	28	50
No financial diff.	28	50
Social support	52	7.1
No social support	4	92.2

Somatic comorbidities were equally distributed in the group, 50% having no organic comorbidities, while the other 50% were suffering of different disorders (hypertension, glaucoma, diabetes, gastritis, anemia, dyslipidemia etc). The TNM staging system was used, and the breakdown of our patient group was: T1 stage: 33.92% (comprises T1N0 and T1N1 tumors), T2: 39.28% (includes T2N0, N1 and N3), and T4: 12.5% (comprises T4N0, T4N1 and T4N2 stage tumours). All of the patients were M0.

From the histological perspective, as expected, the majority (83.92%) were infiltrating ductal carcinomas, the rest of them being infiltrating lobular carcinomas (7.14%), mucinous carcinomas (1.78%) and ductal carcinomas in situ (7.14%).

Table 3. Histological type.

	frequency	percent
Infiltrating ductal carcinoma	47	83.92
Infiltrating lobular carcinoma	4	7.14
Mucinous carcinoma	1	1.78
Ductal carcinoma in situ	4	7.14

A number of 13 patients (23.2%) underwent breast sectorectomy, whilst the rest of the group (76.8%) had a complete unilateral mastectomy. No patient was treated with radiotherapy, but 67.9% (38) of them had received one or more cycles of chemotherapy in the last year. In addition, 8 subjects (14.3%) were given tamoxifen in the year prior to the surgery and 4 of them (7.1%) received aromatase inhibitors.

The prevalence of adjustment disorders in the group was 28.58%, with a distribution of the corresponding subtypes as described in figure 1.

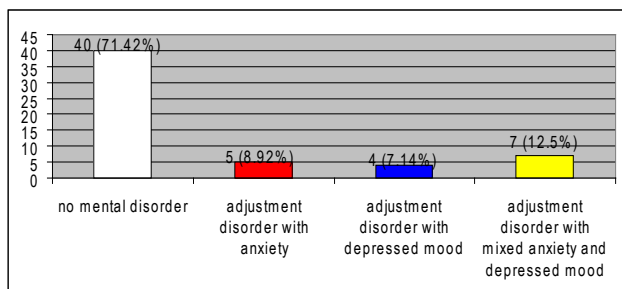


Figure 1. Psychiatric disorders.

No significant differences were encountered between the two subgroups regarding the age and the time since diagnosis. The STAI-X1 and BDI mean scores were significantly higher in the adjustment disorders group, as well as the mean pain score. Moreover, there was a statistically significant correlation with the psychiatric diagnosis for the above mentioned items.

Table 4. Pain, STAI-X1, BDI.

	Adjustment disorders	Number	Mean	Std. deviation	p
STAI-X1	Yes	40	33.7750	8.52895	0.00000
	No	16	57.1875	8.42392	
BDI	Yes	40	8.0750	5.07577	0.00000
	No	16	22.2500	4.97326	
pain	Yes	40	3.4000	2.01023	0.00500
	No	16	5.1250	1.96214	

Spearman's rho	Correlations	Psychiatric disorder
Psychiatric disorder	Correlation coefficient Sig. (2-tailed)	1.000
STAI-X1	Correlation coefficient Sig. (2-tailed)	0.730** 0.000
BDI	Correlation coefficient Sig. (2-tailed)	0.741** 0.000
Pain score	Correlation coefficient Sig. (2-tailed)	0.357** 0.007

The QLQ 30 and BR 23 scores were obtained for functional and symptom subscales, as recommended by the authors. The patients with no psychiatric issues had significantly higher mean scores for physical, emotional and cognitive functioning, as well as for body image and future perspective. Those means had a strong correlation with the psychiatric diagnosis for emotional and cognitive functioning and for future perspective.

Table 5. Functional scales.

	Psychiatric disorder	Number	Mean	Std. deviation	p
Physical functioning	No	40	74.6638	15.63104	0.04400
	Yes	16	61.2469	22.99329	
Emotional functioning	No	40	74.5810	17.18778	0.00100
	Yes	16	45.8294	26.52864	
Cognitive functioning	No	40	83.3310	21.35149	0.01800
	Yes	16	62.4969	29.50220	
Body image	No	40	71.8723	28.78740	0.04700
	Yes	16	52.7753	36.68719	
Future perspective	No	40	51.6640	36.16184	0.04300
	Yes	16	29.1650	38.27424	

Spearman's rho	Correlations	Psychiatric disorder
Psychiatric disorder	Correlation coefficient Sig. (2-tailed)	1.000
Emotional functioning	Correlation coefficient Sig. (2-tailed)	-0.506** 0.000
Cognitive functioning	Correlation coefficient Sig. (2-tailed)	-0.364** 0.006
Future perspective	Correlation coefficient Sig. (2-tailed)	-0.281* 0.036

The symptoms which were significantly different in the two subgroups are described in fig. 1. We obtained a positive statistical correlation between fatigue, pain, insomnia, appetite loss, constipation, arm symptoms and overall health status and the presence of the adjustment disorders in our subjects.

Table 6. Symptom scales.

	Adjustment disorders	Number	Mean	Std. deviation	p
Fatigue	No	40	40.8193	23.65332	0.01300
	Yes	16	59.7169	27.77597	
Pain	No	40	29.5803	25.17229	0.01400
	Yes	16	47.9131	22.66697	
Insomnia	No	40	23.3315	31.30399	0.00500
	Yes	16	52.0806	38.42931	
Appetite loss	No	40	17.4990	30.18134	0.00500
	Yes	16	54.0813	40.31122	
Constipation	No	40	15.8323	27.20233	0.00500
	Yes	16	41.6638	35.48469	
Financial difficulties	No	40	49.9965	33.75688	0.04400
	Yes	16	70.3100	32.05551	
Arm symptoms	No	40	25.5330	24.41868	0.00800
	Yes	16	47.2175	31.29262	
Global health status	No	40	48.9548	21.61448	0.01100
	Yes	16	31.7681	23.41687	

Spearman's rho	Correlations	Psychiatric disorder
Psychiatric disorder	Correlation coefficient Sig. (2-tailed)	1.000
Fatigue	Correlation coefficient Sig. (2-tailed)	0.321* 0.016
Pain	Correlation coefficient Sig. (2-tailed)	0.325* 0.015
Insomnia	Correlation coefficient Sig. (2-tailed)	0.355** 0.007
Appetite loss	Correlation coefficient Sig. (2-tailed)	0.429** 0.001
Constipation	Correlation coefficient Sig. (2-tailed)	0.373** 0.005
Arm symptoms	Correlation coefficient Sig. (2-tailed)	0.329* 0.013
Global health status	Correlation coefficient Sig. (2-tailed)	-0.331* 0.013

Discussion

Being unmarried or single [17,18], financial difficulties [19,20], comorbidities [21], pain [22] and poorer social support [23,17] are linked to a higher risk of developing an adjustment disorder in breast cancer patients. A longer time since diagnosis generates a lower rate of depression [24].

In 1983, Derogatis et al found a prevalence of adjustment disorders in cancer patients of 32% [25] and Mehnert [26] evaluated a sample of post-surgery breast cancer patients and described a prevalence of the AD of 7.1%. In our group the prevalence of AD was 28.58%, comparable to the prevalence reported by Sellik et al in 1999 [2]. The differences in the reported prevalence could be generated by different nosologic framing of the symptoms, according to the subjective experience of the examiner.

The results we obtained concerning the STAI-X1 and BDI mean scores confirmed the validity of the evaluation and also the efficiency of the mentioned scales despite the interfering of the physical symptoms (i.e. weight loss, fatigue etc) generated by the malignancy. Pain was more intensely perceived by the patients suffering from depression and anxiety. Considering the fact that all patients had identical types, locations and etiology for pain (the pain generated by surgery), we concluded that the psychiatric status of the patients influenced the pain perception.

Important differences resulted in the quality of life subscales scores, all indicating a lower quality of life in the adjustment disorder subgroup. As expected, the emotional functioning was inferior in the adjustment disorder group, with a statistically significant correlation. The mean reference value for local or locoregional disease was 70.4 [27], lower than the mean we obtained for the non-psychiatric group, but much higher than the mean in the adjustment disorders group. Moreover, an inferior cognitive functioning (reference value=85.6) and an altered future perspective correlated significantly with the psychiatric diagnosis.

The score means obtained for the physical functioning subscales were also lower in the depressed or anxious patients, but no correlations were confirmed. In two studies carried out in 2009 and 2010 [19,22], physical functioning and role performance also showed the expected inverse relationships with depressive symptoms, in our study the results suggesting the fact that a diminished physical performance would rather generate psychiatric symptoms than being generated by them.

Regarding the symptoms scales from QLQ 30 and BR 23, once again the classical physical complaints generated by depression and anxiety (fatigue, insomnia – reference value=26.7, appetite loss – reference value=9) generated significantly higher scores in the adjustment disorders subgroup and statistically correlated with those diagnosis. The score means for fatigue (reference value=20.60 and pain (reference value=16.7) were much higher in our study group comparing to the reported reference values. We considered those results to be influenced by the post-surgery evaluation of the patients.

A study carried out by Kim et al. in 2008 identified significant bivariate relationships between depressive

symptoms and constipation (reference value=10) and arm symptoms; however, data were unclear as to direction of the relationships [20]. We found comparable results in our study, with higher scores for those symptoms in the subgroup of psychiatric disorders subjects, and significant positive correlations. Pain perception was, once again, more intense in the depressed/anxious subjects.

Finally, the global health status, which we consider to be the best reflection of the subjective perception of well being in the QLQ 30 scale, inversely and significantly correlated with the adjustment disorders in our study, confirming once again that psychiatric comorbidity in nonmetastatic post-surgery breast cancer subjects alters their quality of life. Another mention should be done comparing our mean score with the reference value (73.4), the significant difference being most probably due to the surgical intervention and the lack of appropriate psychosocial measures in managing this difficult period in one's existence.

The limitation of our study consists in the relatively small group of evaluated participants. Further systematic evaluations need to be performed in order to accurately detect the correlation between psychiatric disorders and an altered quality of life in this group of population.

Conclusions

Depression and anxiety have an important prevalence in the breast cancer population and should be thoroughly prevented, evaluated and treated.

The adjustment disorders significantly alter the quality of life of these subjects by reducing their functional abilities and by generating a higher level of symptomatology and subjective suffering. Pain perception seems to be higher in this subgroup of subjects.

Appropriate prevention, screening and therapeutic approach is needed in order to obtain a better collaboration with the patient and a better quality of life for both patients and caregivers.

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