Assessment of Depression and Anxiety in Patients of Carcinoma Breast and Its Association with their Quality of Life

Dr.OM Badhan[1], Dr. P.D. Bansal[2], Dr. Nitin Nagpal[3], Dr. Pardeep Garg[4]

[1]Junior resident, Department of Psychiatry, GGSMCH FDK
[2]Professor and Head, Department of Psychiatry,
[3]Professor and Head, Department of Surgery
[4]Associate Professor and Head, Department of Radiation Oncology , Guru Gobind Singh Medical College , Faridkot.

ABSTRACT:

INTRODUCTION: Breast Cancer is a common malignant tumour in females in reproductive age group and its diagnosis , symptoms and treatment related adverse effects are major psychological stressors in patients. Patient experience various psychiatric symptoms out of which depression and anxiety are the most common which adversely affect the quality-of-life of patients.

AIMS AND OBJECTIVES: To assess depression and anxiety in patients of carcinoma breast and to study the association of depression and anxiety with quality of life in patients of carcinoma breast.

MATERIALS AND METHODS: This was a cross-sectional descriptive study conducted on 200 patients of carcinoma breast at Guru Gobind Singh Medical College and Hospital Faridkot. Depression and Anxiety were assessed using Hamilton Depression Rating Scale and Hamilton Anxiety Rating Scale respectively. WHO quality-of-life (WHOQOLBrief) scale was used to assess quality of life of study subjects.

RESULTS: showed that patients of carcinoma breast experience high rate of depression and anxiety. Young age, advanced stage of disease, long duration of illness, and receiving chemotherapy were associated with depression and anxiety which in turn led to deterioration in quality-of- life in patients of carcinoma breast.

CONCLUSION: Early detection and timely intervention for depression and anxiety by making psychiatric services available to patients of carcinoma breast can possibly improve quality-of-life in these patients. Psychoeducation regarding illness, psychosocial interventions and counselling services should be made available to 12 all patients who are at high risk of development of these psychiatric disorders. This will ultimately improve patient care and compliance

INTRODUCTION

Breast carcinoma accounts for 14.8 % of all cancers in India. According to data of GLOBOCAN 2020 , one in eleven women dies from cancer and among females, breast cancer accounts for 1/4th of all cancers(1)

There are many factors that can predispose to developing breast cancer such as sex, aging, oestrogen exposure, genetic causes, family history and unhealthy life style(2). Risk starts increasing from early

thirties and most cases are reported at 50-64 years of age(8). For breast cancer treatment to be optimized, an early and accurate diagnosis is necessary. Depending on stage and prognostic factors, choice of treatment is decided.The different treatment modalities for ca breast include surgery, chemotherapy , radiotherapy, hormonal therapy and immunotherapy. They can be used alone or in combination. Each of mode of treatment has its advantages and disadvantages (3)

Diagnosis of carcinoma causes an imbalance in the patient's psychological balance and is experienced as catastrophic by the patient(4). It heralds a complex psychological adjustment process in patient and in his family(5). A broad range of emotions are encompassed such as psychological discomfort, feelings of melancholy, vulnerability to depression, anxiety and social isolation. Concern of dying lead to development of psychological stress(Ganz 2008, Landmark and Wahl, 2002).

Cancer significantly increases the risk of psychiatric disorders. These disorders impact a patient's quality of life, self-care, treatment adaptability, and the severity and prognosis of cancer(6) Among different psychiatric disorders depression and anxiety are the two common ones reported in patients of carcinoma breast . These disorders lead to counterproductive illness behaviour and result in poor treatment outcomes. Anxiety is often experienced before the treatment whereas depression generally appears post treatment. The estimated rate of depression and anxiety in females of carcinoma breast falls between 10 % to 37%(7).

Quality of life is now considered most important measure for quality of management and care in oncology practice because it reflects the patient's own interpretation of the impact of the cancer detection and management on their daily life (8). High prevalence of depression in breast cancer can lead diminished ability to cope with cancer and has negative influence on life quality . Even after a satisfactory treatment of the physical illness, such emotional distress may persist and can hog the patient for a long period, adversely effecting the quality of life in these patients. Understanding these psychiatric disorders which commonly affect patients of carcinoma breast along with associated factors related to disease, treatment process as well as accompanying psychosocial factors and their relation with quality of life of patient can help formulate a suitable treatment plan options of these patients and may result in more successful outcome and may also improve life quality in these patients.

AIMS AND OBJECTIVES
1. To assess depression and anxiety in patients of Ca Breast.
2. To study the association of depression and anxiety with quality of life in patients of Carcinoma Breast.

MATERIALS AND METHODS:

STUDY SETTING: The present was conducted at Department of Surgery and Department of Radiation Oncology at Guru Gobind Singh Medical College and Hospital, Faridkot. Prior approval from ethical review board of the institute was taken .Subjects aged 18 years and above and below 80 years of age and those signing informed consent and meeting the inclusion and exclusion criteria were included in the study.

STUDY PERIOD and DESIGN: It was a one year cross-sectional study. Total 200 patients of carcinoma breast who fulfilled the inclusion and exclusion criteria were included in the study.

INCLUSION CRITERIA: Participated individuals who fulfilled the following criteria were included in study.

1. Patients who are diagnosed with Breast carcinoma with fine needle aspiration cytology or tissue biopsy.
2. Patients of the age 18 years and less than 80 years.

EXCLUSION CRITERIA:

For all subjects, exclusion criteria was:

1. Patients with known substance abuse.
2. Current or previous history of neurological illness like Parkinson's disease, brain tumours and SOLs, stroke and organic brain syndrome like dementia, meningitis, encephalitis, encephalopathy, frontal lobe lesions, head injury etc
3. Severe medical ailments like cardiac, respiratory, renal, thyroid related diseases, diabetes mellitus that may interfere with the evaluation.
4. Patients having other co morbid psychiatric disorder, epilepsy and mental retardation.
5. Those not willing to consent .

METHODOLOGY: Patients of Carcinoma Breast attending Surgery Department and Radiation Oncology Department , were enrolled and Informed written consent to administer the questionnaire was obtained from subjects before administering the questionnaire. The confidentiality of data was strictly maintained. The enrolled were then matched against the inclusion and exclusion criteria determined for the study. The subjects fulfilling the inclusion criteria, were subjected to Hamilton Depression Rating Scale (HDRS), Hamilton Anxiety Rating Scale (HAM-A) and WHO quality of life scale (WHO QOL-Brief scales). Following this, based on these scales/instruments , prevalence of depression and anxiety in subjects and its association with their quality of life will was assessed.

STATISTICAL ANALYSIS: After completion of study, observations were tabulated and generated data was entered in MS Excel and was then subjected to appropriate statistical analysis using IBM software SPSS version 26 . Continuous variables were presented as mean and standard deviation. While 33 categorical variables were presented as percent. Quantitative variables were compared using unpaired t – test . Qualitative/ Categorical data was compared using Chi-square test. p value of <0.05 was considered statistically significant and <0.001 as highly significant .

ETHICAL CONSIDERATIONS: The protocol was submitted for evaluation and approval from the Research committee of the institute. Following this, it was subjected to clearance by the ethical committee of Guru Gobind Singh medical college and hospital, Faridkot.

Observations and Results

The mean age of the participants in current study was 53.06 +/-9.94 years. Most of the study subjects (131, 65.5%) were in age group 41-60 years. All of the participants were females. Most of the participants in present study were uneducated i.e. 83(41.5%). Only 1(0.5%) patient had studied upto postgraduation level. Sikhs formed the majority population of patients with 137,(67%) of total patients, the dominant religion being Sikh in this geographical area. Most of the patients in study came from rural residence(159,79.5%). Most of the patients(141, 70.5%) in the study were housewives. Only 1(0.5%) patient apiece was student and shopkeeper. Most of the patients(119, 59.5%) in the study lived in joint familes. Majority of patients(162, 81%) in study were married. Only 1(0.5%) patient was unmarried.

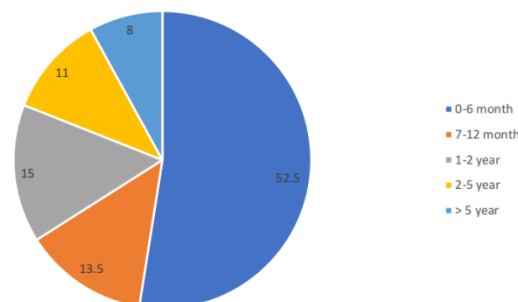**Figure1: Distribution of study population according toage**

Table 1: Distribution of study population based treatment modality
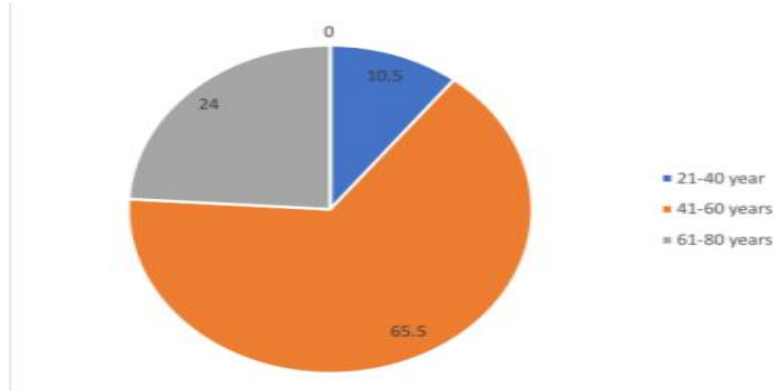
Treatment Modality	Frequency	Percentage
Newly Diagnosed	33	16.50%
Chemotherapy	72	36%
Radiotherapy	18	9%
Post-Op Surgery	48	24%
Others	29	14.50%
Total	200	100%

Table 2: Distribution of study population based duration of illness

Duration of Illness (Month)	Frequency	Percentage
0-6 Months	105	52.50%
7-12 Months	27	13.50%
1-2 Years	30	15%
2-5 Years	22	11%
>5 Years	16	8%
Total	200	100%

Figure 2: Distribution of study population based on duration of illness

Total HAM-D	Frequency	Percentage
Normal	153	76.50%
Mild	37	18.50%
Mild to Moderate	9	4.50%
Severe	1	0.50%
Total	200	100%

Table3: Distribution of study population based on prevalence of depression as measured by HAM-D

Total HAM-D	Frequency	Percentage
Normal	96	48%
Mild	70	35%
Moderate	34	17%
Severe	0	0%
Total	200	100%

Table 4: Distribution of study population based on prevalence of anxiety as measured by HAM-A

Duration of Illness	N	No Depression		Depression		x^2	p value
		N	Percentage	N	Percentage		
0-6 Months	105	97	92.38%	8	7.62%		
7-12 Months	27	22	81.48%	5	18.52%		
1-2 Years	30	20	66.67%	10	33.33%	52.116	0.001 (HS)
2-5 Years	22	10	45.45%	12	54.55%		
>5 Years	16	4	25%	12	75%		
Total	200	153	76.50%	47	23.50%		

Table 5: Association of duration of Illness with depression

QoL	HAM-D	N	Raw score Mean	Transformed mean	Std. Deviation(raw)	Std. Error Mean (raw)	95% CI Lower	95% CI Upper	t-test	p value
Overall QoL	Normal	153	7.60	70	0.99	0.08	1.531	2.182	11.258	0.001
	Depression	47	5.74	46.7	0.99	0.14				
Physical Health	Normal	153	19.27	43.8	2.26	0.18	2.420	3.946	8.227	0.001
	Depression	47	16.09	32.4	2.50	0.36				
Psychological	Normal	153	19.25	55.2	1.88	0.15	2.897	4.153	11.069	0.001
	Depression	47	15.72	40.5	2.01	0.29				
Social Relationships	Normal	153	12.76	81.3	0.89	0.07	-0.445	0.145	1.004	0.316
	Depression	47	12.91	82.6	0.90	0.13				
Environmental	Normal	153	30.71	70.1	2.37	0.19	-1.219	0.333	1.126	0.261
	Depression	47	31.15	72.3	2.31	0.34				

Table 6 above shows : Association of depression with quality of life

QoL	HAM-A	N	Raw score Mean	Transformed Mean	Std. Devi	Std. Error Mean	95% CI Lower	95% CI Upper	t-test	p value
Overall QoL	Normal	96	7.94	74.6	0.83	0.08	1.20	1.771	10.256	0.001
	Anxiety	104	6.45	55.6	1.17	0.12				
Physical Health	Normal	96	20.44	48	1.55	0.16	3.144	4.231	13.377	0.001
	Anxiety	104	16.75	34.8	2.25	0.22				
Psychological	Normal	96	19.66	56.9	1.74	0.18	1.787	2.968	7.938	0.001
	Anxiety	104	17.28	47	2.41	0.24				
Social Relationships	Normal	96	12.93	82.7	0.92	0.09	-0.004	0.493	1.939	0.054
	Anxiety	104	12.68	80.7	0.86	0.08				
Environmental	Normal	96	30.63	70.7	2.59	0.26	-1.014	0.303	1.065	0.288
	Anxiety	104	30.98	71.8	2.13	0.21				

Table 7 above : Association of anxiety with quality-of-life

Pearson Correlation		HAM-D	HAM-A	Overall QoL	Physical Health	Psychological	Social Relatio	Envronmental
Total HAM-D	r value	1	0.562**	-0.612**	-0.574**	-0.559**	-0.003	0.138
	p value			0.000	0.000	0.000	0.965	0.051
Total HAM-A	r value		1	-0.700**	-0.720**	-0.617**	-0.125	0.148*
	p value			0.000	0.000	0.000	0.077	0.037

Table 8 : Correlation between QoL and HAM

Most of the patient(142,71%) in study were moderately working. 28(14%) patients were sedentary and 30(15%) patients were high work performing. No patient in this study was having any family history of psychiatric illness. Most of the patients(83, 41.5%) came from upper lower socioeconomic status familes. Only 8(4%) patients belonged to uppermiddle socioeconomic status family.

Most of patients(153, 76.5%) were having no depression when assessed using HAM-D scale. 67(33.5%) patients had depression out of which 37 patients(18.5%) had symptoms of mild depression whereas 9(4.5%) had mild moderate depression. Only 1(0.5%) patient had moderate to severe depression.

In the present study 96 patients(48%) patients were having no anxiety when evaluated with HAM-A scale . A total of whereas 70(35%) patients had mild anxiety. 34(17%) patients had moderate anxiety. No patient had severe level of anxiety. At cut of score of 7 and above in HAM-D, 52% of patients were having anxiety symptoms.

Maximum prevalence of depression was found in subjects who were having the disease for greater than 5 years, i.e. 75%, followed by participants with duration 2-5 years (54.55%) , participants with duration 1- 2 years (33.33%) , participants with duration 7-12 month (18.52%), participants with duration 0-6 months (7.62%).

Maximum prevalence of anxiety was found in subjects who were having the disease for 1-2 years (60%) followed by participants with duration of llness more than 5 years (56.25%) ; participants with duration

7-12 month (55.56%) , participants with duration 2-5 years (36.66%) , participants with duration 1-2 years (33.33%) , , participants with duration 0-6 months (27.71%).

Maximum prevalence of depression was found in subjects who were undergoing chemotherapy (41.67%) , followed by participant on other treatment modalities (24.11%) , participants who were on radiation therapy (22.12 %) ,participants who were newly diagnosed and treatment naïve (12.12%), participants who were post-op surgical cases (4.17%) .

Maximum prevalence of anxiety was seen in subjects who were undergoing chemotherapy (94.44 %) , followed by participants who were newly diagnosed and treatment naïve(36.36%) , participants who were post-op surgical cases (31.25%) , participants who were on radiation therapy (22.22 %) participant on other treatment modalities (17.24 %) .

There was a strongly negative and significant correlation of HAM-D

(depression) score with overall QoL score($r = -0.612$, p= 0.000) ; with physical health score($r= -0.574$, p=0.000) ; with psychological health score ($r = -0.559$, p= 0.000) . However no statistically significant correlation of HAM-D score was found with social or environmental domain of quality-of-life (p= 0.965 and p= 0.051 respectively).

HAM-A score showed a strong negative correlation with overall QoL score ($r = -0.700$; p= 0.000), with physical health score ($r = -0.720$; p=0.000), with psychological health score ($r = -0.617$; p=0.000). It showed a positive and association with environmental domain of quality of life($r = 0.148$; p= 0.037) but no significant association of HAM-A score

was found with social domain of quality-of-life.

Discussion:

In this study majority of patients(131, 65.5%) were in age group 41-60 years.

Least number of patients i.e. 21 (10.5%) were in age group 21-40 years whereas 48(24%) patients were aged between 61-80 years. The mean age of the participants was 53.06 years. Results are similar to the similar study done by Vivek Srivastava et al.(9) on patients of ca breast in which 59.5% patients were in age group 41-60 years. Mean age of patients was 49.65 years. In another similar study done by Nimmy Susan Abraham et al.(10), the average age of patients with ca breast was found to be 53.57 years.

In present study 134(67% of patients) belonged to Sikh religion. 60(30%) patients practiced Hinduism whereas 3 patient apiece(1.5%) believed in Islam and Christianity. Study population represent the geographical region with maximum Sikh population and most of patients living in rural areas in joint families.

In the present study , most of the study subjects (153, 76.5%) were having no depression when assessed using HAM-D scale. 67(33.5%) subjects were having symptoms of depression. Overall 37 (18.5%) had mild depression whereas 9(4.5%) had mild moderate depression. Only 1(0.5%) participant had moderate to severe depression. The prevalence of depression in this study was found to be higher than a similar study done by Nimmy Sussan Abraham et al.(11) on patients of Ca breast in which prevalence of depression in patients of ca breast was 20%. In another study done on patients of Ca breast by Vivek Srivastava et al. the prevalence of depression was found to be 28%. In similar study by Konstantinos Tsara et. al. (12) on patients of ca breast the prevalence of depression was calculated to be 38.2%.

The rate of depression found in present study is in agreement with the findings of other studies and it can been concluded from above studies that prevalence of depression in patients of ca breast range from 20% to 68.6 %.The wide variation in prevalence of depression in different studies could be due to different

assessment methods, treatment modalities and stage of disease in these studies.

With regard to anxiety ,In the present study 96 (48%) participants were anxiety free when evaluated with HAM-A scale . A total of whereas 70(35%) patients had mild anxiety. 34(17%) patients had moderate anxiety. No patient had severe level of anxiety. At cut of score of 7 and above in HAM-A, 52% of patients were having

anxiety symptoms. Prevalence was higher than the one seen by Vinod Kumar Sahu et. al. (13) and Vivek Srivastava et.al (37%) ,they saw prevalence of anxiety to be 36% and 37% respectively in patients of Ca Breast. In one another study by Konstantinos Tsara et. al. (14)the prevalence of anxiety was found to be 32.2%.

The results of the present study were similar to previous studies, meaning that as depression and anxiety score increases, quality-of-life starts deteriorating. In similar research done by Nimmy Susan Abraham et al.(15) , all dimensions of quality-of-life were affected by depression and anxiety . In this study physical domain score was lowest and social relationships score being highest. In the current study as well score of physical health was lowest in patients suffering from depression and anxiety(32.4 and 34.8 respectively) and social relationships score was highest.

In the present study there was a strongly negative and statistically significant correlation of HAM-D (depression) score with overall QoL score(r = -0.612, p= 0.000) ; with physical health score(r= -0.574 , p=0.000) ; with psychological 92health score (r = -0.559 , p= 0.000) . However no statistically significant correlation of HAM-D score was found with social or environmental domain of quality of life (p= 0.965 and p= 0.051 respectively). Similarly HAM-A score showed a strong negative and statistically significant correlation with overall QoL(r = -0.700 ; p= 0.000), with physical health(r = -0.720 ; p=0.000), with

psychological health(r = -0.617 ; p=0.000). However a positive and statistically significant association of HAM-A score was found with environmental domain of quality of life(r = 0.148; p= 0.037) but no significant association of HAM-A score was found with social domain of quality of life.

Thus results of this study show that patients of carcinoma breast experience high rate of depression and anxiety which are accompanied by decline in quality of life. Both these conditions are treatable and timely interventions for them can make overall management of carcinoma breast more successful. This in turn will improve the quality of life in these patients and will also increase compliance to the treatment. The findings highlight the need of constant vigil and regular monitoring of patients of ca of breast for early detection and management of these psychiatric ailments.

Conclusion:

The study concluded that prevalence of depression and anxiety in patients of carcinoma breast is 33.5 % and 52 % respectively. The rate was higher in younger patients. Patients who were receiving chemotherapy reported high depression and anxiety score.

Advanced stage of disease and long duration of illness were also associated with higher rates of depression and anxiety. Both depression and anxiety led to deterioration in overall quality of life, physical health domain of quality life and psychological health domain of quality of life.

 No significant association of depression or anxiety was found with social relations domain of quality of life. Early detection and timely intervention for these disorders by making psychiatric services available to patients of carcinoma breast can possibly improve quality of life in these patients. Psychoeducation regarding illness, psychosocial interventions and counselling services should be made available to all

patients who are at high risk of development of these psychiatric disorders. This will ultimately improve patient care and compliance.

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