Prevalence of Anxiety and Depression and Assessment of Quality of Life in Patients Undergoing Cancer Treatment

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ABSTRACT

Background: Cancer can have a deleterious impact on the well-being of a patient and can affect the mental health. Cancer treatment is influenced by anxiety and depression and thereby recovery, quality of life, and survival may get hampered. Depression is the most common psychiatric syndrome that has received the most attention in individuals with cancer. It has an intense impact on lives of patients and it continues to be underdiagnosed and inadequately treated. Depression most commonly coexists with other syndromes such as panic disorder, generalized anxiety disorder, and post-traumatic stress disorder. Cancer is threatening and understandably many patients get anxious in response to that threat and anxiety appears to increase as the illness progresses. Depression and anxiety have impact on morbidity and mortality leading to worsening of quality of life. In patients with cancer on treatment, there is a greater degree of association between anxiety and depression with worsening of quality of life. In this study, we assessed prevalence of depression, anxiety, and the quality of life in patients undergoing cancer treatment. We tried to find out the correlation between prevalence of depression and anxiety. We also looked at the quality of life in patients undergoing cancer treatment.

Materials and methods: Our study was conducted on 50 patients who were undergoing cancer treatment. We used Hamilton depression rating (HAM-D) and Hamilton anxiety rating (HAM-A) scales, respectively, to assess the symptoms of depression and anxiety. The quality of life was assessed using quality of life-10 (QOL-10) questionnaire.

Results: In this study among subjects on chemotherapy, 46.7% had mild depression, 30% had moderate depression, 16.7% had severe depression, and 6.7% had very severe depression. Among subjects on radiotherapy, 53.3% had mild depression, 13.3% had moderate depression, 33.3% had severe depression, and 0% had very severe depression. Among subjects on chemotherapy along with radiotherapy, 20% had mild depression, 40% had moderate depression, 40% had severe depression, and 0% had very severe depression. In this study, 60% had mild anxiety, 38% had mild to moderate anxiety, and 2% had moderate to severe anxiety. Among those on chemotherapy, 66.7% had mild anxiety; among those on radiotherapy, 53.3% had mild anxiety; and among those on chemotherapy + radiotherapy, 60% had mild to moderate anxiety. In this study, there was positive correlation between HAM-A and HAM-D scores, that is, with an increase in HAM-A score, there was an increase in HAM-D score and vice versa.

Conclusion: In our study, patients with cancer had higher prevalence of anxiety and depression. Anxiety and depression often lead to poor quality of life.

Keywords: Anxiety, Cancer, Chemotherapy, Depression, Quality of life, Radiotherapy.

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INTRODUCTION

A diagnosis of cancer can have a deleterious effect on the person's well-being and mental health. Depression is a major public health problem and has a massive effect on health when comorbid with a chronic medical condition.[1,2] Cancer treatment gets affected by anxiety and depression. Hence, quality of life (QOL) deteriorates, recovery from illness may get prolonged, and survival of a person gets threatened.

Studies have shown that cancer diagnosis leads to a higher sense of suffering than other diseases which often leads to poorer prognosis.[3] Cause of anxiety and depression is high degree of mental stress for sustained periods of time.[4] Often these patients will have mixed symptoms of anxiety and depression, predominant among them being anxiety.[5] Poorer QOL in these patients is caused by depression and affects patient outcomes. As per couple of studies, depression results in higher rates of mortality in cancer.[6,7]

Depression is a most common psychiatric syndrome that has received the higher attention in individuals with cancer. It has an intense impact on lives of patients and it continues to be underdiagnosed and inadequately treated. Often depression coexists with panic disorder, generalized anxiety disorder, and post-traumatic stress disorder.[8] Cancer is threatening, and

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understandably many patients are anxious in response to that threat and anxiety appear to increase as the illness progresses. Depression and anxiety have significant impact on both morbidity and mortality which leads to deterioration in the QOL. Association between symptoms of anxiety and depression is well known in patient with cancer on various modalities of treatment. These

symptoms when worsen can gradually lead to impairment in QOL. Primary objective of this study was to assess the prevalence of depression and anxiety in patients undergoing cancer treatment. Secondary objectives were to find out the correlation between prevalence of depression and anxiety and assessment of their QOL.

MATERIALS AND METHODS

Our study design was a cross-sectional study. It was conducted in the department of psychiatry with collaboration of the radiotherapy department in a tertiary care center of Ambala in Haryana, India. It was an in-patient-based study. The study was conducted in a span of 3 months after taking a written consent and 50 patients were assessed. Patients of both the sexes, aged 18–70 years undergoing cancer treatment such as chemotherapy and radiotherapy, and both chemotherapy and radiotherapy were included in the study. Patients who were on anxiolytics, antidepressant and benzodiazepine drug treatments were excluded from the study. Patients with history of mood disorders were excluded from the study. Convenient type of sampling was advised. The aims and objectives were explained to the participants including the tool

used. Hamilton depression rating scale (HAM-D), Hamilton anxiety rating scale (HAM-A), and quality of life-10 (QOL-10) were used as tools for assessment of depression, anxiety, and QOL.

Statistical Analysis

Data were analyzed using SPSS 22 version software. Categorical data are presented as frequencies and proportions. Qualitative data were analyzed using Chi-squared test. Continuous data were represented as mean and standard deviation. p value of <0.05 was considered as statistically significant (Tables 1 to 4).

RESULTS

A total of 50 patients were assessed.

In this study, 60% had mild anxiety, 38% had mild to moderate anxiety, and 2% had moderate to severe anxiety. Among those on chemotherapy, 66.7% had mild anxiety; among those on radiotherapy, 53.3% had mild anxiety; and among those on chemotherapy + radiotherapy, 60% had mild to moderate anxiety.

In this study, among subjects on chemotherapy, 46.7% had mild depression, 30% had moderate depression, 16.7% had

Table 1: Prevalence of anxiety in patients under cancer treatment

		Treatment							
		Chemotherapy		Radiotherapy		Chemotherapy + radiotherapy		Total	
		Count	%	Count	%	Count	%	Count	%
HAM-A interpretation	Mild anxiety	20	66.7	8	53.3	2	40.0	30	60.0
	Mild to moderate anxiety	9	30.0	7	46.7	3	60.0	19	38.0
	Moderate to severe anxiety	1	3.3	0	0.0	0	0.0	1	2.0
	Total	30	100.0	15	100.0	5	100.0	50	100.0

Table 2: Prevalence of depression in patients under cancer treatment

		Treatment							
		Chemotherapy		Radiotherapy		Chemotherapy + radiotherapy		Total	
		Count	%	Count	%	Count	%	Count	%
HAM-D interpretation	Mild depression	14	46.7	8	53.3	1	20.0	23	46.0
	Moderate depression	9	30.0	2	13.3	2	40.0	13	26.0
	Severe depression	5	16.7	5	33.3	2	40.0	12	24.0
	Very severe depression	2	6.7	0	0.0	0	0.0	2	4.0
	Total	30	100.0	15	100.0	5	100.0	50	100.0

Table 3: Association between anxiety and depression scores

		HAM-A interpretation					
		Mild anxiety		Mild to moderate anxiety		Moderate to severe anxiety	
		Count	%	Count	%	Count	%
HAM-D interpretation	Mild depression	22	73.3	1	5.3	0	0.0
	Moderate depression	7	23.3	5	26.3	1	100.0
	Severe depression	1	3.3	11	57.9	0	0.0
	Very severe depression	0	0.0	2	10.5	0	0.0

$\chi^2 = 32.2$, df = 6, *$p < 0.001$

Table 4: Association between QOL-10 and HAM-D scores interpretation

		QOL-10										p value
		Very high		High		Either low or high		Low		Very low		
		Count	%	Count	%	Count	%	Count	%	Count	%	
HAM-A interpretation	Mild anxiety	0	0.0	1	100.0	17	81.0	11	50.0	1	16.7	0.081
	Mild to moderate anxiety	0	0.0	0	0.0	4	19.0	10	45.5	5	83.3	
	Moderate to severe anxiety	0	0.0	0	0.0	0	0.0	1	4.5	0	0.0	
HAM-D interpretation	Mild depression	0	0.0	1	100.0	15	71.4	7	31.8	0	0.0	0.001*
	Moderate depression	0	0.0	0	0.0	3	14.3	10	45.5	0	0.0	
	Severe depression	0	0.0	0	0.0	3	14.3	4	18.2	5	83.3	
	Very severe depression	0	0.0	0	0.0	0	0.0	1	4.5	1	16.7	

severe depression, and 6.7% had very severe depression. Among subjects on radiotherapy, 53.3% had mild depression, 13.3% had moderate depression, 33.3% had severe depression, and 0% had very severe depression. Among subjects on chemotherapy along with radiotherapy, 20% had mild depression, 40% had moderate depression, 40% had severe depression, and 0% had very severe depression. There was no significant association between depression and treatment (Figs 1 to 4).

Correlation between HAM-A and HAM-D Scores

In this study, there was positive correlation between HAM-A and HAM-D scores, that is, with an increase in HAM-A score, there was an increase in HAM-D score and vice versa.

In the study, among those with mild anxiety, 73.3% had mild depression, 23.3% had moderate depression, and 3.3% had severe depression. Among those with mild to moderate anxiety, 5.3% had mild depression, 26.3% had moderate depression, 57.9% had severe depression, and 10.5% had very severe depression. Among those with moderate to severe anxiety, 100% had moderate depression. There was significant association between HAM-A and HAM-D scores interpretation.

There was significant association between QOL-10 and HAM-D interpretation. Among those with high QOL, 100% had mild depression; among those with either low or high QOL, 71.4% had mild depression; among those with low QOL, 45.5% had moderate depression; and among those with very low QOL, 83.3% had severe depression.

Discussion

In this study, we found patients receiving chemotherapy has 66.7% anxiety and 6.7% had very severe depression. The three components of QOL, that is, physical, psychological, and social aspects, were affected by anxiety and depression. Similarly, in another study, they found associations of anxiety and depression with the type of treatment. This association was highest in patients who received chemotherapy as a single treatment (66.7% had symptomatic depression and 77.8% symptomatic anxiety).[9] Interestingly, our study findings concluded that 83.3% had severe depression and very low QOL. A similar study was conducted previously which showed patients with cancer are more likely to develop depression than the normal patients, which affects their QOL and prognosis.[10]
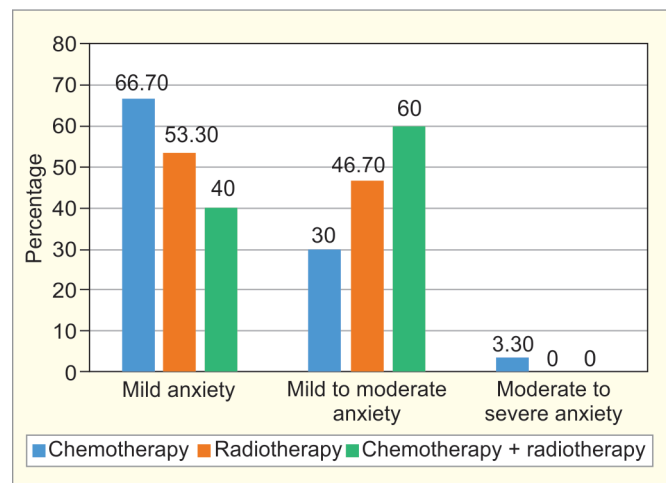

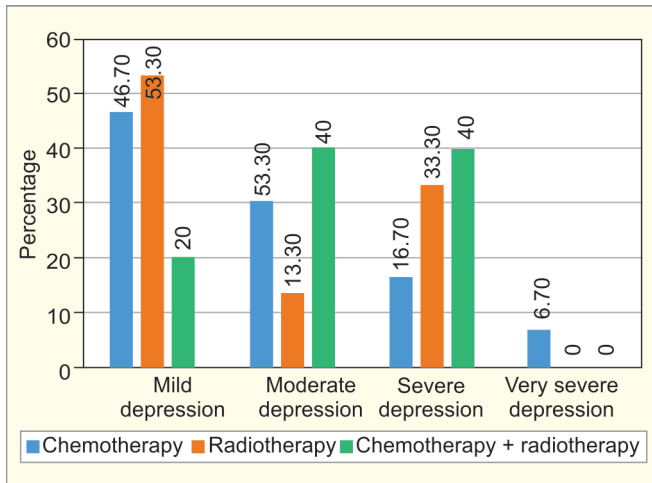**Fig. 1:** Bar diagram showing prevalence of anxiety in patients under cancer treatment

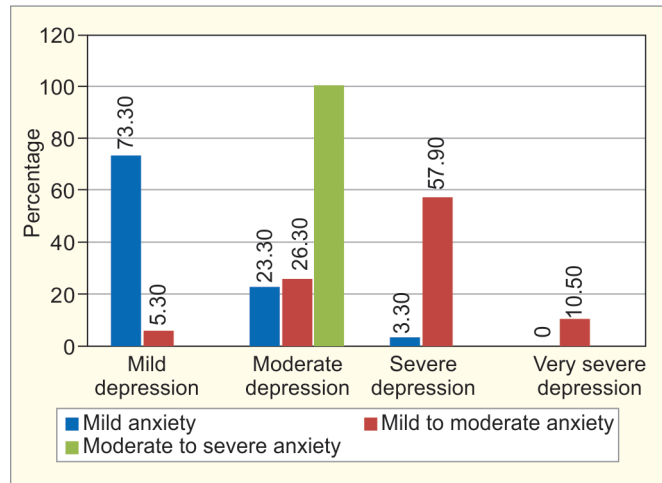**Fig. 2:** Bar diagram showing prevalence of depression in patients under cancer treatment

Fig. 3: Bar diagram showing association between anxiety and depression scores
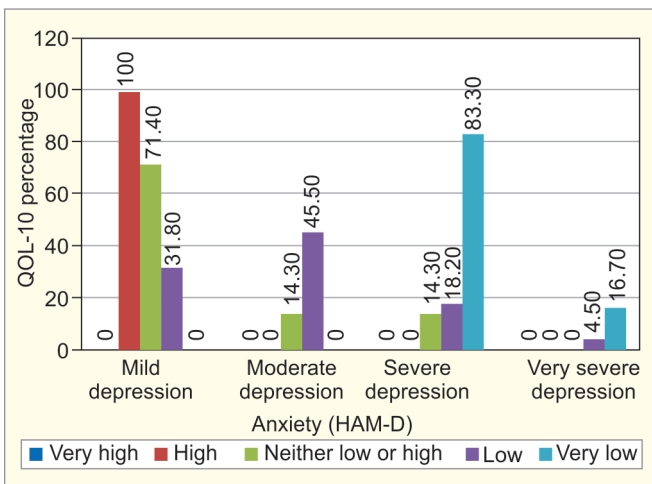

Fig. 4: Bar diagram showing association between QOL-10 and HAM-D scores

Thus, there was a significant association between HAM-A and HAM-D scores interpretation. Similarly another study showed that the anxiety and depression among patients with cancer were high. The authors recommend screening and counseling of patients with cancer for anxiety and depression, which will help them to cope with their cancer and reduce the ill effects on their mental well-being.[11] The long-term and late effects of cancer treatment are likely to affect the mental well-being of cancer survivors, which may lead to depression and anxiety.[12]

This study also suggests that with increase in QOL-10 score, there was an increase in HAM-A and HAM-D score and vice versa. Smith[13] in their study found pain, anxiety, and depression significantly weakened various dimensions of QOL. Another study has shown that pain, fatigue, and depression coexist in patients with cancer.[14]

Our study also concluded that 44% had low QOL and 12% had very low QOL. This was also observed in the study by Nayak et al.[15] which showed that patients with cancer experienced many symptoms that affected their QOL.

Recently the National Cancer Research Institute in the United Kingdom has also recommended priority research into the short- and long-term psychological problems of cancer and its treatment.[16] It is clear that a more personalized approach to support the psychological health of people with cancer is needed to prevent anxiety and depression that lead to poor QOL in patients undergoing cancer treatment.[17]

Conclusion

This study was conducted with the aim to find out prevalence of anxiety and depression, and assessment of QOL in patients undergoing cancer treatment. We found patients undergoing chemotherapy had more prominent anxiety symptoms than patients undergoing radiotherapy and both radiotherapy and chemotherapy. Patients who were on both chemotherapy and radiotherapy had severe depression. Our study also concluded that anxiety was associated with depression and vice versa. Hence, anxiety and depression are more prevalent in cancerous patients which lead to poor QOL.

We believe that good cancer care needs continuous screening for anxiety and depression. It is paramount that after the diagnosis of clinically important psychological disorders, proper treatment interventions must be performed so that their QOL gets improved.

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