

Depression in Cancer Patients: Magnitude of Problem and Factors Responsible

Abstract

Context: Cancer patients usually have various psychological complications, depression being the most common among them. Depression poses difficulties in continuing the prescribed treatment within the scheduled time frame, ultimately affecting the outcome. **Aims:** The aims of this study were to determine the magnitude of depression and various factors associated with it, to initiate the timely intervention. **Subjects and Materials:** Brief Edinburgh Depression Scale was used to measure depression in 203 cancer patients who received chemotherapy at Department of Radiotherapy, SMS Medical College, Jaipur; in August 2017, were above 18 years of age, and could read, understand, and write. Association of depression with various factors such as age, gender, education and occupation details, income, marital status, history of other comorbid disease, type and site of cancer, presence of metastases, number of chemotherapy cycles going on, and source of cost of therapy, was also computed. **Results:** Of 203 patients, depression was present in 130 (64%) patients. Statistically significant association of depression was found with both extremes of the age ($P = 0.04$), paid treatment ($P = 0.03$), and <4 chemotherapy cycles ($P = 0.04$). No significant association was seen between depression and gender, occupation, performance status, site of cancer, presence of coexisting disease, and metastases. **Conclusions:** The magnitude of depression was high (present in 64% of patients) which often gets unnoticed. Depression should routinely be screened among cancer patients receiving chemotherapy and patients found to have depression should be referred to a psychiatrist for timely management.

Keywords: Brief Edinburgh Depression Scale, cancer, chemotherapy, depression

Introduction

The 10th revision of the International Statistical Classification of Diseases and Related Health Problems defines depressive episodes as suffering from lowering of mood, reduction of energy, and decrease in activity.^[1] Depending on the number and severity of the symptoms, a depressive episode may be specified as mild, moderate, or severe. Usually, the capacity for enjoyment, interest, and concentration is reduced, and marked tiredness after even minimum effort is common. Sleep is usually disturbed and appetite diminished. Self-esteem and self-confidence are almost always reduced and even in the mild form, some ideas of guilt or worthlessness are often present.

Cancer patients usually have various psychological complications in the form of adjustment disorder, depressed mood, anxiety, impoverished life satisfaction,

or loss of self-esteem, with depression being the most common among them.^[2] Depression begins as soon as the diagnosis of cancer is confirmed. The causes of depression are many, such as various myths and misconception about cancer treatment and outcome, battery of investigations patient is required to undergo, multiple referrals, repeated hospitalization, concern about loss of organ in case of surgery or side effects in case of chemo/radiotherapy, and long course of treatment. Depression not only causes great suffering to the patient but also put psychological and financial burden on the family. Katon has described a bidirectional relationship between depression and chronic medical disorders.^[3] Comorbid depression is associated with increased medical symptom burden, functional impairment, medical costs, poor adherence to self-care regimens, and increased risk of morbidity and mortality in patients with chronic medical disorders; ultimately worsening the course of medical disorders.

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Depression in cancer patients may pose several difficulties in continuing the prescribed treatment within the scheduled time frame, which may ultimately affect the outcome, leading to increased morbidity and mortality. Determining the magnitude of depression and various factors associated with it, is of utmost importance to initiate the timely intervention, which may be either counseling, psychotherapy, antidepressant medication, or even alternative/complementary medicine such as yoga and meditation. There is also a need to know the point of appropriate referral of such patients to a psychiatrist. As far as Indian data are concerned, very limited literature is available tackling with this situation, which necessitated the present study to be carried out.

Subjects and Methods

The present study was a cross-sectional descriptive type of the study conducted at the Day Care Center of the Department of Radiotherapy, SMS Medical College and attached group of hospitals, Jaipur, Rajasthan, India, during August 2017. The objectives of the present study were to determine the magnitude of depression in cancer patients receiving chemotherapy and various factors associated with it. Among the cancer patients who received chemotherapy during the study period, those who were above 18 years of age, were receiving chemotherapy for the first time and gave written informed consent for participating in the study were included in the study. Such patients were interviewed clinically. They were given a two-page questionnaire: the first page consisted of basic information, such as name, age, gender, contact details, education and occupation details, history of other comorbid disease, type and site of cancer, presence of metastases, number of chemotherapy cycle going on, and finance of cost of therapy. The inclusion of items in the questionnaire was based on the available literature as predictors for depression (cited in discussion part). In the end was the consent regarding the use of the information provided for research purpose, to be signed by the subject.

The second page consisted of the Brief Edinburgh Depression Scale (BEDS) to screen and measure depression. Although some methods are available for measuring depression, there is no common consensus regarding the superiority of one over another. We used BEDS as it is an easily understandable method to measure depression. BEDS is a 6-item inventory rated on a 4-point Likert-type scale, developed by Lloyd-Williams, Shiels, and Dowrick, to briefly and accurately measure depression exclusively in patients with advanced stages of cancer.^[4] The six objective items mainly focus on the subjective feelings of worth and sadness. Each item has a four-point response score ranging from 0 to 3; hence, a minimum score of 0 and a maximum score of 18 can be obtained. A score of 6 or above is indicative of depression, giving a sensitivity of 72% and specificity of 83% with a positive predictive value

of 65.1% and negative predictive value of 87.1%. The questions and the options for each question were explained to the patients in their language and they were asked to suggest the most accurate answer on the basis of how they felt in the previous month.

A total of 203 patients were found eligible for analysis. All data were entered in Microsoft Excel sheet for windows. The presence of depression was evaluated on the basis of BEDS score, with a score of 6 or above indicating depression. To identify predictors of depression, hazard ratio, 95% confidence interval, and *P*-value were calculated with the XLSTAT software version 2017 for Windows (Addinsoft, NY, USA) using logistic regression analysis, considering the presence of depression as 1 and absence as 0. In all calculations, the significance level was taken as 0.05.

Results

The baseline patient and tumor characteristics are shown in Table 1. About two-third of the patients were male, above 50 years of age, paid for the treatment, and receiving <4th cycle of chemotherapy. About half of the patients were doing private (unsecure) job with the Eastern Cooperative Oncology Group Performance Status (ECOG PS) 0–2. Less than quarter of the patients had other comorbid disease or metastases. The most common primary was the head and neck, followed by the gastrointestinal tumor. Of 203 patients, depression was present in 130 (64%) patients. The statistical analysis of various parameters associated with depression is shown in Table 2. Statistically significant association of depression was found with age (being higher with both extremes of ages), finance of treatment (being higher with paid versus free treatment), and number of chemotherapy cycles (being higher with less than the fourth cycle of chemotherapy). No significant association was seen between depression and gender, occupation, ECOG PS, site of cancer, presence of coexisting disease, and metastases.

Discussion

Various studies have used different scales to measure the magnitude of depression in cancer patients. Zielińska-Wieczkowska and Betlakowski analyzed depression in cancer patients undergoing chemotherapy using Zung Self-rating Depression Scale and concluded that depression was more in women, people with vocational education, and patients unable to continue working.^[5] Lloyd-Williams investigated 100 patients with advanced metastatic disease from North West England regarding suffering and their psychological, physical, social, and spiritual well-being, using the BEDS, Edmonton Symptom Assessment Scale (ESAS), and Functional Assessment of Chronic Illness Therapy-Spiritual well-being questionnaire and found no significant difference at any time point in scores on suffering measure.^[6] Decat,

Table 1: Baseline patient, tumor, and treatment characteristics of entire cohort

Parameters	n (%)
Age (years)	
<30	8 (3.9)
30-50	72 (35.5)
>50	123 (60.6)
Gender	
Male	141 (69.5)
Female	62 (30.5)
Occupation	
Unemployed/dependent	82 (40.4)
Unsecure job	96 (47.3)
Secure job	25 (12.3)
Finance of treatment	
Paid	141 (69.5)
Free	62 (30.5)
ECOG PS	
0-2	110 (54.2)
3-4	93 (45.8)
Site of cancer	
Head and neck	63 (31)
Breast	38 (18.7)
Genitourinary	20 (9.9)
Gastrointestinal	46 (22.7)
Lung	22 (10.8)
Others	14 (6.9)
Coexisting disease	
Present	42 (20.7)
Absent	161 (79.3)
Metastases	
Present	23 (11.3)
Absent	180 (88.7)
Chemotherapy cycle	
<4	123 (60.5)
≥4	80 (39.5)

ECOG PS – Eastern Cooperative Oncology Group Performance Status

de Araujo, and Stiles J measured distress in 100 patients at three points during chemotherapy: beginning, middle, and the last day of therapy in Brazil using the distress thermometer and the Hospital Anxiety and Depression Scale (HADS).^[7] The percentages of distress, anxiety, and depression, respectively, in the beginning, in the middle, and on the last day were 82%, 78%, and 55%; 36.4%, 25%, and 25.3%; and 18.2%, 14.3%, and 14.3%.

In the present study, depression was present in 64% of patients. Various studies have described different incidence of depression in cancer patients, using different scales of measurement. Burgess *et al.* did an observational cohort study in London on 222 women with early breast cancer and concluded that nearly 50% of the women with early breast cancer had depression, anxiety, or both in the year after diagnosis, 25% in the 2nd, 3rd, and 4th years and 15%

in the 5th year.^[8] Point prevalence was 33% at diagnosis, falling to 15% after 1 year. Nearly, 45% of those with recurrence experienced depression, anxiety, or both within 3 months of the diagnosis. Pandey *et al.* evaluated the effect of chemotherapy on distress, anxiety, and depression in 117 patients using distress inventory for cancer and HADS.^[9] The mean distress score was 24; 15.38% of patients were found to have anxiety, while 16.23% patients had depression. Walker *et al.* systematically reviewed published studies to obtain the best estimate of the prevalence of depression in clinically meaningful subgroups of cancer patients and found the estimated prevalence of depression in the defined subgroups to be 5%–16% in outpatients, 4%–14% in inpatients, 4%–11% in mixed outpatient and inpatient samples, and 7%–49% in palliative care.^[10]

In the present study, depression was significantly associated with both extremes of age ($P = 0.04$), paid treatment ($P = 0.03$), and less than fourth cycles of chemotherapy ($P = 0.04$). Maneeton *et al.* studied the prevalence of depression among 108 Thai patients with cancer, using the Patient Health Questionnaire - 9; in addition, suicidal risk was assessed using the Mini-International Neuropsychiatric Interview (MINI).^[11] They found that 29.6% of patients were diagnosed with a depressive disorder (mild, 14.8%; moderate, 5.6%; and severe, 9.3%). According to the MINI, 28.1% of these depressed cancer patients had a moderate-to-severe level of suicidal risk. The increased risk of depression was significantly associated with increased pain score, lower number of cancer treatments (<2 methods), increased educational duration (>13 years), increased age (>50 years old), and female sex. Akechi *et al.* investigated clinical indicators of depression among 211 randomly selected ambulatory patients with cancer who were receiving chemotherapy using the HADS, the European Organization for Research and Treatment of Cancer QLQ-C 30 and an *ad hoc* questionnaire regarding several additional common chemotherapy-related symptoms.^[12] Depression was present in 13.7% of patients. The presence of clinical depression was significantly associated with the presence of pain, sleep disturbances, loss of appetite, nausea, and fatigue. Multivariate logistic regression analysis indicated that a lower education level and the presence of pain were significantly associated with clinical depression.

The BEDS score used in the present study has been used in some studies. Rhondali *et al.* evaluated depression in 146 cancer patients using the BEDS and identified associated symptoms of cancer using the ESAS.^[13] The prevalence of probable depression was 29%. Probable depression was associated with increased fatigue ($P = 0.008$), depression ($P < 0.001$), anxiety ($P < 0.001$), shortness of breath ($P = 0.01$), and decreased feeling of well-being ($P < 0.001$). Among patients with probable depression, 98% of patients were not using antidepressants.

Table 2: Factors associated with depression

Parameters	Entire cohort, n (%)	Depression, n (%)	Odds ratio (95% CI)	P
Age (years)				
<30	8 (3.9)	5 (62.5)	1.491 (0.331-6.172)	0.04
30-50	72 (35.5)	38 (52.8)	1	
>50	123 (60.6)	87 (70.7)	2.162 (1.182-3.956)	
Gender				
Male	141 (69.5)	86 (60.9)	1	0.23
Female	62 (30.5)	44 (70.9)	1.563 (0.821-2.978)	
Occupation				
Unemployed/dependent	82 (40.4)	53 (64.6)	1.407 (0.526-3.762)	0.61
Unsecure job	96 (47.3)	59 (61.5)	1	
Secure job	25 (12.3)	18 (72)	1.608 (0.473-2.873)	
Finance of treatment				
Paid	141 (69.5)	83 (58.8)	2.190 (1.119-4.284)	0.03
Free	62 (30.5)	47 (75.8)	1	
ECOG PS				
0-2	110 (54.2)	76 (69.1)	1.614 (0.906-2.875)	0.14
3-4	93 (45.8)	54 (58.1)	1	
Site of cancer				
Head and neck	63 (31)	42 (66.7)	0.860 (0.240-3.078)	1.0
Breast	38 (18.7)	25 (65.8)	0.867 (0.226-3.331)	
Genitourinary	20 (9.9)	14 (70)	1	
Gastrointestinal	46 (22.7)	27 (58.7)	0.622 (0.169-2.288)	
Lung	22 (10.8)	12 (54.5)	0.578 (0.137-2.433)	
Others	14 (6.9)	10 (71.4)	1.200 (0.257-5.593)	
Coexisting disease				
Present	42 (20.7)	26 (61.9)	0.891 (0.442-1.796)	0.89
Absent	161 (79.3)	104 (64.6)	1	
Metastases				
Present	23 (11.3)	12 (52.2)	0.573 (0.239-1.374)	0.31
Absent	180 (88.7)	118 (65.6)	1	
Chemotherapy cycle				
<4	123 (60.6)	86 (69.9)	1	0.04
≥4	80 (39.4)	44 (55)	0.526 (0.293-0.944)	

CI – Confidence interval; ECOG PS – Eastern Cooperative Oncology Group Performance Status

Bhattacharyya *et al.* conducted a cross-sectional descriptive study at the North Bengal Medical College and Hospital from May to June 2013 on 174 cancer patients to find out depression using BEDS.^[14] Depression was seen in 55.7% of patients. Depression was comparatively higher in patients ≥50 years; in males, those belonging to religion other than Hindus; who received higher education; had monthly family income ≥5000 rupees; who were involved in moderate or heavy work; who had blood cancer; who had been receiving chemotherapy for ≥6 months; and those in their 4th or less cycle of chemotherapy.

Conclusions

Depression is the tip of the iceberg. Among various scales used to measure it, BEDS is an easy and reliable method. In the present study, depression was seen in 64% of patients, and was found to be significantly associated with both extremes of age, paid treatment, and less

number of chemotherapy cycles administered. In spite of such high magnitude, depression often gets unnoticed. Depression should routinely be screened among cancer patients receiving chemotherapy and patients found to have depression need be referred to a psychiatrist for timely management. However, further prospective studies with a large number of patients and inclusion of more variables with focus on its treatment are recommended to address this issue.

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Conflicts of interest

There are no conflicts of interest.

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