Assessment of Depression in Cancer Patients receiving Chemotherapy in a Tertiary Care Hospital

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ABSTRACT

Introduction: 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 outcome. Study aimed to determine the magnitude of depression and various factors associated with it, so as to initiate the timely intervention.

Material and methods: Brief Edinburgh Depression Scale (BEDS) was used to major depression in 203 cancer patients receiving chemotherapy at Day Care Centre of the Department of Radiotherapy, SMS Medical College and attached group of hospitals, Jaipur, Rajasthan, and VCSG Government Institute of Medical Science and Research, Srinagar, Garhwal, Uttarakhand, India during 1-30 August, 2018, who were above 18 years of age, and could read, understand, and write, were selected. Association of depression with various factors like name, age, sex, contact details, education and occupation details, income, marital status, history of other co-morbid disease, type and site of cancer, presence of metastases, number of chemotherapy cycle going on, source of cost of therapy, was also computed.

Results: Out 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 less than four chemotherapy cycle ($P = 0.04$). No significant association was seen between depression and gender, occupation, performance status, site of cancer, presence of co-existing disease and metastases.

Conclusions: BEDS is a easy and reliable method to measure depression. Depression was present in 64% of patients, and was significantly associated with both extremes of age, paid treatment, and less than four chemotherapy cycles administered.

Keywords: BEDS, Cancer, Chemotherapy, Depression

INTRODUCTION

The 10th revision of International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) defines depressive episodes as suffering from lowering of mood, reduction of energy, and decrease in activity.[1] Depending upon 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 diagnosis of cancer is confirmed. The causes of depression are many, like various myths and misconception about cancer treatment and outcome, battery of investigations patient is required to undergo, multiple referrals, repeated hospitalisation, concern about loss of organ in case of surgery or side effects in case of chemo/radio-therapy, long course of treatment, etc. Depression not only causes great suffering to the patient, but also put psychological and financial burden on the family. Katon *et al.* have described a bidirectional relationship between depression and chronic medical disorders.[3] Co-morbid 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.

Depression in cancer patients may pose several difficulties in continuing the prescribed treatment within the scheduled time frame, which may ultimately affect outcome, leading to increased morbidity and mortality. Determining the

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How to cite this article: Nikesh Agarwal, Daulat Singh, Rohitashwa Dana, Shantanu Sharma, Manoj Verma, Prashant Dadhich. Assessment of depression in cancer patients receiving chemotherapy in a tertiary care hospital. International Journal of Contemporary Medical Research 2019;6(3):C1-C5.

DOI: http://dx.doi.org/10.21276/ijcmr.2019.6.3.49

magnitude of depression and various factors associated with it, is of utmost importance to initiate the timely intervention, which may be either counselling, psychotherapy, anti-depressive medication, or even alternative/complementary medicine like 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 is concerned, very limited literature is available tackling with this situation; which necessitated the present study to be carried out.

MATERIAL AND METHODS

The present study is a cross-sectional descriptive type of study conducted at the Day Care Centre of the Department of Radiotherapy, VCSG Government Institute of Medical Science and Research, Srinagar, Garhwal, Uttarakhand, India during 1-30 August, 2018 (both days included). 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, and could read, understand, and write, were selected. Those who were unable to communicate and those who refused to give consent for the study, were excluded. The patients were given a two paged questionnaire; the first page consisted of basic information, like name, age, gender, contact details, education and occupation details, history of other co-morbid 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. In the end was the consent regarding 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. 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%. While using the BEDS questionnaire, patients were asked to suggest the answer, among the available options for each question, on the basis of how they felt in the previous month. The options for each question were interpreted to the patients to obtain the most accurate answer. A subject once interviewed was not interviewed on his/her subsequent visits. The expected time to fill the BEDS questionnaire is about 10 minutes. Subjects were told to deposit the filled in forms at drop-box placed on the nursing station. The filled in forms were collected twice in a week.

After collecting all the forms, all data were entered Microsoft Excel for windows. The presence of depression was evaluated on the basis of BEDS score, with a score of 6 or above indicating depression. Incomplete forms, or forms without sign of the subject on the consent, were rejected. A total of two hundred and three subjects were found eligible for analysis. Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) trial version 20.0 (IBM Corp., Armonk, New York, 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 year of age, paid for the treatment, and receiving less than fourth cycle of chemotherapy. About half of the patients were doing private (unsecure) job with Eastern Cooperative Oncology group Performance Status (ECOG PS) 0-2. Less than quarter of the patients had other co-morbid disease or metastases. Most common primary was head and neck, followed by gastrointestinal tumor. Out 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 age), finance of treatment (being higher with paid versus free treatment), and number of chemotherapy cycle (being higher with less than fourth cycle of chemotherapy). No significant association was seen between depression and gender, occupation, ECOG PS, site of cancer, presence of co-existing disease and metastases.

DISCUSSION

Various studies have used different scales to measure the magnitude of depression in cancer patients. Zielińska-Wieczkowska and Betłakowski analysed 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 Brief Edinburgh Depression Scale (BEDS), Edmonton Symptom Assessment Scale (ESAS), and FACIT Spiritual well being questionnaire, and found no significant difference at any timepoint in scores on suffering measure.[6] Decat, de Araujo and Stiles J measured distress in 100 patients at three points during the course of chemotherapy: beginning, middle, and the last day of therapy in Brazil using the Distress Thermometer (DT) and the Hospital Anxiety and Depression Scale (HADS).[7] The percentages of distress, anxiety and depression, respectively, at 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 present study, depression was present in 64% of patients.

Parameter		Number	%
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
Co-existing 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 O			

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

Parameters		Entire Cohort, n (%)	Depression, n (%)	Odds Ratio (95% CI)	P-value
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)	
Co-existing 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)	
ECOG PS: Eastern Cooperative Oncology group Performance Status					

Table-2: Factors associated with depression

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 second, third, and fourth years, and 15% in the fifth year.[8] Point prevalence was 33% at diagnosis, falling to 15% after one year. 45% of those with recurrence experienced depression, anxiety, or both within three 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 (DIC2) and hospital anxiety and depression scale (HADS).[9] The mean distress score was 24; 15.38% patients were found to have anxiety while 16.23% patients had depression. Walker *et al*. systematically review 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% to 16% in outpatients, 4% to 14% in inpatients, 4% to 11% in mixed outpatient and inpatient samples and 7% to 49% in palliative care.[10]

In 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 and Mahathep studied prevalence of depression among 108 Thai patients with cancer, using the Patient Health Questionnaire (PHQ-9); in addition, suicidal risk was assessed by using the Mini-International Neuropsychiatric Interview (MINI).[11] They found that 29.6% patients were diagnosed with a depressive disorder (mild, 14.8%; moderate, 5.6%; 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 Hospital Anxiety and Depression Scale, 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% patients. The presence of clinical depression was significantly associated with 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 a number of studies. Rhondali *et al*. evaluated depression in 146 cancer patients using the Brief Edinburgh Depression Scale (BEDS), and identified associated symptoms of cancer using the Edmonton Symptom Assessment System (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% patients were not using antidepressants. Bhattacharyya and his colleagues 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 Brief Edinburgh Depression Scale (BEDS).[14] Depression was seen in 55.7% 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. In conclusion, depression is the tip of iceberg. Among various scales used to measure it, BEDS is a easy and reliable method. In present study, depression was present in 64% of patients, and was significantly associated with both extremes of age, paid treatment, and less number of chemotherapy cycles administered. Further prospective studies with large number of patients and inclusion of more variables with focus on its treatment are recommended to address this issue.

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Source of Support: Nil; **Conflict of Interest:** None

Submitted: 14-02-2019; **Accepted:** 16-03-2019; **Published:** 30-03-2019