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Research Article

A study of major depressive disorder and quality of life in patients with oral cancer

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ABSTRACT

Background: Head and neck cancer (HNC) is one of the 10 most frequently occurring cancers worldwide, with estimates of over 500,000 new cases annually and one of the 10 leading causes of cancer mortality. Head and neck cancer patients experience among the highest rates of major depressive disorder of all oncology patients. The aim of this study was to find out the frequency of major depressive disorder (MDD) and its association with quality of life in patients with oral cancer.
Methods: This is a single-center, cross sectional, observational, questionnaire based study. Seventy consecutive patients, who attended Oncology Outpatient Department of Tertiary care Hospital with diagnosis of Oral cancer were included. Diagnosis of Major Depressive Disorder was done by clinically administered interview as per DSM V. The patients were further assessed for demographic details, HADS-A(Hospital Anxiety and Depression scale for Anxiety),HADS-D (Hospital Anxiety and Depression scale for Depression), FACT H&N QOL (Functional Assessment of Cancer Therapy Head and Neck Quality of Life Scale).Data were analyzed by GraphPad InStat trial version. Proportions were compared by using Chi-square test, HADS-A, HADS-D and FACT H and N QOL scores were compared by Mann-Whitney U test. *P* value <0.05 was considered to be statistically significant.
Results: Frequency of MDD in Oral Cancer patients is 40%.The Patients having Major Depressive Disorder showed higher HADS-A (p<0.0001), HADS-D (p<0.0001)scores and poorer quality of life in all domains of FACT H and N QOL.
Conclusions: The Patients with Oral Cancer have higher rates of depression and poor quality of life.

Keywords: Oral cancer, Depression, Quality of life

INTRODUCTION

Depression is the psychiatric syndrome that has received the most attention in individuals with cancer. The study of depression has been a challenge because symptoms occur on a broad spectrum that ranges from sadness to major affective disorder and because mood change is often difficult to evaluate when a patient is confronted by repeated threats to life, is receiving cancer treatments, is fatigued, or is experiencing pain. Depression is highly associated with oropharyngeal (22%-57%), pancreatic (33%-50%), breast (1.5%-46%), and lung (11%-44%) cancer.[1]

Head and neck cancer (HNC) is one of the 10 most frequently occurring cancers worldwide, with estimates of over 500,000 new cases annually, and one of the 10 leading causes of cancer mortality.[2] The incidence of depression in HNC patients ranges between 15% and 50%.[3-11] Important issue in HNC is depression: major depressive disorder (MDD) has been reported in up to 40% of patients with HNC, typically within the first 3

months of diagnosis.[12] The incidence of HNC is relatively low in developed countries and highest in South East Asia.[13]

Treatment strategies usually include surgery, radiotherapy, and chemotherapy, depending on the tumor site and cancer stage. All these may cause significant impairment in quality of life.

Health-related quality of life (HRQL) generally refers to the perception of the effects of disease and their impact on the patient's daily functioning. HRQL data are becoming an important supplement to information pertaining to treatment outcome for head-and-neck cancer patients.[14-16] HRQL has two fundamental premises. First, it is a multidimensional survey incorporating the physical, psychological, social and emotional functional domains. Secondly, it is subjective and instruments must be self-reporting according to the patient's own experiences. Here we used FACT-H and N QOL scale for assessment of quality of life.

METHODS

In the present study 70 patients of oral cancer were enrolled from Oncology Outpatient Department of Tertiary care Hospital for period of 6 months after approval from local ethics committee for conducting the study. Interviews were conducted after explaining the purpose of the study to the patients and obtaining their written and informed consent.

Participants were interviewed about their demographic variables like age, gender, residence, occupation, education, religion, tobacco use, past history of psychiatric illness, family history of psychiatric illness. Type of cancer, stage of cancer, severity and treatment modality were also included in study. Major depressive disorder was diagnosed by clinician administered interview based on DSM V. Diagnosis of Oral Cancer and Staging was made by Radiotherapist of tertiary care hospital, Bhavnagar.

Patients were further interviewed for severity of depression and anxiety using Hospital anxiety and depression scale (HADS).[17] HADS is a self-assessment scale that measures the psychological condition (i.e., anxiety and depression) of patients with physical ailments. The survey comprises 7 items related to anxiety (HADS-A) and 7 items related to depression (HADS-D), permitting the evaluation of depression uninfluenced by physical conditions.

Each item is scored from 0 to 3, with a diagnosis of the respective symptoms made according to the following scale:

a) 0-7 points indicate no symptoms present.
b) 8-10 points indicate possible affliction.
c) 11-21 points indicate that symptoms are present.

They were also asked to fill up self-rating questionnaire of FACT H and N QOL.[18] Functional Assessment of Cancer Therapy Head and Neck Quality of Life) scale for assessment of person's quality of life in physical, social, Psychological, functional and head and neck specific scale domains.

FACT H and N QOL instrument was obtained with permission and licence was taken from www.facit.org.

Scoring of instrument

Scoring The Fact-G**.** The FACT-G scoring guide identifies those items which must be reversed before being added to obtain subscale totals. Negatively stated items are reversed by subtracting the response from "4". After reversing proper items, all subscale items are summed to a total, which is the subscale score.

Handling missing items: If there are missing items, subscale scores can be prorated. This is done by multiplying the sum of subscale by the number of items in the subscale, then dividing by the number of items actually answered. This can be done on the scoring guide or by using the formula below:

Prorated subscale score = (Sum of item scores) **x** (N of items in subscale) □÷ (N of items answered) Scoring the specific scales and symptom indices.

For the Head and Neck Cancer-specific subscale, the procedure for scoring is the same as described above for the FACT-G. Again, over 50% of the items (e.g., 5 of 9 items, 7 of 12 items) must be completed in order to consider each subscale score valid. The total score consists of the sum of the FACT-G (the first 4 subscales common to almost all scales) plus the H and N-specific subscale.

Qualitative data is expressed as percentages and quantitative data is expressed as median±interquartile range. The statistical analysis was done with GraphPad InStat trial version. Proportions of participants were compared by using Chi-square test while scores of HADS-A, HADS-D, FACT G, FACT-HN were compared by using Mann-Whitney U test. A p value of < 0.05 was considered statistically significant.

RESULTS

We recruited 70 consecutive patients of oral cancer for period of 6 months who attended the oncology outpatient department in our tertiary care hospital. 53(75.71%) were males and 17 (24.29%) were females among 70 patients. 55 (78.57%) were labourer, 24 (34.29%) were illiterate, 65 (92.86%) were hindu and 65 (92.86%) were tobacco users, 23 (32,84%) had taken chemotherapy alone,13 (18.58%)had taken surgical therapy alone,29 (41.42%)had taken combined therapy and 05 (7.14%) had

not taken any therapy. The mean age of the patient was 45.42±9.85 years as shown in (Table 1).

We found that 40% Patients had Major depressive disorder. Data was presented as No (%).

The present study reported that there were 31 (44.29%) patients in stage (I+II+III) among which 9 (29.03%) patients had depression and there were 39 (55.71%) patients in stage IV among which 19 (48.72%) patients had depression.

Data was represented in numbers (%) or mean±S.D, groups were compared by Chi-square test and Mann Whitney U test, $p<0.05$ is considered to be statistically significant, MDD- Major Depressive Disorder.

Table 1: Socio-demographic characteristic and other factors related to patients with oral cancer.

Variables		Frequency (%)
Age group	<20yrs	0(0%)
	21-30	6(8.58%)
	31-40	21(30%)
	41-50	20(28.57%)
	51-60	23(32.85%)
Gender	Male	53 (75.71%)
	Female	17 (24.29%)
Residence	Rural	26(37.14%)
	Urban	28(40%)
	Town	16(22.86%)
Occupation	Unemployed	06(8.58%)
	Labourer	55(78.57%)
	Semi-professional	09(12.85%)
Education	Illiterate	24(34.29%)
	Primary	21(30%)
	Secondary	17(24.29%)
	Graduate	08(11.42%)
Religion	Hindu	65(92.86%)
	Muslim	05(7.14%)
Past h/o Psychiatric illness	Yes	2(2.86%)
	No	68(97.14%)
Family h/o Psychiatric illness	Yes	3(4.29%)
	No	67(95.71%)
Tobacco use	Yes	65 (92.86%)
	No	5 (7.14%)
Cancer stages	Stage I +II+III	31(44.29%)
	Stage IV	39(55.71%)
Treatment modalities	Chemotherapy alone	23(32.86%)
	Surgical therapy alone	13(18.58%)
	Combine Therapy (chemo+surgical therapy)	29(41.42%)
	No therapy	05(7.14%)

Table 2: Frequency of major depressive disorder in patients with oral cancer according to DSM-V criteria.

Variable	No of oral cancer patients (N=70) (%)
Major depressive disorder	28(40%)

Table: 3 Frequency of stage (I+II+III) and stage IV.

Stages of Oral Cancer	Total No. of patients(70)	No of Depressed patients(28)
Stage I+II+III	31(44.29%)	9(29.03%)
Stage IV	39(55.71%)	19(48.72%)

Table 4: Demographic variables according to presence or absence of major depressive disorder.

Variables	Major depressive disorder		P value
	Present N =28(40%)	Absent N = 42(60%)	
Age	42.85±10.80	47.14±8.88	P=0.12
Gender			
Male	20(71.42%)	33(78.58%)	P=0.4948
Female	8(28.58%)	9(21.42%)	
Residence			P=0.2718
Rural	11(39.28%)	15(35.71%)	
Urban	12(42.86%)	16(38.10%)	
Town	05(17.86%)	11(26.19%)	
Occupation			P=0.2143
Unemployed	2(7.15%)	4(9.52%)	
Labourer	20(71.43%)	35(83.34%)	
Semi-professional	6(21.42%)	3(7.14%)	
Education			P=0.080
Illiterate	11(39.28%)	13(30.95%)	
Primary	7(25%)	14(33.34%)	
Secondary	4(14.29%)	13(30.95%)	
Graduate	6(21.43%)	2(4.76%)	
Religion			P=1.000
Hindu	26(92.86%)	39(92.86%)	
Muslim	2(7.14%)	3(7.14%)	

Patients of oral cancer were grouped; (1) With MDD and (2) without MDD as per Table 4. Although there were no any statistically significant difference found in demographic variables among these two groups but most of the patients who had major depressive disorder were male, labourer, illiterate and from hindu community.

Table 5: Association of Major depressive disorder with severity of anxiety and depressive symptoms (HADS-A and HADS-D score) and quality of life (FACT-H and N QOL score) in patients with oral cancer.

	Major depressive disorder (present)N = 28	Major depressive disorder (absent)N = 42	P value
HADS-A	10.07±4.1	3.90±2.8	P≤0.0001
HADS-D	11.53±3.1	5.11±3.2	P≤0.0001
FACT H&N QOL			
PWB	14.85±5.8	18±4.8	P=0.01
SWB	13.5±5.2	16.71±4.9	P=0.01
EWB	12.25±4.5	18.40±3.9	P≤0.0001
FWB	12.46±3.6	15.78±3.8	P=0.0006
HNCS	17.89±5.1	20.73±4.9	P=0.02
FACT-G total	53.07±12.8	68.90±11.0	P≤0.0001
FACT H&N total	70.96±14.8	89.64±13.3	P≤0.0001

Data was represented in Mean±S.D, groups were compared by Mann Whitney U test. P value $p<0.05$ was considered statistically significant, HADS-A and HADS-D Hospital Anxiety and Depression Scale. FACT H&N QOL- Functional Assessment of Cancer Therapy Head and Neck Quality of Life, PWB-Physical Well-being. SWB-Social Well-being. EWB-Emotional Well Being. FWB-Function Well Being. HNCS - Head and Neck Specific Subscale. FACT-G-Function Assessment of Cancer Therapy General and FACT H and N - Function Assessment of Cancer Therapy Head and Neck quality of life assessment scale.

We divided the patients; (1) With major depressive disorder. (2) Without major depressive disorder as shown in Table.5. Patients of Oral cancer with Major Depressive Disorder scored significantly higher values in HADS-A ($p\leq0.0001$)and HADS-D ($p<0.0001$) as compared to patients without Major Depressive disorder which suggest that patients with major depressive disorder had

higher anxiety and depressive symptoms than patients without major depressive disorder.

There were statistically significant differences found in the all the domains of quality of life which suggest that patients with major depressive disorder had poor quality of life as compared to patients without major depressive disorder.

DISCUSSION

This study focused on determining the frequency of Major depressive disorder and its association with quality of life in patients with oral cancer. In our study diagnosis of major depressive disorder is made by a clinical interview based on DSM V and severity of anxiety and depressive symptoms are measured by HADS-A and HADS-D.

In our study 53 (75.71%) were males and 17 (24.29%) were females among 70 patients. 55 (78.57%) were labourer, 24 (34.29%) were illiterate, 65 (92.86%) were Hindu.

There were 31 (44.29%)patients in stage(I+II+III) and 39 (55.71%) patients in stage IV out of 70 oral cancer patients. 23 (32.86%)patients had taken chemotherapy alone,13 (18.58%)patients had taken surgical therapy alone, 29 (41.42%)patients had taken combined therapy(chemo+surgical therapy) and 05 (7.14%)patients had taken no therapy.

We found that out of 70 patients, 65 patients (92.86%) had history of tobacco use in their past which is related to oral cancer and it was consistent with findings of previous study.[19]

In our study we found that frequency of MDD was 40% which was consistent with previous studies.[1,5-13] In comparison to normal population, higher rates of depression was found in this study because patients were chosen from oncology outpatient department of tertiary care hospital which is the highest source of patients with oral cancer. Among 28 patients of MDD, 19 patients (48.72%) were from advanced stage of cancer and 20 patients (71.42%) were labourer. These factors may contribute to higher rates of depression in our study.

In our study we found that patients of oral cancer with Major depressive disrorder had higher anxiety and depressive symptoms and had poorer quality of life (Table 5) which was consistent with other study (Chiou WY et al.[20])

This study has several limitations like being a single cantered study, with small sample size. Participants were recruited from a tertiary care hospital and they do not represent general population. Further larger scale randomized study is needed. Being a cross sectional study cause-effect relationship for cancer and MDD cannot be established. Moreover, there are no pre-treatment QOL data to investigate the changes of QOL during the course of follow-up. Therefore, a prospective and longitudinal design with repeated measurements of QOL will be recommended.

CONCLUSION

- The frequency of major depressive disorder among oral cancer patients is 40%. The frequency of stage (I+II+III) is 44.29% while the frequency of stage IV is 55.71%. Out of 31 patients of stage (I+II+III), 9 patients (29.03%) were depressed and out of 39 patients of stage IV, 19 patients (48.72%) were depressed.

Patients with major depressive disorder have higher anxiety and depressive symptoms and have poor quality of life as compared to patients without major depressive disorder.

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