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Research Article

Risk of Depression in Oral Cancer Patients as Per Hospital Anxiety and Depression Scale (HADS)

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ABSTRACT

Background: Oral cancer patients are at risk of depression during treatment yet there are very few tools to highlight patients at risk. We aimed to use a validated scale to identify risk factors associated with post-operative depression in oral cancer patients.

Methods: We conducted a cross sectional study from July 2019 to January 2020. Oral cancer patients filled out Hospital Anxiety and Depression Scale questionnaire postoperatively. Factors associated with risk of depression were analysed.

Results: 117 patients participated in the study, 84.7% of them being males. Tongue cancers were the most common (29.9%) followed by buccal cancers in 24.8% of the patients. Females had a significantly higher mean depression score of 14.00 ± 3.71compared to males score of 10.64 ± 4.87. Females and patients with buccal tumors were associated with a higher risk of postoperative depression.

Conclusion: Oral cancer patients, especially females and those with buccal tumors, need special attention in regard to their psychological well-being postoperatively to optimize patient compliance, improve patient care and quality of life.

Keywords: Depression; Oral cancer; HADS-D scale

INTRODUCTION

Oral cancer is the eighth most common cancer in the world with >300,000 cases per year globally [1]. Both the disease and its treatment options, including surgical extirpation and chemoradiation, are morbid and patients may suffer from aerodigestive functional impairments along with altered smell, taste, pain, fatigue, cosmetic disfigurement, need for tracheostomy, feeding tubes and sleep disturbances [2-4].

Traumatic effects of disease and its treatment reduce the ability and motivation to function in society and results in psychosocial distress. Studies report that 22%-57% of patients suffering from head and neck cancer experience anxiety and/or depression [5,6]. Patients with depression experience more severe symptoms, take longer time to recover, use more healthcare resources and have poorer outcome [7]. Patients with newly diagnosed head and neck cancers have depression ranging from 15% to 50% which is highest among all oncology patients [8].

Few studies have addressed postoperative early detection of depression amongst oral cancer patients. This is especially important in low-income countries where additional consultation costs and shortage of psychiatrists compound problem. A quicker tool can help highlight patients at risk for the need of subsequent psychiatric intervention.

Our study aims to diagnose depression in post-operative oral cancer patients by using the depression arm of the Hospital Anxiety and Depression Scale (HADS-D); and to detect any factors associated with it.

MATERIALS AND METHODS

This cross-sectional study was conducted in the Department of ENT-Head & Neck surgery, Liaquat National Hospital, Karachi. The duration of the study was from July 2019 till January 2020. We enrolled 117 patients in the study. All patients of squamous cell carcinoma of oral cavity irrespective of duration of disease

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treated with surgery were enrolled. All the patients of both genders were from 25 till 75 years of age. Patients who had previously known mental or psychological illness, lost to follow up cases, those who were operated outside the LNH and who refused to give consent were excluded. All patients were treated with curative intent. Depression was evaluated on their first follow up visit.

We used a standardized structured interview Hospital anxiety and depression scale (HADS) instead of a self-reported questionnaire. The HADS is a fourteen-item scale. Seven of the items relate to anxiety and seven relate to depression. We used depression questions only. A Likert scale is used to score from 0 to 3 for these seven questions with a maximum score of 21. Higher scores indicate higher levels of depression. The questionnaire was designed to target the evaluation of depression level among post-operative patients of Squamous cell carcinoma (SCC). It included demographic data such as (Name, Gender, Age and Socioeconomic status and Education) site of tumor, and HADS seven questions related to depression. The questionnaire was completed for each patient. Depression level was recorded as non-depressed (0-7 score), border line (8-10) score and depressed with (≥ 11 score). SPSS version 21 was used for data compilation and analysis. Frequencies and percentages were computed for qualitative variables like gender, marital status, site of tumor, and depression level (non-case/border line/ case). Quantitative variables were presented as mean ± SD such as age and depression score. Chi-square test was used for finding assoctaion between categorical variables. T-test and one way ANOVA was used to see the differences between the groups. P-value ≤ 0.05 was considered as significant.

RESULTS

We enrolled one hundred and seventeen patients who underwent surgery for oral squamous cell carcinoma. Out of 117 participants 99 (84.7%) were males, most of them were between 35 to 40 years of age. 88% of patients were married. Tongue was involved in majority of the patients 35 (29.9%) followed by buccal mucosa 29 (24.8%), retromolar trigone 13 (11.1%), upper alveolus 16 (13.7%), lower alveolus 13 (11.1%) and hard palate 11 (9.4%). 32 (27.4%) belonged to upper class, 37 (31.6%) middle class and 48 (41%) lower class status. Majority of the patients 74 (63.2%) had completed their education till secondary school. 64 patients (54.7%) in our study were depressed (≥ 11 score), followed by non-depressed 29 (24.8%) and borderline cases 24 (20.9%). The descriptive statistics of all the patients under study is presented in Table 1.

The mean depression score was found as 10.64 ± 4.87 in males and 14.00 ± 3.71 in females. This mean difference was found to be significant (p=0.002). The mean difference of depression score in terms of site of tumor was also found to be significant (p=<0.001). The mean depression scores were insignificantly different when stratified by age groups (p=0.388), marital status (p=0.594), socioeconomic status (p=0.345) and educational status (p=0.315). The detailed mean differences of depression scores in different factors is presented in Table 2.

We found statistically significant association of depression level with the gender (p=0.025) and site of tumor (p=0.002). Half of the males were depressed on HADS-D scale. In contrast, 15 out of 18 female patients (83.3%) scored >11 on the HADS–D scale. Amongst the depressed patients, buccal mucosa was the most common site n=23 (35.9%), while tongue was the most common site in non-depressed cases (48.3%) and borderline cases (41.7%). Age groups (p=0.250), marital status (p=0.373), socioeconomic status (p=0.439) and educational status (p=0.283) were not associated with depression levels. The detailed association of depression level with all the factors is presented in Table 3.

	Frequency	%
Age		
25-35 yrs	22	18.8
35-45 yrs	34	29.1
45-55 yrs	26	22.2
55-65 yrs	26	22.2
65-75 yrs	9	7.7
Gender		
Male	99	84.6
Female	18	15.4
Marital status		
Married	103	88
Unmarried	14	12
Site of tumor		
Tongue	35	29.9
Buccal Mucosa	29	24.8
Retromolar trigone	13	11.1
Upper alveolus	16	13.7
Lower alveolus	13	11.1
Hard palate	11	9.4
Socioeconomic status		
Upper	32	27.4
Middle	37	31.6
Lower	48	41
Educational status		

Primary school	32	27.4
Middle school	11	9.4
Secondary school	74	63.2
Depression level		
Non-case 0-7	29	24.8
Borderline case 8-10	24	20.5
Case ≥ 11	64	54.7

Table 1: Descriptive statistics.

	Depression score	P-value
Age		
25-35 yrs.	11.18 ± 4.56	0.388**
35-45 yrs.	9.79 ± 5.09	
45-55 yrs.	11.77 ± 4.27	
55-65 yrs.	12.08 ± 4.69	
65-75 yrs.	11.78 ± 6.49	
Gender		
Male	10.64 ± 4.87	0.002*
Female	14.00 ± 3.71	
Marital status		
Married	11.24 ± 4.84	0.594**
Unmarried	10.50 ± 5.06	
Site of tumor		
Tongue	8.91 ± 4.71	<0.001*
Buccal Mucosa	13.62 ± 4.17	
Retromolar trigone	12.62 ± 4.44	
Upper alveolus	8.63 ± 4.410	
Lower alveolus	11.77 ± 4.51	
Hard palate	13.00 ± 4.40	
Socioeconomic status		
Upper	12.22 ± 4.47	0.345**
Middle	10.65 ± 4.66	
Lower	10.83 ± 5.22	
Educational status		
Primary	12.13 ± 4.93	0.315**
Middle	11.82 ± 4.60	
Secondary	10.64 ± 4.85	

Note: *Significant at p-value<0.05;
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**Insignificant at p-value>0.05;

Table 2: Mean differences in depression score of different factors.

	Depression level			P-value
	Non case	Borderline case	Case	
Age				
25-35 yrs	5(17.2)	4(16.7)	13(20.3)	0.250**
35-45 yrs	12(41.4)	10(41.7)	12(18.8)	
45-55 yrs	4(13.8)	6(25)	16(25)	
55-65 yrs	5(17.2)	4(16.7)	17(26.6)	
65-75 yrs	3(10.3)	0(0)	6(9.4)	
Gender				
Male	28(96.6)	22(91.7)	49(76.6)	0.025*
Female	1(3.4)	2(8.3)	15(23.4)	
Marital status				
Married	24(82.8)	23(95.8)	56(87.5)	0.373**
Unmarried	5(17.2)	1(4.2)	8(12.5)	
Site of tumor				
Tongue	14(48.3)	10(41.7)	11(17.2)	0.002*
Buccal mucosa	4(13.8)	2(8.3)	23(35.9)	
Retromolar trigone	2(6.9)	1(4.2)	10(15.6)	
Upper alveolus	6(20.7)	6(25)	4(6.3)	
Lower alveolus	2(6.9)	3(12.5)	8(12.5)	

Hard palate	1(3.4)	2(8.3)	8(12.5)	
Socioeconomic status				
Upper	5(17.2)	5(20.8)	22(34.4)	0.439**
Middle	10(34.5)	9(37.5)	18(28.1)	
Lower	14(48.3)	10(41.7)	24(37.5)	
Educational status				
Primary	6(20.7)	4(16.7)	22(34.4)	0.283**
Middle	3(10.3)	1(4.2)	7(10.9)	
Secondary	20(69)	19(79.2)	35(54.7)	

Note: Chi-square test is applied. *Significant at p-value<0.05; **Insignificant at p-value>0.05

Table 3: Association of different factors with depression level.

DISCUSSION

HADS was first introduced by Zigmond and Snaith in 1983 as a tool to detect depression and anxiety amongst patients [9]. HADS has been used extensively to report emotional distress in cancer patients as well as other long-term illnesses like cardiac or neurological conditions [10-12]. Although studies have used a range of cut-off scores of HADS for clinical decisions, it is accepted as tool of choice to screen negative emotional states due to its simplicity, rapid administration and good compliance [9-12]. Studies have also used HADS as a gold standard against newer tests to detect anxiety and depression in patients [13,14].

We found that 54.7% of the oral cavity cancer patients had HADS-D scores indicative of depression and a further 20.9% were at borderline depression. This meant that three fourths of our oral cancer patients were at risk of postoperative depression. Female patients and site of oral cavity tumor were associated with depression levels postoperatively. Females had a significantly higher mean HADS depression score (14.0) than males (10.6) and buccal tumors were significantly associated with higher depression scores.

Studies using HADS-D in cancer patients have used scores >7 as a reliable cut off [15]. Quick usage and scoring helps detect depressed cancer patients although there might be false positives [15]. We stratified patients based on HADS-D scores using a cutoff of 8 for borderline and 11 for high risk of depression. Gender and site of tumor were found to be significant predictors of risk of depression based on these groups. Potential explanations include emotional states and greater consciousness of females about their appearance. Buccal tumors were the most common site (35.9%) in patients of depression group while tongue was the most common site in both border line (41.7%) and non-depressed (48.3%) group. This could be due to the visible cosmetic deformities associated with buccal tumor extirpations as we collected data in the immediate postoperative period. In comparison tongue tumors can be usually excised trans orally without facial disfiguring incisions.

Oral cancer patients scored higher than patients with tumors of other sites. A study from Chile used cut offs identical to ours in breast, colon, prostate and uterine cancer patients. They found 34.9% patients in the borderline and depressed groups with an average HADS-D score of 6.18 in 215 patients [16]. Although studies with exclusive oral cancer patients are lacking, other studies having female cancer patients report higher HADS-D scores supporting our findings. High HADS-D scores like ours was seen in a study on cervical cancer patients that reported a mean HADS-D score of 14.7 [17]. Another study with breast cancer patients reported a mean HADS-D score of 14.1 [14].

Our patients scored higher mean depression scores even when compared to other series of patients with head and neck cancer. Joseph et al. followed the depression scores of their head and neck cancer patients over 3 years. In their cohort 30 patients had oral cancers and the mean depression scores ranged from 3.2 to maximum of 4.5 from pretreatment to 3 years post treatment [18]. In another study the mean depression scores were found to be 3.9 amongst all head and neck cancer patients – 52 of which were oral cancer patients [19].

Although few authors rank HADS-D as an average identifier for depression the ease of usage still makes it an ideal choice to screen cancer patients [20]. These authors claim that questionnaires over diagnose and over treat depression and should be used with caution. Instead, specialists should be sought for help. This is particularly difficult in developing countries where lack of such expertise and cost prevents routine psychological analysis for all patients.

One limitation of our study is that we did not have any psychiatric assessment at baseline prior to surgery. Although any patients with psychiatric history were excluded it is still possible that patients had underlying depression unrelated to their cancers. We have also not studied the effect of adjuvant radiation with or without chemotherapy on the depressive states; however, these treatments are known for their morbidities and would have probably increased emotional stress.

CONCLUSION

Oral cancer patients are at a significant risk of depression. Emotional distress affects compliance to treatment regimen for diseases such as oral cancer that involve prolonged surgeries and adjuvant chemoradiation. It needs to be detected early and addressed adequately to ensure comprehensive care of an oncology patient. HADS-D can be a quick and cost-effective inpatient tool to highlight patients who might need psychological counseling postoperatively. In this regard, special attention needs to be paid to female oral cancer patients and those with buccal primaries.

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