Original Article

Oral Health in Post Treatment of Oral Squamous Cell Carcinoma

Assessment of Common Oral Dysfunction and Their Impact on Oral Health Related Quality of Life in Post Treatment Patients of Oral Squamous Cell Carcinoma : A Prospective Study

Anosha Afzal, Jehan Alam, Rizwana, Abubakar Saddique, Naveed Ahmed and Abdul Rehman

ABSTRACT

Objective: To assess oral health related quality of life and oral dysfunction after radiotherapy from baseline to the last week in patients treated with alone of combination of chemotherapy in squamous cell carcinoma patients.
Study Design: Prospective study
Place and Duration of Study: This study was conducted at the Department of Oral and Maxillofacial Surgery, Jinnah Postgraduate Medical Center, Karachi from July 2022 to June 2023.
Methods: The study involved 80 oral cancer patients who were awaiting radiotherapy. Some of these patients might also receive chemotherapy in addition to radiotherapy. (OHRQOL was used for assessment of oral health related quality of life. SPSS version 23 was used for data analysis.
Results: According to metastasis, lymph node was noted in 56.3% patients and systematic was noted in 36.3% patients. Radiotherapy was performed to 43.8% patients and chemo-radiotherapy was given to 56.3% patients. Dental treatments received before R.T to 52.5% patients. Comparison of health quality of life scores at baseline, last week and 3 month of post RT showed that the differences were statistically significant, ($p<0.010$).
Conclusion: The Oral Health-Related Quality of Life (OHRQOL) of oral cancer patients tends to decline during the course of radiation therapy (RT), whether it's administered alone or in combination with chemotherapy. OHRQOL tends to improve three months after the completion of radiation therapy.
Key Words: Squamous cell carcinoma, OHRQOL, Radiotherapy, Oral dysfunction, Chemotherapy

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INTRODUCTION

Cancer of oral cavity is a up growing health problem, and the statistics highlight its impact, particularly in developing countries having low Human Development Index (HDI) scores[1]. In 2018, there were approximately 354,864 new cases of oral cancer worldwide, and it resulted in 177,384 deaths[2].

These numbers indicate the serious health burden posed by oral cancer on a global scale. Oral cancer appears to affect males more significantly, as it is mentioned as the 3rd most common cancer among males in countries with low and medium HDI scores[3].

In 2019, South Asia had the highest age-standardized incidence rate of head and neck cancer, with a rate of 9.65 cases per 100,000 population[4]. This figure is adjusted for age to allow for comparisons between populations with different age structures. There were many management plans available for oral cancer treatment. The choice of treatment or combination of treatments depends on several factors, including patient's health, cancer stage, and individualized treatment plans developed by healthcare professionals[5].

Surgery is often one of the primary treatment options for oral cavity cancers. The goal is to remove the tumor and any affected lymph nodes. Depending on the size and location of the tumor, different surgical approaches may be used, such as excision, laser surgery, or reconstructive surgery after tumor removal. In some cases, surgical removal of part of the jawbone or tongue may be necessary, which can have functional and cosmetic implications[6].

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Radiotherapy can be used as the primary treatment for small tumors or in combination with surgery for more advanced cases[7]. Radiotherapy may also be used after surgery to eliminate any remaining cancer cells or as palliative treatment to relieve symptoms in advanced cases[8]. Chemotherapy involves the use of drugs that circulate throughout the body to kill cancer cells or stop their growth. But all these modality and associated complications compromise the quality of life in oral cancer patients[9].

Patients with stage III and IV cancers often experience poor Oral Health-Related Quality of Life (OHRQOL) in various aspects such as eating, swallowing, social contact, speech, dry mouth and reduced mouth opening[10]. This is not uncommon, as advanced stages of cancer and their treatments can have significant impacts on these functions. Patient-centered care is a fundamental principle in healthcare, and understanding the perception and expectations of patients, as well as their OHRQOL, is important for providing effective and compassionate care[11].

METHODS

The prospective study conducted at the Department of Oral and Maxillofacial Surgery, Jinnah Postgraduate Medical Center, Karachi from July 2022 to June 2023 focused on oral cavity cancers and their treatment. This institute serves as the primary tertiary referral hospital for cancer cases in Karachi, Sindh. After ethical approval (F.2-81/2021-GENL/16802/JPMC) and consent were obtained from patients after detailed description of study. Sample size was calculated by using 95% confidence interval, 80% power of study and baseline EORTC QLQ-OH15 Scores in eating problem was 22.4 ± 19.1 and after 3 months of RT it was 64.9 ± 28.2.

Study focused on oral cavity cancers as defined by the International Agency for Research on Cancer (IARC) patients with buccal mucosa, tow third anterior of lip, tongue floor, the inner lining of the cheeks, the bony roof of the mouth, the lower jawbone and the gums, upper alveolus and gingiva (the upper jawbone and the gums), retromolar trigone (a small area behind the molars in the mouth) were included in the study. Patients who underwent surgery as their initial treatment, who received radiation therapy (RT) as palliative treatment with small doses as their initial treatment, followed up at private clinic, brain metastasis and who had received Intensity Modulated Radiation Therapy (IMRT) using a linear accelerator as their initial treatment were excluded. A self-administered modified OHRQOL questionnaire was filled by patients before RT (at baseline) at start of inclusion and after 3 months follow up.

All data was entered in SPSS version 24 and analyze for suitable calculation like mean and frequencies, after that test of significance was applied and p value below of equal to 0.05 was taken as significant.

RESULTS

Overall, eighty patients were included in this study with mean age of 59.77±8.39 years. There were 47 (58.8%) males and 33 (41.3%) females. Majority of the patients 78 (97.5%) were married. According to education status, 52 (65.0%) patients were educated. Whereas, according to employment status, 71 (88.8%) patients were employed. The most common sites of oral cancer were anterior two-thirds of the tongue and buccal mucosa, 27 (33.8%) and 22 (27.5%), respectively.

Table No. 1: Demographic and baseline characteristics of the study patients

Variable	Frequency	%
Sex		
Male	47	58.8
Female	33	41.3
Marital status		
Married	78	97.5
Unmarried	2	2.5
Education status		
Educated	52	65.0
Uneducated	28	35.0
Employment status		
Employed	71	88.8
Unemployed	9	11.3
Oral Cancer Site		
Lips (upper or lower)	3	3.8
Tongue anterior two third	27	33.8
Mucosa of buccal cavity	22	27.5
Mouth Floor	7	8.8
Hard palate	8	10.0
Alveolar ridge (lower and upper)	8	10.0
Retromolar trigone	2	2.5
More than two sites	3	3.8
Stage		
Stage I and II (early)	26	32.5
Stage III and IV (late)	54	67.5
Metastasis		
Lymph node	45	56.3
Systemic	29	36.3
None	6	7.5
Treatment modality		
Radiotherapy	35	43.8
Chemo-radiotherapy	45	56.3
Other diseases		
Yes	17	21.3
No	63	78.8
Dental treatments received before RT		
Yes	42	52.5
No	38	47.5

Table No. 2: Comparison of quality of life scores at baseline, last week and 3 month of post RT

Score	Baseline	Last week of RT	3 month of post RT	p-value
Eating problem	26.72±6.22	95.82±10.52	67.76±11.89	<0.010
Gum and speech problem	15.32±4.84	47.37±10.41	23.31±4.88	<0.010
Soreness	17.46±5.35	59.23±10.86	10.76±2.68	<0.010
Teeth	14.21±5.83	35.51±6.09	41.05±6.67	<0.010

Table No. 3: Comparison of satisfaction of information score at baseline, last week and 3 month of post RT

Score	Baseline	Last week of RT	3 month of post RT	p-value
Satisfaction of information	71.14±11.82	44.43±8.88	52.11±5.73	<0.010

Most of the patients 54 (57.5%) had last stage of cancer. According to metastasis, lymph node was noted in 45 (56.3%) patients and systematic was noted in 29 (36.3%) patients. Radiotherapy was performed to 35 (43.8%) patients and chemo-radiotherapy was given to 45 (56.3%) patients. Dental treatments received before R.T to 42 (52.5%) patients. (Table. I).

Comparison of health quality of life scores at baseline, last week and 3 month of post RT showed that the differences were statistically significant, ($p<0.010$). (Table. 2). Similarly, comparison of satisfaction of information score at baseline, last week and 3 month of post RT showed the statistically significant difference, ($p<0.010$). (Table. 3).

DISCUSSION

Discussing the composition of a study sample it was observed that the majority of the participants in the study were males. This result was expected because the study was likely focused on a type of cancer that is known to be more common in males, mean age of patients was 59.77±8.39. In a study conducted by Kosgallana et al[12] reported similar findings 87.8% male patients. In another study by Prelec et al[13] suggest a connection between cancer stage and patient's age as significant factors influencing the choice of treatment modality. This implies that the age of the patient and the advanced stage of cancer are interrelated and play a crucial role in determining the most appropriate treatment approach.

EORTC developed questionnaire was used but it appears to be a more recent tool specifically designed to evaluate the Oral Health-Related Quality of Life in patients of cancer. It may focus on issues related to oral health and how they impact a patient's overall quality of life[14]. Braam et al[15] concluded a significant changes in mouth opening, sticky saliva, dry mouth and eating scores form baseline to last week follow up.

In our study we also observed significant changes from baseline eating problem 26.72±6.22 to last week score 67.76±11.89, in a study conducted by Pow et al[16] reported similar findings regarding oral health problem. Eating habits and mouth opening status was changed significantly from baseline reading to last and medium follow ups. Similarly study conducted by Nguyen et al[17] in 2002 reported significant xerostomia and severe dyaphagia after combined use of chemotherapy and radiotherapy in oral cancer patients. But later in life they are able to spend a healthier life.

Significant body of literature supporting this conclusion that oral symptoms tend to increase after radiation therapy (RT) in cancer patients, even when the tools used for measurement were not originally designed specifically for assessing OHRQOL in cancer patients[18]. Many studies have used the Oral Health Impact Profile-14 (OHIP-14) as one such tool and have consistently reported a negative impact on OHRQOL in patients with oral cancer after they undergo RT[19].

Study conducted by Santos et al[20] on patients of head and neck cancer and their oral health deterioration after radiation therapy and reported continuous deterioration in oral health quality of life after radiation therapy. Another contrast study was also reported by de Melo et al[21] on Brazilian population and reported that widowed head and neck cancer patients have better quality of life after RT.

CONCLUSION

The Oral Health-Related Quality of Life of oral cancer patients tends to decline during the course of radiation therapy (RT), whether it's administered alone or in combination with chemotherapy. OHRQOL tends to improve three months after the completion of radiation therapy. This improvement may be attributed to the body's ability to heal and recover from the side effects of treatment.

Author's Contribution:

Concept & Design of Study:	Anosha Afzal
Drafting:	Jehan Alam, Rizwana
Data Analysis:	Abubakar Saddique, Naveed Ahmed, Abdul Rehman
Revisiting Critically:	Anosha Afzal, Jehan Alam
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