

## RESEARCH ARTICLE

# Impact of chemotherapy with concurrent radiotherapy on quality of life in post-operative advanced head-and-neck cancer patients: A cross-sectional study

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### ABSTRACT

**Background:** Patients with head-and-neck cancer (HNC) have various challenging symptoms due to their disease and treatment side effects which again complicate the disease progress as it has a direct implication toward their quality of life (QOL). **Aims and Objective:** The aim of this study is to assess the QOL in post-operative advanced stage HNC patients on concomitant chemoradiotherapy aimed at improving locoregional control, survival, and QOL. **Materials and Methods:** Thirty-two post-operative advanced HNC patients were assessed cross-sectionally for their QOL. Patients who were assessed were stable and were not in discomfort while filling the questionnaires. Assessment was done using University of Washington Version 4 QOL questionnaire, which was translated into local language (Kannada). For data analysis, patients were divided into 2 groups: Group A - patients not on chemoradiotherapy and Group B - patients on chemoradiotherapy (fluorouracil and cisplatin regimen). Mean scores were expressed as percentages. **Results:** Of the thirty-two patients, ten were receiving chemotherapy with concomitant radiotherapy. Twenty-two patients did not require chemotherapy or radiation at that time. Patients in both the groups reported problems with pain, appearance, swallowing, chewing, and speech, in similar magnitudes. Patients in Group B as compared to Group A displayed reduced mean scores in the following domains - activity (24% vs. 15%), recreation (49% vs. 28%), taste (42% vs. 20%), saliva (45% vs. 30%), mood (35% vs. 17%), and anxiety (37% vs. 8%). Scoring is scaled so that a score of 0 represents the worst subjective function and a score of 100% represents no subjective deficits. **Conclusion:** QOL reduces during chemoradiation largely due to psychological factors, and hence, these patients require pre- and intra-therapy counseling.

**KEY WORDS:** Quality of Life; Chemotherapy; Radiotherapy; Advanced Head-and-Neck Cancer

### INTRODUCTION

Incidence of head-and-neck cancer (HNC) in India is on the rise compared to global incidence.<sup>[1]</sup> This amounted

to increasing concern as it is associated with high rates of mortality and morbidity. Cancer is a major disease burden worldwide. HNC in India accounted for 30% of all cancers among males. In females, it contributes to 11 to 16% of all sites of cancers. Among them, tongue and mouth contribute to a common site in males, and among females, mouth cancer is the common site of involvement.<sup>[1]</sup> Data available as per the International Agency for Research Center, WHO, and ICMR show that of 4,81,179 HNC in the world, 1,11,479 (23.17%) cases are reported in India.<sup>[2]</sup>

Quality of life (QOL) is a multidimensional concept and it focuses on how disease and its treatment affect the individual.<sup>[3]</sup>

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Head-and-neck region involves various intricate structures which are involved in various essential physiological functions such as breathing, mastication, and also in physical appearance, expression, and social interaction. Depending on the site, size, and extent of involvement of the disease, HNC can contribute to compromise in terms of well-being, QOL, and self-esteem for the patient. Patients are also vulnerable to face various psychological problems such as anxiety and depression because of hindered social interaction and emotional experiences which they have to face.<sup>[4]</sup>

In general, speaking, the discovery of HNC itself is both frightening and threatening for both patients and their well-wishers. Treatment of HNC leads to an alteration in global patient QOL with a negative impact on their daily life. So far the treatment of HNC was mainly focused on the treatment outcome with regard to the efficacy of treatment modalities, with survival being the only measurement tool. In recent studies along with survival or response to treatment, patient QOL is now included as an important evaluation criterion. Advances in the field of oncology have changed the perceptions of treatment modalities among the physicians and have imposed the inclusion of QOL as one of the objectives of evaluation in medical research.<sup>[5]</sup>

Patients with HNC have various challenging symptoms due to their disease and treatment side effects which vary from xerostomia, taste disturbances, dietary restrictions, dysphagia and pain, fatigue, distortion of physical appearance, and permanent disfigurement to infirmity which can impact directly on the patient's QOL.<sup>[6,7]</sup> Hence, the concept of QOL is discussed in this study among HNC patients in our tertiary care hospital. The objective of the study is to assess the QOL in post-operative advanced stage HNC patients on concomitant chemoradiotherapy aimed at improving locoregional control, survival, and QOL.

## MATERIALS AND METHODS

Patients eligible for this study were those having undergone radical surgery for newly diagnosed advanced stage (Stage 3 or 4 according to the 1997 American Joint Committee on Cancer staging system) HNC and referred to the Department of ENT of R. L. Jalappa Hospital and Research Center, Tamaka, Kolar.

Informed consent was taken before their enrolment into the study. Approval was obtained from the Institutional Ethical Committee. Patients were provided University of Washington QOL version 4 questionnaires<sup>[8]</sup> which were translated into regional language.

This is a specially designed questionnaire for HNC patients which includes 12 single question domains, these having between 3 and 6 response options that are scaled evenly from 0

(worst) to 100 (best) according to the hierarchy of response. The domains are pain, appearance, activity, recreation, swallowing, chewing, speech, taste, saliva, mood, and anxiety. Another question asks patients to choose up to three of these domains that have been the most important to them. There are also three global questions, one about how patients feel relative to before they developed their cancer, one about their health-related QOL, and one about their overall QOL. In regard to their overall QOL, patients are asked to consider not only physical and mental health but also many other factors, such as family, friends, spirituality, or personal leisure activities that were important to their enjoyment of life. The whole questionnaire focuses on current patient health and QOL within the past 7 days.

Patients were assessed during their final cycle of therapy, a time specifically selected to provide an estimate of the acute and cumulative effect of therapy. For data analysis, patients were divided into two groups: Group A - patients not on chemoradiotherapy and Group B - patients on chemoradiotherapy (fluorouracil and cisplatin) regimen. Mean scores were expressed as percentages.

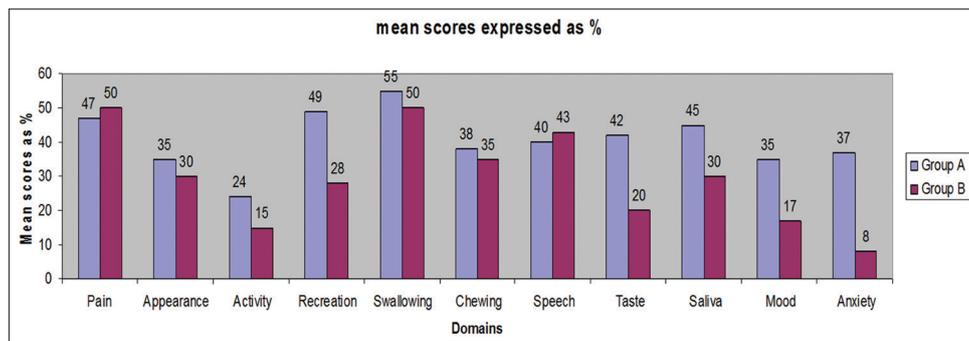
## RESULTS

Overall 32 patients were enrolled into the study. 22 patients who were not on chemoradiation therapy were in Group A and 10 patients who received chemoradiation therapy were in Group B. 20 of them were males and 12 were females. Median age was 55 years (range 31–80 years). Majority of patients were in the age group of 51–60 years (37.5%). The same has been shown in Table 1. Most frequent site of cancer was oropharynx (52%), larynx (15%), and hypopharynx (13%).

Patients in both the groups reported problems with pain, appearance, swallowing, chewing, and speech, in similar magnitudes. Patients in Group B as compared to Group A displayed reduced mean scores in the following domains - activity (24% vs. 15%), recreation (49% vs. 28%), taste (42% vs. 20%), saliva (45% vs. 30%), mood (35% vs. 17%), and anxiety (37% vs. 8%) as shown in Figure 1. Scoring is scaled so that a score of 0 represents the worst subjective function and a score of 100% represents no subjective deficits. The study showed impairment of QOL scores in both the groups with a drastic reduction in Group B who received concomitant chemoradiation therapy.

## DISCUSSION

HNC has an enormous impact on the QOL of patients and coming to term with its diagnosis itself requires a huge amount of mental stability among the patients. The most important physical symptoms associated with it are speech problems, dry mouth, and throat and swallowing problems.<sup>[9]</sup> The present study shows that the majority of the subjects have scored <60 in these domains, which shows their inability to



**Figure 1:** Comparison of quality of life scores in both the groups. \*Scoring is scaled so that a score of 0 represents the worst subjective function and a score of 100% represents no subjective deficits

**Table 1:** Age and sex distribution of HNC patients

Age group (years)	Males (20)	Females (12)	Total (%)
31–40	2	0	2 (6.25)
41–50	3	3	6 (18.75)
51–60	7	5	12 (37.5)
61–70	5	2	7 (21.875)
71–80	3	2	5 (15.625)

HNC: Head-and-neck cancer

perform the daily activities independently and require varying degree of assistance from others.

Based on the scores obtained from QOL questionnaires, the present study showed impairment of QOL of both the group of patients, with drastic reduction in Group B who received concomitant chemoradiation therapy. This study finding is supported by a study conducted by Goguen *et al.* to evaluate the impact of sequential chemoradiation therapy on QOL which has revealed that the mean and standard deviation of QOL score before treatment as 113.9 and 18.9 and 6 months after treatment as 107.3 and 19.1 respectively, where 130 has been the maximum possible scores.<sup>[10]</sup> Bian *et al.* have found the impact of QOL of HNC patients on their physical well-being, social well-being, emotional well-being, and functional well-being ( $P = 0.0311$ ).<sup>[5]</sup> The most severely affected domain in this study was subjective feeling of anxiety (37% vs. 8%), followed by physical activity (24% vs. 15%), mood (35% vs. 17%), and taste (42% vs. 20%). In this regard, the findings of this study are relatively similar to what Taylor *et al.* documented.<sup>[11]</sup> These are physical problems that include their inability to communicate effectively, physical activity, chew and swallow effectively, speech, saliva, general physical outlook, and psychosocial problems, such as depression or anxiety over their present health condition. These conditions are further aggravated by financial concerns, lack of social interactions due to loss of self-esteem, and uncertainty with regard to the response of their condition to treatment.

The psychosocial effect of the HNC could further account for the predictive factor of QOL in all patients, which is mainly the emotional domain.

The study findings suggest that the treatment modalities should be focused not only on ensuring patient survival but also on their QOL through their journey toward the disease management. Care should be directed beyond preventing complications toward facilitating adequate pain management, maximizing function, and offering psychosocial support to patients. It is suggested that pain relief in patients with HNC should also require more attention to improve their QOL through a multidisciplinary approach. The limitation of the study is that the research should have been carried out to identify prognostic factors that can guide in restoring cancer patients to their desired level of work function and economic productivity.

### CONCLUSION

This study showed that treatment of HNC patients has a definite relation to the QOL of patients. Hence, it is suggested to adopt pre- and intra-therapy counseling by the treating physicians. Further studies emphasizing on more predictive factors on QOL, and inclusion of more study subjects is needed. Physicians should consider the impact of clinical treatments on QOL when discussing treatment options with patients. Future basic and clinical research that allows clinicians to select and successfully treat patients with fewer treatment modalities may offer hope of improving QOL for patients with HNC.

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