This study investigated the effects of smoking on QOL outcomes in HNSCC patients receiving primary radiotherapy. The results show that patients who quit smoking prior to radiation therapy had significantly higher composite and global QOL scores compared to patients who continued to smoke. This finding is not surprising as it has been reciprocated in prior studies. The obvious and sometimes profound effect of head and neck cancer treatments on patient quality of life has dictated that such outcomes, in addition to treatment efficacy, be considered in selection of treatment modality. Previous reports have sought to compare treatment effects, including patient quality of life, following treatment of HNSCC with differing modalities such as surgery or chemoradiotherapy. However, few studies have quantitatively assessed the importance of smoking on quality of life outcomes following HNSCC treatment. The study found that patients who quit smoking prior to radiation therapy had significantly higher composite, global and HRQOL outcomes compared to patients who continued to smoke. Analyses of these group results showed that patients who quit smoking prior to radiation treatment had significantly higher composite and global QOL scores compared to patients that continued to smoke after radiation therapy (Table 1). Discrimination of composite UWQOL scores between the groups demonstrated significantly worse scores in pain, recreation and chewing in continued smokers. In comparison all smokers, significantly better composite and global QOL scores were still achieved in patients that quit smoking prior to treatment compared to those that did not. Analysis of cancer primary site and xerostomia scores did not show significant effect on any QOL measure following radiation therapy.

INTRODUCTION

The impact of tobacco use on quality of life outcomes in head and neck cancer treatment has previously been established. Browman et al showed a significant effect of cigarette smoking on survival in stage III and IV HNSCC patients receiving radiation therapy. Despite this, several cross-sectional studies have emphasized the importance of smoking in quality of life and functional outcomes in HNSCC patients following primary radiotherapy with or without chemotherapy.

METHODS AND MATERIALS

Patients over 4 years of age with a history of HNSCC of the oral cavity, oropharynx, hypopharynx or larynx, at least six months out of primary treatment and chemotherapy were identified upon follow up visits at the Head and Neck Tumor Clinic of Virginia Commonwealth University Medical Center between June 2009 and May 2010. Patients with history of multiple primary lesions, known persistent or recurrent uncontrolled or distant metastatic disease, ablative surgery other than neck dissection, or inability to complete the questionnaires due to mental health were excluded from the study.

The medical records were reviewed to obtain patient demographic information, tumor staging and radiation therapy, including radiation dosage and chemotherapeutic regimen. Patients then completed the following questionnaires:

a) The University of Washington Quality of Life scale (UWQOL-1.0) version 3.5. The UWQOL was developed to provide a practical, valid and reliable instrument to obtain ongoing self-reported QOL data in HNSCC patients. The UWQOL’s usefulness has been established, especially in assessing QOL extremes, varying primary tumor size, and advanced stage disease. Scores are compiled as composite QOL, health-related QOL and global QOL. Global QOL refers to a patient’s perception of all domains of their well-being including social, emotional, symptomatic, environmental and spiritual aspects. HRQOL focuses only pertinent health and medical concerns, while composite QOL deals specifically with symptom-free health.

b) The University of Michigan Xerostomia-Related Quality of Life Scale (UM-MX-RQLS). The UM-MX-RQLS is a valid and reproducible quantitative instrument that measures xerostomia symptoms in head and neck cancer patients. Eleven xerostomia-related symptoms are rated on an 11-point Likert scale from 0 to 10 with higher scores corresponding to worse xerostomia.

c) A departmental form aimed at quantifying tobacco use duration and timing, especially in relation to head and neck cancer treatment.

RESULTS

Patient demographic information, tumor staging and smoking history data are presented in Table 1. To investigate the impact of smoking on QOL, following radiation therapy the patients were stratified into two categories: smoking history and its relationship with start of treatment into those that quit smoking before radiation therapy (smokers and those that quit before radiation), and patients continuing to smoke after radiation therapy. Analysis of these group results showed that patients who quit smoking prior to treatment initiation had significantly higher composite, global HRQOL, and global QOL scores compared to patients that continued to smoke after radiation therapy (Table 1). Discrimination of composite UWQOL scores between the groups demonstrated significantly worse scores in pain, recreation and chewing in continued smokers. In comparison all smokers, significantly better composite and global QOL scores were still achieved in patients that quit smoking prior to treatment compared to those that did not. Analyses of cancer primary site and xerostomia scores did not show significant effect on any QOL measure following radiation therapy.

DISCUSSION

This study investigated the effects of smoking on QOL outcomes in HNSCC patients receiving primary radiotherapy. The results show that patients who quit smoking prior to radiation therapy had significantly higher composite and global QOL outcomes compared to patients who continue to smoke. Pain, recreation and chewing scores were significantly lower in continued smokers compared to non-smokers. The data presented here have the potential to provide evidence that significant benefits in smoking cessation prior to radiation therapy in improving QOL outcomes both symptomatically and globally.

Primary tumor subsite failed to show significance on QOL outcomes in this study, but may be attributable to multiple factors. More often than not, primary tumors of the base of tongue, hypopharynx and larynx are more advanced at presentation and have a worse overall survival rate than other subsites. Further evidence of the harms of smoking will only help in providing HNSCC patients with the information necessary to improve not only their survival, but functional and QOL outcomes as well.

CONCLUSIONS

1. Smoking significantly worsens long-term symptom-related and global QOL in HNSCC patients.
2. Symptom-related, HRQOL, and global QOL long-term outcomes can be improved if smoking cessation takes place prior to radiation therapy. The primary effect was observed in QOL. Xerostomia, though shown to be the most common and severe symptom, was not the primary indication of smoking cessation in this study. This failing to demonstrate any significant relationship with composite, global or QOL scores in this study.
3. Smoking results in decreased QOL outcomes in HNSCC patients following radiation therapy. Smoking cessation prior to initiation of treatment can improve long-term QOL and should be emphasized to patients to maximize therapeutic outcomes.

REFERENCE

3. Duffy SA, Ronis DL, Valenstein M, et al. Depressive symptoms, smoking, drinking, and quality of life among HNSCC patients over 18 years of age with a history of HNSCC of the oral cavity, oropharynx, hypopharynx or larynx, at least six months out of primary treatment and chemotherapy were identified upon follow up visits at the Head and Neck Tumor Clinic of Virginia Commonwealth University Medical Center between June 2009 and May 2010. Patients with history of multiple primary lesions, known persistent or recurrent uncontrolled or distant metastatic disease, ablative surgery other than neck dissection, or inability to complete the questionnaires due to mental health were excluded from the study.

CONTACT

Andrew Huang, MD
Virginia Commonwealth University
Email: ahuang@vcu.edu
Phone: 804-829-3965
Website: vcu.vcu.edu