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TO ASSESS THE QUALITY OF LIFE IN PATIENTS OF ORAL CANCER WHO HAVE UNDERGONE SURGERY: A NOVEL RESEARCH APPROACH

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ABSTRACT

Objective: Oral cancer accounts for only 5% of all cancers and cancer deaths in India The outcome of management strategies for the treatment of oral cancer has always been in terms of disease-specific survival. Modern assessment of outcome now also includes assessment of quality of life (QOL). Little has been done previously in Australia to assess the QOL of patients treated primarily by surgery for oral cancer. **Materials and Methods:** 44 patients who had undergone primary surgical management for oral cancer underwent assessment of QOL using the European Organization for Research and Treatment of Cancer QOL questionnaire version 3 (EORTC QLQ-C30) and the University of Washington Head and Neck QOL questionnaire version 4 (UWQOL). Similar emotional domains were compared and factors affecting QOL were determined. **Results:** Fifty-five percent of patients were male and 45% were female. The mean age was 61.8 years (range, 38 to 86 years) with a mean review time of 24.6 months (SD, 20.3 months) postoperatively. Good QOL scores were experienced by most patients. A new addition to the UWQOL version 4 was the mood and anxiety domains, and these correlated well with the emotional domains of the EORTC QLQ-C30 using Spearman rank correlations. Factors significantly affecting survival included age, overall stage, neck dissection, free flap, and postoperative radiotherapy using Mann-Whitney tests (*P* _ .05). No significant difference in QOL was found in patients reviewed at either less than or greater than 1 year. **Conclusions:** This study confirms previous reports in the literature. It has provided us with the foundation for further investigation of QOL in patients who have been and who will be treated for oral cancer. It also gives us a new measure of outcome to compare against survival rates.

KEYWORDS: Oral cancer, surgery, quality of life.

INTRODUCTION

The mouth is an important organ for the functions of speech, swallowing, chewing, taste, and salivation. Salivation alone is a major factor in taste, speech, and dental prosthesis retention and is important in the prevention of oral infections and dental caries. Major surgery in this region can also be cosmetically disfiguring, even with reconstructive procedures. Both these functional and cosmetic problems can significantly impair a patient's quality of life (QOL). Although oral cancer accounts for only 5% of all cancers and cancer deaths in India,[1] it is an important form of cancer that has many debilitating effects on the patients who suffer from it. QOL determination is increasingly becoming an important assessment of outcome in oncologic research. QOL is notoriously difficult to define[2,3] but is considered to be a multidimensional concept3-5 with health-related QOL being a specific subset of QOL assessing symptoms of treatment side effects, physical function, and performance.[3] In the context of cancer patients, QOL may be defined as the effect of cancer and the subsequent treatment on a patient's biopsychosocial profile and how the patient is able to cope or adapt to this. QOL is generally assessed by questionnaires, and over 65 different questionnaires have been reported for assessing QOL in oral cancer patients.[3] Commonly used questionnaires for assessment of QOL in oral cancer patients include the European Organization for Research and Treatment of Cancer (EORTC) QLQ-C30 and the University of Washington QOL questionnaire (UWQOL), which are well tested and validated.

There are few reported trials looking at the QOL of oral cancer patients in Australia. An early attempt was made to assess "psychosocial aspects" in 36 patients with head and neck cancer.[6] A social worker interviewed the patients preoperatively, immediately postoperatively, and at 3 months postoperatively. Significant problems in eating, speech, interpersonal relationships, emotional adjustment, and employment were identified at 3 months. Perry and Shaw[7] reported an evaluation of functional outcomes in patients with head and neck cancer in Victoria, of which QOL was a component. The QOL scale was a non validated questionnaire and no attempt was made to validate the scoring system to other established questionnaires. Taking this into consideration, the majority of patients were considered to have worse QOL, particularly in those patients treated with surgery and radiotherapy, at 3 months. This is to be expected as the QOL of oral cancer patients is thought to be reduced at 3 months, but by 12 months postoperatively, it appears that QOL scores reach pretreatment levels,[8] and that QOL at 1 year reflects long-term QOL.[9] QOL is now considered a parameter of outcome.[10-12] With this in mind, outcome of patients with cancer, in general, should be measured in both survival and QOL. Data from our unit at Austin Health have already shown good survival rates for patients with oral cancer.[13] Thus, we were interested in assessing the QOL in a group of patients who have survived oral cancer at our institution to get an overview of the overall outcome of our patients.

AIMS AND OBJECTIVE

The aims of this study were to preliminarily assess the QOL of oral cancer patients using the EORTC QLQ-C30 version 3 and UWQOL version 4 in a cohort of Indian patients from Bihar who had surgery as the primary treatment modality for oral cancer. As well as to revalidate the new emotion domains of the UWQOL version 4 by comparing these with similar domains in the EORTC QLQ-C30; and to assess for factors that significantly affected QOL.

MATERIALS AND METHODS

This study was conducted as a cross-sectional pilot trial on 44 patients who have had oral cancer treated with primary surgery by oral and maxillofacial surgery. Patients were recruited consecutively from the oral and maxillofacial surgery clinic as part of their regular review schedule. The treatment protocols of patients undergoing management of oral cancer at our unit have been previously described.[13] Inclusion criteria included all patients with oral cancer with an age range of 20 to 90 years. Exclusion criteria include those patients who did not wish to participate and those patients with benign or premalignant disease (including carcinoma in situ). This study was approved by the Austin Health Human Research Ethics Committee.

Two questionnaires, the EORTC QLQ-C30 version 3 and the UWQOL version 4, were used. The EORTC QLQ-C30 is a well-tested, general QOL questionnaire for patients who have cancer that has cross-cultural validity.[4] The EORTC QLQ-C30 consists of 30 questions organized into 5 domains (physical, role, cognitive, emotional, and social); 3 symptom scales (fatigue, pain, and nausea and vomiting); 2 global scales (global health and QOL), and 6 single items (dysphagia, appetite loss, sleep disturbance, constipation, diarrhoea, and financial impact). The EORTC QLQ-C30 is considered to be a well-developed and reliable QOL questionnaire for cancer patients.[5]

The UWQOL (version 4) is a specific head and neck cancer QOL questionnaire for patients who will or have had surgery for oral cancer. Originally developed by Hassan and Weymuller,14 it consists of 15 questions: 12 disease specific items such as pain, appearance, activity, recreation, swallowing, chewing, speech, shoulder problems, taste, saliva, mood, and anxiety plus 3 general items measuring global health related QOL, change in health-related QOL since diagnosis, and overall QOL. There is also an importance rating section where patients rate which domain changes were most significant to them and a free text section allowing patients to address issues not contained within the questionnaire. Each question is scored from 0 to 100 using a Likert-type scale giving a maximum summary score of 900. The 3 global questions are scored individually. The UWQOL is considered to be broad based, assesses disease-specific functional status, and is suitable for routine low-cost assessment.[10]

The EORTC QLQ-C30 uses a visual analog scale to record scores that can then either be left as raw scores or be translated into percentages. The UWQOL, rather than using a visual analog scale, has multiple responses to each question, of which one is chosen. Each response has an associated score attached to it. Both questionnaires are patient based, are easy to administer, and are self-administered. Analysis was descriptive in nature. Factors affecting QOL assessed included age, gender, T stage (T1/2 versus T3/4), overall stage (I/II versus III/IV), location of tumor (anterior versus posterior), the use of free flap reconstruction, the use of neck dissection, the use of radiotherapy, smoking, and time postoperative. For age, this was assessed by comparing QOL scores of less than the mean age of patients in the cohort with those with ages greater than the mean. QOL scores for time postoperative were assessed by comparing scores of less than 1 year to those greater than 1 year. One year was chosen as it has been found previously that QOL at 1 year postoperative equates to long-term QOL.[9] Statistical analysis included Spearman rank correlations to compare similar domains between the 2 questionnaires and Mann-Whitney tests to compare different QOL scores between different subgroups. A value of *P* _ 0.05 was taken as being significant.

RESULTS

Questionnaires were completed by 44 patients. The mean and median time from operation was 24.6 and 25 months, respectively. Of the patients studied, 12 (55%) were male and 10 (45%) were female. The overall mean (SD) age at operation was 61.8 years (SD, 13.5 years) and ranged from 38 to 86 years. The primary site was considered to be anterior in 64% of cases. Fifty-nine percent had a T stage of either 3 or 4, and of these, 55% had neck dissection. Of the patients requiring neck dissection, only 1 patient had a radical neck dissection requiring removal of the sternomastoid muscle, accessory nerve, and internal jugular vein. Free flap tissue reconstruction was required by 59% of patients, with the remaining defects being closed primarily, directly, or by laser excision. Fifteen patients studied were reported to be current smokers or had a previous smoking history. Twenty-seven percent of patients also received adjuvant radiotherapy.

One of the 44 patients was being fed via percutaneous endoscopic gastrotomy (PEG) tube at the time of completing the questionnaires, and therefore 3 items (chewing, swallowing, and taste) of the UWQOL questionnaire were not applicable. In regard to the UWQOL, the mean score for each domain was relatively high, with a number of patients choosing the best possible response (Table 1).

Table 1: University of Washington Head and Neck Questionnaire Domain Scores.

Domain	Mean (SD)	Best Score (%)	Worst Score (%)
Pain	89.4 (20.0)	66.2	0.0
Appearance	72.0 (21.8)	29.8	0.0
Activity	74.3 (24.3)	44.5	0.0
Recreation	79.5 (17.1)	38.4	0.0
Swallowing	73.4 (35.2)	59.9	0.0
Anxiety	79.9 (27.6)	48.5	0.0
Taste	89.9 (24.9)	69.4	0.0
Chewing	66.5 (32.2)	41.1	0.0
Saliva	74.6 (30.3)	51.5	0.0

For the global QOL domain, the results showed that most patients fell into “somewhat better—about the same” for category A and “very good—good” for category B and C. With the importance rating of domains, speech was considered most important issue over the past 7 days followed by pain and swallowing after allowing for patients to choose up to 3 domains. Changes to shoulder function were considered least important to patients. Approximately two thirds of the 44 participants were pain free as reported on the UWQOL (66.2%) and EORTC QLQ-C30 (74.3%). Regarding activity, 45.5% did not report significant changes in their activity rates, whereas the remainder reported minimal disturbances to their normal daily routine. On the EORTC QLQ-C30, 44.5% and 66.2% achieved the best possible score for physical functioning and role functioning, respectively. Overall there were favorable responses on the UWQOL in respect of pain, taste, and shoulder disabilities. The worst outcomes were reported in chewing and saliva production. On the EORTC QLQ-C30 the most prevalent problems during the previous week before completion of the questionnaire was fatigue, insomnia and financial difficulties. Using Spearman rank correlations, emotional functioning of the EORTC QLQ-C30 was found to significantly correlate the mood (rho _ 0.51, *P* _ .01) and anxiety (rho _ 0.70, *P* _ .002) domains of the UWQOL version 4. compares different data for the UWQOL according to the clinicodemographic features of the patients in the study. Several clinicodemographic features, including age, overall stage, free flap, neck dissection, and adjuvant radiotherapy, were found to significantly affect QOL.

DISCUSSION

This study was a pilot trial to assess the QOL of patients undergoing surgery for the treatment of oral cancer primarily by surgery in an Australian population. In general, good postoperative QOL scores were found in the present study using the UWQOL and the EORTC QLQ-C30. Some interesting issues were discovered that decreased QOL scores. Chewing received the worst score (64.3) in the UWQOL, whereas speech, pain, and swallowing were considered the 3 most important issues for patients in the week prior to completion of the questionnaires. Chewing, speech, and swallowing have been previously reported as most important issues,[15] which is similar to the findings of the present study. Poor correlation, though, between importance rating and domain scores with a wide variation in importance ratings has been previously described.[16] Fatigue, insomnia, and financial difficulties were found to have the lowest scores in the EORTC QLQ-C30. Fatigue and financial problems have been previously found to increase significantly compared with preoperative,[12] which may reflect the incapacitating nature of the illness with associated loss of employment and income. Because of the cross-sectional nature of this study, Pain and persistent problems with chewing soft foods have also been found in long-term survivors.[9] Looking at similar domains, the 2 questionnaires correlated well together.

The mood and anxiety domains of the UWQOL version 4 were added to increase the amount of psychological assessment that the UWQOL could achieve as a single questionnaire. As a validation exercise, the emotional domain of the EORTC QLQ-C30 was assessed with the mood and anxiety domains of the UWQOL version 4, and these did significantly correlate adding to the validity of the new domains. This confirms the findings of other cross-sectional studies with much larger sample sizes.[15] The authors of the present study still recommend, though, the use of a general cancer QOL measure in addition to a specific QOL measure such as the UWQOL. A number of interesting factors were found to significantly affect QOL in this cohort using the UWQOL. Older patients had better significantly better QOL, and this finding has been reported previously.[20,21] Younger patients have been found to have more perceived dysfunction at 1 year[21] and are at higher risk of psychological distress.[20] Younger patients treated for head and neck cancer 1 year post-treatment had a decrease in role and emotional function and a larger increase in regard to dry mouth compared with older patients.[18] Older patients, though, had more problems with sexuality, senses, and use of nutritional supplements. These findings may be explained by different expectations of outcome between younger and older patients, with younger patients having higher expectations, which may difficult to attain. Surgery, in regard to QOL, does not appear to be contraindicated in older patients, and this confirms previous reports.[8] In the present study, there was no difference in QOL scores for males and females, which confirms previous reports of patients with oral cancer.[8,12] However, in head and neck cancer, Westin et al[22] reported increased problems with alcoholism, mental disorders, and malnutrition in men, and Bjordal et al18 found women to have worse pretreatment QOL scores than men, with no difference between the genders at 1 year. Women have also been found to have greater functional impairments in regards to mobility, recreation, and eating than in men.[21] There was no significant difference in QOL scores in regard to the site of tumor in the present study. In comparison, Rogers et al[8] found decreased QOL scores in patients with posterior tumors, which was thought to be related to lower swallowing scores. At 2 to 10 years, no difference in QOL scores has been found according to site.[19] The similarity between the findings of Klug et al19 and the present study may be secondary to similar methodology. Both were postoperative, cross-sectional studies with patients recruited at review appointments.

Although this has been found to significantly affect QOL scores in the past.[8,23] Long-term assessment of QOL has also found no significant difference in QOL scores of different T stages.[19] The present study showed a significant difference in QOL scores of those patients having free flap reconstruction and those who did not. In a cross-sectional study, Freedlander et al[24] reported no difference in psychosocial functioning between patients undergoing free flap versus regional flap reconstruction. However, there are few prospective longitudinal studies looking at the effects of reconstruction on QOL in patients with oral cancer. Schliephake and Jamil[17] reported patients undergoing reconstruction of large anterior defects with myocutaneous free flaps having the worst QOL scores, whereas patients reconstructed with radial fasciocutaneous free flaps had a functional and physical score deterioration at 3 months that become comparable to patients with local flaps at 1 year with a significant increase in oral function and social domains that surpassed baseline levels. However, patients undergoing microvascular free flap reconstruction have also been associated with a significantly increased length of stay, which was associated with significantly lower chewing, swallowing, and cumulative UWQOL scores.[25] Older patients, larger tumors, single patients with little social supports, early complications, and those undergoing segmental resection were found to influence length of stay in the free flap group. No randomized or other controlled trials have been performed looking at the influence of methods of reconstruction and their effect on QOL. Neck dissections can add extra morbidity to patients undergoing resection for oral cancer. In the present study, significantly worse QOL scores were found in patients undergoing neck dissection than in those who have not. Of the neck dissection group, only 1 patient had a radical neck dissection and this patient scored the worst (0.0) for shoulder function in the UWQOL. Laverick et al[26] reported little shoulder dysfunction associated with unilateral neck dissections (level I to III/IV) compared with no dissection but significantly worse shoulder function in bilateral neck dissections (level I to III/IV) or if extension to level V was performed. A number of other factors may influence QOL after neck dissection, including patient's age, weight, type of neck dissection, and radiotherapy. 27 In the long term, though, the type of neck dissection has been found to not influence QOL.[19] In a number of longitudinal trials, the use of postoperative radiotherapy has found to significantly affect QOL in oral cancer treated primarily by surgery,[8,11,28] confirming the findings of the present study. A similar decrease in QOL has also been found in those patients receiving neoadjuvant chemoradiotherapy There is little in the literature regarding the effects of smoking on QOL postoperatively, and in the present study, this was not found to be a significant factor. Because of the cross-sectional nature of the present trial, an attempt was made to assess the difference between QOL scores gained in patients less than and greater than 1 year postoperative. QOL scores were not significantly different either before or after 1 year postoperative, which may represent a survivorship effect. There are some limitations to the findings of this study. It is a cross-sectional pilot trial with a small number of participants. Taking this in consideration, though, revalidation of the new emotion domains of the UWQOL version 4 was achieved, and some interesting findings were reported in regard to factors affecting QOL, which has stimulated further research using longitudinal studies in this field.

In conclusion, good QOL scores were found cross sectionally in a cohort of Australian patients being treated for oral cancer. The new emotional domains of the UWQOL version 4 were found to correlate well with similar domains in the EORTC QLQ-C30, although it is still recommended that a general cancer questionnaire, such as the EORTC QLQ-C30, be used in conjunction with a cancer-specific questionnaire such as the UWQOL. The administration of the questionnaires was found to be efficacious, and this pilot trial has provided the foundation for prospective, longitudinal assessment of QOL parameters in our patients treated for oral cancer as part of a prospective computerized database. A number of factors affecting QOL were identified, including age, overall stage, the use of free flaps, neck dissections, and the use of adjuvant radiotherapy.

CONCLUSIONS

This study confirms previous reports in the literature. It has provided us with the foundation for further investigation of QOL in patients who have been and who will be treated for oral cancer. It also gives us a new measure of outcome to compare against survival rates.

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