



Predictors affecting quality of life in patients with upper aerodigestive tract cancers: a case-control study from India

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Objective. The aim of this study was to measure quality of life (QOL) in patients with upper aerodigestive tract (UADT) cancer in comparison with hospital-based controls. We also assessed the impact of various clinical predictors at time of diagnosis of disease/cancer on QOL in these patients.

Study Design. A case-control study was conducted (N = 480) with 240 UADT cancer cases and 240 controls matched by gender and age (≥ 5 years) from 2 different hospitals in Pune, India. The University of Washington Quality of Life Questionnaire was used to measure QOL and was administered through face-to-face interviews. Various QOL domains were analyzed by using one-way analysis of variance and Bonferroni adjustments for post hoc comparisons.

Results. Cases had significantly lower scores across all domains of QOL compared with controls. Overall, the most affected domains were anxiety and mood. Cancer site significantly influenced QOL, with patients with cancers of the oropharynx and hypopharynx having the worst mean scores across all domains. Patients with stage IV cancer had the worst mean scores across the majority of the QOL domains. Our findings highlight the complex interactions between individual and clinical predictors that have an impact on QOL.

Conclusions. QOL needs to be incorporated as an important outcome measure in an individualized approach to therapeutic and palliative care planning to enable a better quality of survival of patients with UADT cancers. (Oral Surg Oral Med Oral Pathol Oral Radiol 2017;123:550-558)

Cancers of the upper aerodigestive tract (UADT; including cancers of the lip and oral cavity, oropharynx, hypopharynx, larynx, and esophagus) are the fifth most common cancer in the world and a leading cause of cancer mortality with an estimated 1,055,000 new cases and 725,000 deaths worldwide.¹ More than 90% of the cases of head and neck cancer are squamous cell carcinomas and variants thereof, originating from the epithelium of the mucosal lining of the UADT.² Southeast Asia, including India, is the most severely affected region as a result of the wide prevalence of environmental risk factors, such as tobacco consumption in all its forms and alcohol drinking.^{2,3} Survival rates are still very poor despite the advances made in chemotherapy, radiation therapy, and modern surgical procedures.⁴ In most cases, cancers of the UADT are diagnosed at an advanced stage and during the later years of life (generally between 60 and 65 years).⁵ However, patients at this stage of life also suffer from ≥ 1 medical comorbidities and therefore may not tolerate the toxic and disfiguring effects of

treatment of cancers in this region of the body, leading to deterioration in quality of life (QOL).⁶

QOL is a dynamic multidimensional concept that provides a patient's perception of himself or herself in society. The World Health Organization defines QOL as an "individual's perception of his or her position in life in the context of the culture and value systems in which the patient lives and in relation to his or her goals, expectations, standards, and concerns."⁷ With development of new treatment modalities, the QOL of patients with UADT cancers has become an important outcome to be measured along with survival rates, especially when survival rates are not improving significantly.^{8,9}

The clinical manifestations, as well as the effects of single or a combination of ≥ 2 treatments, such as chemotherapy and radiation, are potentially devastating and can lead to a negative effect on QOL. This mainly results from significant dysfunction in chewing, swallowing, breathing, and respiration, as well as negative alteration of cosmetic appearance because of

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Statement of Clinical Relevance

In upper aerodigestive tract cancer cases, quality of life needs to be incorporated as an important outcome measure in an individualized approach to therapeutic and palliative care planning, with treatment and support strategies to enable a better quality of survival.

the anatomic characteristics of the affected sites.¹⁰ Patients may also experience episodes of chronic pain and sensory impairment, depending on the site and stage of cancer. All these factors are compounded and lead to poor mental health (mood, anxiety) among patients with UADT cancers compared with those with any other cancer.¹¹ Furthermore, relatively little concern is expressed by the treating physicians or surgeons with regard to effect of treatment on the patient's QOL measures, such as physical activity, recreation, mood, and anxiety, whereas the main focus has been ensuring the patient's survival. In view of this, QOL is an important outcome measure in assessment of the effect of disease and of treatment of UADT cancers.

Multiple questionnaires are available for measuring QOL in patients with cancer.^{12,13} Among the available options, the University of Washington Quality of Life Questionnaire (UW-QOL) has been frequently used and validated in India.¹⁴ The UW-QOL is an easy-to-administer, brief, multifactorial questionnaire, which has been validated in multiple languages, including Marathi (language required in region of this study), and in different countries.¹⁴⁻¹⁶

The purpose of this study was to measure QOL in patients with UADT cancers and the effect of such factors as site of cancer, stage at diagnosis, gender, and age at time of diagnosis, on QOL. Although a few studies have been conducted to measure QOL in head and neck squamous cell carcinomas, to the best of our knowledge, this is the first-ever study to measure QOL and factors affecting it in patients with UADT cancers. We aimed to identify how diagnoses of UADT cancers affected overall QOL and which particular QOL domains were affected the most.

MATERIAL AND METHODS

Study design

The study was designed as a hospital-based, case-control study. Patients within the age group of 30 to 80 years were enrolled from 2 different multidisciplinary hospitals: Sadhu Vaswani Mission's Medical Complex and Command Hospital in Pune, Maharashtra, India, between June 2014 and May 2015. Only the incident cases (diagnosis within the past 2 months from the date of interview) of histopathologically confirmed diagnosis of UADT cancers were invited to participate in our study, as the time between the date of diagnosis and the time of interview can affect the QOL of patients.¹⁷ UADT cancer subsites were coded by International Classification of Diseases (ICD-10 codes).¹⁸ These included the lip and oral cavity (ICD C00-06), oropharynx (ICD C09-C10), hypopharynx (ICD C13), larynx (ICD C32), and upper third of the esophagus (ICD C15.3).¹⁹ Cases of cancer of the nasopharynx were

excluded from the study, as they have different risk factors and different biologic behaviors. Cancer stages as I, II, III, and IV was based on the tumor-node-metastasis classification.²⁰ Initially, 242 patients with UADT cancers were approached for the study. However, 2 patients refused to participate in the study because of ill health and inability to speak.

Controls were selected from the same population as of the study cases. These were randomly selected patients who had been diagnosed with a disease other than UADT cancers and who were seen in inpatient and outpatient clinics for nonmalignant conditions during the same study time frame based on "incidence density" sampling.²¹ Cases and controls were frequency matched to each other by gender and age (± 5 years). Patients diagnosed with diseases related to tobacco and alcohol (e.g., chronic bronchitis, cardiovascular diseases, liver cirrhosis, and pancreatitis) were not approached as controls. A total of 240 patients were approached to be controls for the study, and all of them agreed to participate.

Measures

The study questionnaire was designed by using an online research tool "Lime Survey," and data were collected by the primary author of this study (B.G.) using a handheld tablet. Basic sociodemographic and behavior data were self-reported by the study participants. Medical information, including cancer subsite, stage, and comorbidity status, was extracted from patient medical records.

QOL was measured using the 12 domain questions in the latest version (v. 4) of the UW-QOL questionnaire. Global questions and importance question were not analyzed. This questionnaire focuses on the subjective symptoms or functions of the patients associated with QOL in the past 7 days from the time of interviews. The first part of the questionnaire is based on 12 single question domains having 3 to 5 response options that are scaled evenly from 0 (worst subjective symptom/function) to 100 (best symptom/function). The 12 domains reflecting the QOL of patients with UADT cancers in the past 7 days from the time of interview are pain, appearance, activity, recreation, swallowing, chewing, speech, shoulder, taste, saliva, mood, and anxiety. Possible domain scores are 0, 25, 30, 50, 70, 75, and 100. These scores are assigned to each number according to a published guideline.²² Items in the questionnaire have 3, 4, or 5 responses. Questions with 3 responses are scored as 0, 50, or 100; those with 4 responses are scored as 0, 30, 70, or 100; and those with 5 responses are scored as 0, 25, 50, 75, or 100.

Ethics statement

All of the study participants were contacted directly in the presence of nursing or paramedical staff. At the first

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