Assessment of quality of life in patients with laryngeal cancer: A review of articles

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Abstract

This article presents a review of the medical literature published between 1994 and 2014 with the use of the PubMed database concerning quality-of-life instruments for head and neck cancer patients used to assess general well-being of patients with laryngeal cancer. The PubMed database was searched for articles containing the keywords "quality of life", "laryngeal neoplasm" and "questionnaires". The resulting articles were reviewed and analyzed. After the identification of questionnaires, an additional search was performed. The articles and questionnaires were described and analyzed. In 43 articles, the authors used questionnaires specific to the head and neck regions in order to assess the quality of life in patients with laryngeal cancer. Four different questionnaires were identified. The European Organization for Research and Treatment of Cancer (EORTC) questionnaire is most commonly used to assess the quality of life in patients with laryngeal cancer. Questionnaires are generally used in order to select from a range of different treatment methods. There are a few head and neck cancer-related quality-of-life instruments which are widely used to assess the quality of life in patients with laryngeal cancer, but they are not dedicated to that region of the body. Today, there is much more attention paid to the quality of life; therefore, there is a real need to develop specific scales for different types of cancer.

Key words: literature review, health-related quality of life, quality of life questionnaire, head and neck neoplasms, laryngeal neoplasm

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Introduction

The group of neoplasms called head and neck cancers (HNC) – mainly because of their location – is the 10th most common group of cancers worldwide. They mostly begin in the squamous cells in mucosal organs in the head and neck area, such as the oral cavity, the pharynx, the larynx, the paranasal sinuses, the nasal cavity, and the salivary glands. Laryngeal cancer is the most commonly occurring neoplasm in this group. Symptoms may include a lump or sore that does not heal, a sore throat, difficulty in swallowing, and hoarseness in the voice. People who use tobacco, drink alcohol, or are exposed to the human papilloma virus are at risk of developing the disease. Treatment of laryngeal cancer because of its radical and traumatic type in every stage of the disease or therapy, i.e surgery, radiotherapy and chemotherapy, can have an effect on the quality of life even a few years later.[1,2]

Quality of life (QoL) is described as the quality of an individual's daily life. It is an evaluation of a person's well-being or lack thereof. This consists of the emotional, social, and physical aspects of a person's life. In healthcare, QoL is an assessment of how different aspects of an individual's life can be affected by a disease or a disability. Over the years, the concept of health-related QoL has evolved to encompass all aspects that can be proven to affect one's physical or mental health. Measuring QoL can deliver an enormous amount of information which has great value in modifying treatments, selecting drugs, avoiding side effects, and preventing disease.[3]

The aim of this study was to review the specific instruments used to assess the QoL in patients with laryngeal cancer.

Description of current knowledge

Numerous international organizations have undertaken to create instruments which would be able to accurately assess an individual's health-related QoL. There is a wide range of factors which need to be covered by this kind of questionnaire. The various tools for measuring QoL can be divided into 2 groups: general and specific. General scales assess QoL without recording the impact of the disease in particular, i.e., regardless of the pathologies. Specific scales are focused on a group of diseases, a single disease, factor, or even symptom.[4]

In this study, the PubMed database was searched using the MeSH keywords "quality of life", "laryngeal neoplasms" and "questionnaires" for articles published from 1990 to 2015. In total, 119 articles were found. Articles in any language other than English were not considered. Evaluation of the title and abstract excluded 76 studies, leaving 43 eligible for review. In the second search, the database was searched for properties and validations of these instruments.

Four different QoL questionnaires were identified. All questionnaires were specific to head and neck oncology, but were used for patients with laryngeal cancer. Some publications have reported the use of the European Organization for Research and Treatment of Cancer (EORTC) QLQ-C30 and H&N modules, the University of Washington Quality of Life Questionnaire (UW-QOL v4), the Functional Assessment of Cancer Therapy for patients with head and neck cancer (FACT-H&N), and the University of Michigan Head and Neck specific Quality of Life Instrument (HNQoL). The most widely used questionnaire is the EORTC QLQ-H&N module, followed by the UW-QOL (Table 1).

Table 1. Usage of head and neck scales

Questionnaire	Citations (No./%)
European Organization for Research and Treatment of Cancer (EORTC QLQ-H&N)	29/67.44
University of Washington Quality of Life Questionnaire (UW-QLQ v4)	10/23.25
Functional Assessment of Cancer Therapy for head and neck cancer (FACT-H&N)	3/6.97
University of Michigan Head and Neck specific Quality of Life Instrument (HNQoL)	1/2.33

There are a few studies where a specific region of the larynx (like the glottis or the hypolarynx) was assessed, but there are many more where the whole larynx as a region was taken into consideration. The authors mostly use these instruments to compare different methods of treatment. There are also a few studies where the authors have assessed voice quality, mental disorders, dysphagia, or sexual functioning (Table 2).[5–47]

Quality of life assessment tools

In 1994, Bjordal et al. developed the European Organization for Research and Treatment of Cancer questionnaire module to assess QoL in HNC patients. That module was specifically designed to be used before, during and after radiotherapy or surgery. The preliminary questionnaire was tested in patients from more than 5 European countries. The result was a questionnaire consisting of 37 items concerning disease- and treatment-related symptoms, social functioning and sexual functioning.[48] Hammerlid et al. showed that the QLQ-C30 questionnaire was well received by patients and that the results seemed to be sensitive to changes during the one-year study. Symptoms like difficulty swallowing, hoarse voice, sore mouth, dry mouth, and problems with the sense of taste showed the greatest variability in HNC patients.[49] The reliability and validity of the EORTC head and neck cancer module (QLQ-H&N35) and v. 3.0 of the EORTC Core Questionnaire

Table 2. Purposes and regions for which questionnaires were used

Authors	Questionnaire	Region	Purpose of use	Ref. No.
Zheng et al.	EORTC	supraglottic	swallowing assessment	5
Kucuk et al.	EORTC	larynx	comparison of treatment methods	6
Vilaseca et al.	UW-QLQ v4	larynx	comparison of treatment methods	7
Laoufi et al.	EORTC	glottis	voice quality assessment	8
Risberg-Berlin et al.	EORTC	larynx	rehabilitation results assessment	9
Robertson et al.	UW-QLQ v4	larynx	quality of life dependence on the stage of tumor after treatment	10
Filipovska-Mušanović et al.	EORTC	larynx/hypolarynx	comparison of treatment methods	11
Kanatas et al.	UW-QLQ v4	oral/oropharyngeal/laryngeal	quality of life assessment process	12
Gilbert et al.	EORTC	larynx	comparison of treatment methods	13
Mallis et al.	EORTC	larynx	comparison of treatment methods	14
Hamid et al.	EORTC	larynx	comparison of treatment methods	15
Azevedo et al.	UW-QLQ v4	larynx/hypolarynx	voice quality	16
Johansson et al.	EORTC	larynx	mental adjustment to cancer	17
Danker et al.	EORTC	larynx	alcohol consumption assessment	18
Guibert et al.	EORTC	hypopharyngeal/laryngeal	different treatment methods	19
Bajaj et al.	UW-QLQ v4	glottis	voice quality assessment	20
Robertson et al.	UW-QLQ v4	larynx	voice quality assessment	21
Varghese et al.	EORTC	larynx	voice quality, rehabilitation results assessment	22
Maclean et al.	UW-QLQ v4	larynx	dysphagia assessment	23
Singer et al.	EORTC	larynx	sexual functioning assessment	24
Singer et al.	EORTC	larynx	quality of life assessment process	25
Johansson et al.	EORTC	larynx	communication problems assessment	26
Minovi et al.	EORTC	larynx	comparison of treatment methods	27
Boscolo-Rizzo et al.	EORTC	larynx	comparison of treatment methods	28
Bindewald et al.	EORTC	larynx	comparison of treatment methods	29
Singer et al.	EORTC	larynx	mental disorders assessment	30
Ringash et al.	FACT-H&N	larynx	quality of life assessment process	31
Bahannan et al.	EORTC	glottis	comparison of treatment methods	32
Mowry et al.	UW-QLQ v4	larynx/oropharynx	comparison of treatment methods	33
Scalet et al.	EORTC	larynx	mental disorders assessment	34
Derks et al.	EORTC	larynx	mental disorders assessment	35
Loughran et al.	UW-QLQ v4	glottis	different treatment methods	36
Sewnaik et al.	EORTC	larynx	different treatment methods	37
Ringash et al.	FACT-H&N	larynx	quality of life assessment process	38
Derks et al.	EORTC	larynx	comparison of treatment methods	39
Muller et al.	EORTC	larynx	comparison of treatment methods	40
Paleri et al.	HNQoL	larynx	comparison of treatment methods	41
Zotti et al.	EORTC	larynx	comparison of treatment methods	42
Stoeckli et al.	EORTC	larynx	comparison of treatment methods	43
Ringash et al.	FACT-H&N	larynx	comparison of treatment methods	44
Allal et al.	EORTC	larynx/hypopharynx	comparison of treatment methods	45
Deleyiannis et al.	UW-QLQ v4	larynx	quality of life assessment process	46
Hammerlid et al.	EORTC	larynx	comparison of treatment methods	47

EORTC – European Organization for Research and Treatment of Cancer; UW-QLQ v4 – University of Washington Quality of Life Questionnaire; FACT-H&N – Functional Assessment of Cancer Therapy for head and neck cancer; HNQoL – Head and Neck specific Quality of Life Instrument.

(QLQ-C30) were confirmed in studies of large groups of patients from many different countries with HNC in different stages of treatment. The EORTC QLQ-C30 and head and neck module (QLQ-H&N35) demonstrates reliability and sensitivity to different groups of patients and types of treatment.[50,51]

The University of Washington Quality of Life Scale (UW-QOL) was first published in 1993, and since then it has been developed to its current stage. It consists of 12 domains: pain, appearance, activity, recreation, swallowing, chewing, speech, shoulder, taste, saliva, mood, and anxiety; each of these are followed by an importance rating scale over the past 7 days. The third part of the questionnaire consists of 3 questions: 1 asking how patients are feeling in comparison to the month before they developed cancer, 1 question about QoL related to health and 1 about their overall QoL.[52]

The Functional Assessment of Cancer Therapy for Head and Neck Cancer Scale (FACT-H&N) is one of many scales developed by the Functional Assessment of Chronic Illness Therapy (FACIT) measurement system. This questionnaire is specific to the head and neck region and consists of 5 domains; 4 of them are rather general, including "physical wellbeing", "social/family wellbeing", "emotional wellbeing", and "functional wellbeing", while the last domain is known as "additional concerns" – it strictly regards symptoms connected to the disease. The validity and reliability of this scale have also been confirmed.[53]

The University of Michigan Head and Neck-Specific Quality of Life Instrument includes 20 items scored on a 5-point rating scale: 0 – not at all, 1 – slightly, 2 – moderately, 3 – a lot, and 4 – extremely. Items are grouped into 4 domains: eating and swallowing, communication, head and neck pain, and emotional wellbeing. It also has additional optional questions A–G which are useful for deeper insight into the patient's health and their attitudes towards the treatment.[54]

Conclusions

Nowadays, there is a large variability in the QoL assessment tools specific to HNC which have been translated and validated in many different countries and languages. However, among these, there are not many which are specific to patients with laryngeal cancer. Because of its location and functional importance, the larynx plays a critical role in the maintenance of such cardinal physiological functions as phonation, the regulation of respiratory airflow, airway protection, and swallowing. Both the laryngeal cancer itself and the impact of its treatment can affect laryngeal functions. QoL should be taken into account in the selection of treatment. It affords the possibility of choosing the treatment which has not only had the best results in clinical trials, but has also had the best effect on QoL in patients after treatment. All of the scales are similar: they concern many of the same domains, but are grouped differently. The European Organization for Research and Treatment of Cancer Quality of Life Questionnaire and the University of Washington Quality of Life Questionnaire are the most commonly used ones in the assessment of patients with laryngeal cancer, but they are not strictly specific to that neoplasm. The QLQ-C30 module in connection with QLQ-H&N35 seem to cover most of the important aspects, but the disadvantages of this questionnaire are the large number of questions (65), the time needed to complete the questionnaire, and the complicated scoring algorithm. The UW-QOL is commonly used because of its simplicity, which makes it useful for patients. This questionnaire consists of 12 domains, but QoL in each domain is calculated on the basis of only 1 question, one which might not exactly describe the person's feelings. The FACT-H&N is only divided into functional scales, and though it includes questions about symptoms, it is impossible to compare QoL based on symptomatic scales. The University of Michigan Head and Neck Instrument, in turn, is calculated into only 1 simple result, which does not allow QoL comparison across different domains. None of the instruments described above seem to be sensitive or specific enough to cover all the changes in the larynx's functioning caused by cancer and the impact of different types of treatment. This is confirmed by the fact that the literature describes the use of different questionnaires focused on specific symptoms, such as voice-related QoL or swallowing-related QoL, as a supplement to head and neck cancer questionnaires.

Standardization in QoL assessment and the ability to choose 1 or 2 widely used and well-known questionnaires would more readily facilitate the comparison of results from different studies in research centers around the world.

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