REVISTA CEFAC
SPEECH, LANGUAGE, HEARING SCIENCES AND EDUCATION JOURNAL
Rev. CEFAC. 2016 Maio-Jun; 18(3):766-776 doi: 10.1590/1982-021620161831511 5

Revision articles

Supracricoid Partial Laryngectomy: literature review on quality of life protocols

Laringectomias supracricóides: revisão de literatura em protocolos de qualidade de vida

Iára Bittante de Oliveira[1]
Daniela Regina Soares de Marialva[1]

[1] Pontifícia Universidade Católica de Campinas - PUC Campinas, Campinas, São Paulo, Brasil

Conflict of interest: non-existent

ABSTRACT

Supracricoid Partial Laryngectomy (SCPL) is indicated for treatment of tumors staging 1 and 2, and some cases of advanced tumors. It is considered by literature as presenting satisfactory results for both, preservation of larynx and its functionality. This study aimed a systematic review of literature on voice related quality of life in patients submitted to SCPL, identifying protocols of quality of life regarding head and neck cancer. The following database was consulted for the systematic exploratory literature review: MEDLINE, SCIELO, LILACS; PUBMED. Portuguese, English and Spanish-language descriptors (DeCS) were used. The selection of articles followed inclusion criteria for Relevance Test appliance. This literature review revealed that the protocols used specifically with oncologic patients of head and neck, were mainly EORTC-C30/H&N35, UW-QOL and HNQOL. The SCPL even though to be considered a surgery that allows the preservation of swallowing and phonation functions is pointed as having the possibility of remaining complaints in such functions. Literature affirms that patients were satisfied with their own voice, having little difficulty in order to communicating in a intelligible way. Studies report patients with breathing difficulties after SCPL, including obstructive sleep apnea. It was concluded further researches aiming at pointing the difficulties resultant from SCPL and using more specific head and neck protocols are necessary, which may better reveal the impact of SCPL on quality of life.

Keywords: Voice; Dysphonia; Head and Neck Neoplasms; Laryngectomy; Quality of Life

RESUMO

A Laringectomia Parcial Supracricóide (LPSC) é indicada para tratamento de tumores com estadiamento1 e 2 e certos casos de tumores avançados. É considerada pela literatura como apresentando resultados satisfatórios em ambas situações, preservação da laringe e funcionalidade. Este estudo tem como objetivo rever de forma sistemática a literatura voltada para qualidade de vida em voz de pacientes submetidos a LPSC, identificando-se os protocolos de qualidade de vida em câncer de cabeça e pescoço. Para a revisão de literatura sistemática exploratória foram considerados os seguintes bancos de dados: MEDLINE, SciELO, LILACS; PubMed. Utilizados descritores em português, inglês e espanhol. A seleção dos artigos seguiu critérios de inclusão, para aplicação de teste de Relevância. Esta revisão de literatura revelou que os protocolos específicos para pacientes oncológicos de cabeça e pescoço mais utilizados são o EORTC-C30/H&N35, UW-QOL e HNQOL. A LPSC embora seja considerada uma cirurgia que vise à preservação das funções de deglutição e fonação é apontada como tendo possibilidade de permanência de queixas em tais funções. A literatura afirma que os pacientes se declaram satisfeitos com a própria voz, tendo pouca dificuldade para se comunicar de forma inteligível. Estudos relacionam pacientes com dificuldades respiratórias após LPSC, inclusive com apneia obstrutiva do sono. Conclui-se que ha necessidade de mais pesquisas que visem pontuar as dificuldades resultantes da LPSC e que utilizem protocolos específicos em cabeça e pescoço, para melhor mostrar o impacto da LPSC na qualidade de vida.

Descritores: Voz; Disfonia; Neoplasias de Cabeça e Pescoço; Laringectomia; Qualidade de Vida

Received on: September 22, 2015
Accepted on: April 14, 2016

Mailing address:
Iára Bittante de Oliveira
Av. John Boyd Dunlop - s/n.º
Jd. Ipaussurama, Campinas (SP)
CEP: 13060-904
E-mail: ibittante@puc-campinas.edu.br

INTRODUCTION

The supracricoid partial laryngectomy (SCPL) was idealized aiming at avoiding the total laryngectomy[1] and it has been considered as a good alternative for T1 and T2 tumors and some T3 and T4 selected cases, once its results are found to be satisfactory for both, the laryngeal preservation and functions, when compared to total laryngectomy (TL)[2-6]. Several literature reports show local control, low recurrence rate[5,7-10] and survival rates similar to TL[1-3], besides allowing the nonuse of permanent tracheostomy, which enables the oral feeding, voice preservation and social functions, providing a better quality of life[5,6,11-14]. Thus, the SPL justifies itself as an alternative of great value once it allows the maintenance of voice without the use of any device and without training[15]. However, it is known that in partial laryngectomy there is always a vocal quality prejudice characterized as hoarse, breathy, with a consequent prejudice of speech intelligibility, affecting the quality of life[8,16].

In general, it is possible to acknowledge that the quality of life is severely affected in patients submitted to head and neck surgeries. Besides the impact of a cancer diagnosis, there is, as a consequence of the treatment, the prejudice of primordial functions for social living such as appearance, voice and swallowing, which are seriously affected[11,17].

Studies show that nearly half of the patients in treatment for head and neck cancer present depressive symptoms during and after the treatment of the disease[18]. The quality of life is worse in patients submitted to TL when compared to patients submitted to SCPL, who present better scores when assessed through quality of life protocols[19].

In the last decades, there has been changes in the assessment of quality of life of patients. Before, the concern was to assess the patient's survival after the tumor. Nowadays, there is a concern about the quality of life after treatment and the functionality of the affected organ, generating researches on patients' quality of life[20].

Therefore, assessing the quality of life of oncologic patients becomes complex, considering that it involves physical and psychological matters, and that priorities of patients vary according to the individuality, values and beliefs[21]. It depends on factors involved in each one's lives, and the quality of life is a "subjective multi-dimensional and personal constructo"[22]. However, assessing the quality of life of patients with head and neck cancer, more specifically, enables the choice of approaches aiming not only at the survival, but also at the emotional necessities, offering more conditions for the team involved in the treatment to know the most affected parameters, and choose treatments that value the quality of life of such patients[20].

The literature review on supracricoid laryngectomies points out that there is a lack of researches aiming at knowing the functional results of SCPL. The revised studies show heterogeneous methods of assessment, use of parameters and scales, not allowing a significant meta-analysis[20].

This study aims to review systematically the literature on the analysis of voice-related quality of life in patients submitted to supracricoid laryngectomy, concerning the of types of protocols used, results and evidences of ways of coping with the vocal prejudice.

METHODS

The systematic exploratory literature review was performed using the following database: Medical Literature Analysis and Retrieval System (MEDLINE), Scientific Electronic Library Online (SciELO), Latin-American and Caribean Health Sciences Literature (LILACS) and PUB Med. The descriptors (DeCs) were researched in Portuguese, Spanish and English. In order to complement the location of articles, the research tool ClinicalKey, was used with English descriptors.

The descriptors and combined terms selected in Portuguese were: *laringe, voz, disfonia, voz alaríngea, laringectomia, qualidade de vida, qualidade de voz, distúrbios de voz* and *neoplasia de laringe*. Respectively, in English: larynx, voice, dysphonia, speech alaryngeral, laryngectomy, quality of life, quality of voice, laryngectomy partial, voice disorders, head and neck neoplasms. And, in Spanish: *laringe, voz, disfonía, voz alaríngea, laringectomia, calidad de vida, calidad de la voz, trastornos de la voz, neoplasias de cabeza* y cuello.

The selection of articles was performed by the two authors of this study and, for greater reliance of research results, a relevance test was conducted[23], with a previous conception of a form for this purpose (Figure 1).

Thus, three stages were followed: Relevance Test I, applied from the reading of the articles' titles and abstracts in order to verify whether they were original studies about voice-related quality of life in subjects submitted to partial laryngectomy, published between 2004 and 2015. The articles considered pertinent to

the aim of the study followed to Relevance Test II – phase I, in which all articles were read and confirmed to be related to quality of life in subjects submitted to supracricoid partial laryngectomy. Finally, in phase II, the articles using protocols or questionnaires as assessment tools for quality of life in head and neck cancer applied in subjects submitted to supracricoid laryngectomy were selected. In this stage, articles assessing quality of life in patients with dysphagia were excluded, once they did not attend the inclusion criteria of this study. The last stage was the Relevance Test III, in which only articles using assessment protocols of quality of life in head and neck cancer in patients submitted to supracricoid partial laryngectomy were selected.

Figure 1 presents the relevance tests designed and applied for the selection of articles and Figure 2 presents the flow chart illustrating the collecting and selection phases of the articles analyzed in this study.

APPLICATION FORM FOR RELEVENCE TEST I		
Inclusion criteria	Yes	No
1. The publication addresses quality of life of subjects submitted to partial laryngectomy?		
2. Is it an original article?		
3. Was the article published between 2004 and 2015?		
APPLICATION FORM FOR RELEVENCE TEST II		
Phase I	Yes	No
1. Does the publication mention quality of life in supracricoid partial laryngectomy?		
2. Was the article fully read?		
3. Phase II		
4. Does the publication have a quality of life protocol?		
APPLICATION FORM FOR RELEVENCE TEST III		
Criteria for definite acceptance	Yes	No
1. Does the publication have quality of life protocol specific for head and neck cancer?		

Figure 1. Application form for relevance tests I, II and III.

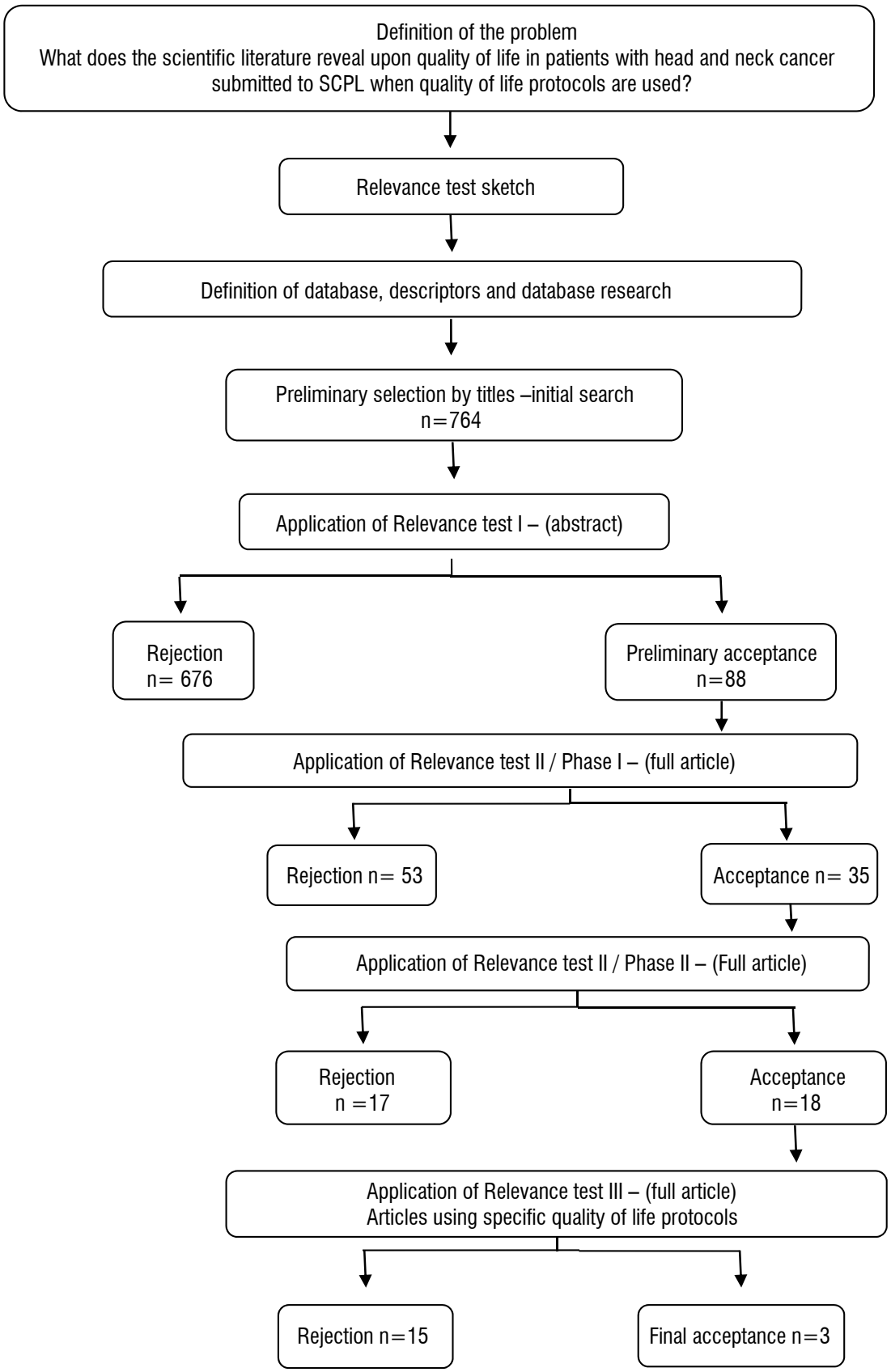

Figure 2. Flow chart of the study stages and selection of articles

Procedures for the analysis of articles

The data analysis involved systematization and description of the studies' characteristics in an exploratory review on the quality of life of patients submitted to supracricoid laryngectomy regarding the tool used, results and conclusion of each study.

The content analysis was performed according to suggested by Garabito et. al. (2009)[23], Bardin (2011)[24], with the construction of synthesis matrix based on Botelho et al., 2011[25], obeying categories designed in order to acknowledge protocols and assessment ways of quality of life in patients submitted to SCPL.

This study was approved by the Ethics Committee under protocol Nº 394.430.

LITERATURE REVIEW

This study aimed to review the literature in order to verify which specific protocols in head and neck cancer are used in the assessment of quality of life of patients submitted to supracricoid partial laryngectomy (SCPL).

Of the 35 pre-selected articles in the relevance test II that mentioned the patients' quality of life, 17 (48,57%) quoted quality of life without the use of protocols for such assessment. Part of those studies reported quality of life as good or acceptable[6,7,9,10,26,27]. The remaining 18 studies (51,42%) assessed the quality of life of patients submitted to SCPL through protocols: 12 articles used the VHI – Voice Handicap Index translated and validated to Portuguese, in Brazil named Índice *de Desvantagem Vocal* – IDV[28], not being a specific protocol for oncologic patients. Other articles used Voice-Related Quality of Life – VRQOL, concomitantly or not to the VHI, also translated and validated to Portuguese and named *Qualidade de Vida em Voz* – QVV, which is also not specific for oncologic patients[29].

Table 1 presents the identification of protocols used in the studies for the assessment of quality of life, specifying the type of protocol, its aim and the number of articles that used the respective protocols in patients submitted to SCPL.

Table 1. Protocols used to assess quality of life of patients submitted to Supracricoid Partial Laryngectomy, specific or not for oncologic patients.

Quality of Life Protocols	n	%
QVV	2	11,2
IDV	13	72,3
HNQOL	1	5,5
EORTC QLQ C 30 / H&N 35	1	5,5
UWQOL	1	5,5
Total	18	100

Obs: There are articles that used more than one protocol, justifying the non-coincidence of the numbers mentioned before, which were related to the number of articles that studied quality of life.

QVV = *Protocolo de Qualidade de Vida em Voz*; IDV = Índice *de Desvantagem Vocal*; HNQOL = Head and Neck Quality of Life; EORTC QLQ C30 / H&N35 = European Organization for Research and Treatment of Cancer Quality of Life Questionnaire; UWQOL= Washington University Quality of Life Questionnaire.

Figure 3 presents the identification of the articles selected for this study, which assessed the quality of life of patients submitted to SCPL and that used validated questionnaires specific for head and neck cancer, the main interest of this study.

According to the literature, it is possible to assess quality of life by the application of specific questionnaires. Therefore, questionnaires must be translated and validated for results reliability[30]. Nowadays, there are several instruments for the assessment of quality of life, but only a few specific for patients submitted to head and neck surgeries, and the questionnaires that have been used for this purpose are: Head and Neck Quality of Life, from Michigan University, United States (HNQOL), European Organization for Research and Treatment of Cancer (EORTC), Quality of Life Questionnaire from Washington University, United States (UW-QOL) and the Functional Assessment of Cancer Therapy (*FACT-H&N*)[31]. It is noteworthy that great part of the questionnaires for quality of life comprise questions regarding the patient's general health state. Furthermore, specific protocols for

Article	Authors and year of Publication	Article Title	Protocols used
Article 1	Moyano, JAM; Gutiérrez, RS; Nogueras, JR; Aumente, PO; Villarejo, PL. (2004).	Assessment of quality of life in patients treated by supracricoid partial laryngectomy with cricohyoidoepiglottopexy (CHEP)	(HNQOL) -*University* of *Michigan* Head and Neck Cancer - Specific Quality of Life.
Article 2	Sewnaik, A; Brink, JLVD; Wieringa, MH; Meeuwis, CA; Kerrebjin, JDF. (2004).	Surgery for recurrent laryngeal carcinoma after radiotherapy: Partial laryngectomy or total laryngectomy for a better quality of life?	*(EORTC-C30/H&N35) - European Organization for Research and Treatment of Cancer.* VHI – Voice Handicap Index
Article 3	Kandogan T, Sanal A. (2005).	Quality of life, functional outcome, and voice handicap index in partial laryngectomy patients for early glottic cancer	*(UW-QOL) University of Washington-Quality of Life Questionnaire*

Figure 3. Articles that used quality of life protocols specific for head and neck cancer in subjects submitted to supracricoid partial laryngectomy.

head and neck cancer have a greater detailing of the aspects more often affected by the disease, enabling to dimension such impact on patient's quality of life[10]. It important to stress that the assessment of quality of life of patients in early stages is different than those in more advanced stages of the disease. That is because a more conservative approach changes significantly the patient's expectations towards the treatment, diminishing the physical and emotional distress, and consequently improving the quality of life scores[13].

In this study, it was possible to verify that the most commonly used general protocol to asses voice related quality of life in individuals submitted to SCPL was the VHI. The specific protocols for head and neck cancer were: Head and Neck Quality of Life, from Michigan University (HNQOL), Quality of Life Questionnaire from Washington University (UW-QOL) and European Organization for Research and Treatment of Cancer (EORTC). All protocols have question that assess fundamental domains, such as: social, emotional and physical. The HNQOL is a faster questionnaire to be answered, followed by UW-QQOL and EORTC, respectively[32,33].

The validated questionnaires found in the three selected articles are listed with the respective characteristics summaries in Figure 4.

For a better visualization, Figure 5 provides the abstracts of the mentioned articles.

Moyano[11] used the HNQOL questionnaire to assess quality of life in patients submitted to SCPL with cricohyoidoepiglottopexy (CHEP). The results indicated a small number of patients with tumor recurrence; estimated survival after 10 years was 95,83%. These indexes, according to the author, are comparable to patients submitted to TL. Communication and overall disturbances caused by treatment were found to be the two quality-of-life domains mainly affected. Nevertheless, patients who had received radiotherapy, those who had not had their tracheal cannula removed or those that had undergone neck dissection were the most affected. The conclusion was that SCPL with CHEP as a surgical technique allows good control of the condition and has a low impact on the patients quality of life.

Sewnaik[34] compared the quality of life of patients submitted to SCPL and TL after radiotherapy. Patients were assessed through EORTC QLQ C-30 and H&N35 questionnaire and the VHI. The author did not find statistical difference between the two groups of patients. There was a discrete difference regarding the smell and taste senses, favoring the SCPL group. Authors believe that the loss of smell and taste have a negative impact on the quality of life, once patients enjoy less their meals, which doesn't necessarily mean a loss of appetite. The VHI did not show statistical difference between the groups either, since all patients were reasonable satisfied with their voices. Other two aspects also had similar results for the two subscales: physical and emotional. For the author, it was not possible to affirm clearly whether there is a great difference between patients submitted to SCPL and TL due to the lack of quality of life questionnaires specific for larynx, demanding further researches for a better specificity in protocols.

Kandogan[35] compared different laryngectomy surgical techniques, such as laryngofissure cordectomy, fronto-lateral laryngectomy, SCPL, in order to verify which ones presented better functional and vocal quality results. The UW-QOL was applied

HN-QOL
The HNQOL questionnaire was developed by the Otorhinolaryngology department of Michigan University. It is an a multiple-domain, disease-specific quality of life instrument for head and neck cancer patients. The instrument includes 20 items grouped into 4 domains: (1) eating and swallowing; (2) communication; (3) head and neck pain; and (4) emotional well-being. Each question is scored on a 5-point rating scale ranging from: 0- not at all, 1- slightly, 2- moderately, 3- a lot, 4- extremely. The global score, the mean scale goes from 0 (maximum discomfort) to 100 (without discomfort)[11].
EORTC
The EORTC QLQ-H&N30 questionnaire was developed by the European Organization for Research and Treatment of Cancer (EORTC), and it is constantly used for the assessment of quality of life (QoL) of patients with cancer. It comprises 5 functional scales (physical, emotional, social, role and cognitive), 3 symptoms scales (pain, fatigue, nausea and vomiting), a global health status, and 6 single items for the assessment of symptoms or concomitant problems (dyspnea, insomnia, appetite loss, constipation, diarrhea and financial difficulties). A high score indicates a worse QoL, except for the functional scales and the global health status. Furthermore, the EORTC has a specific module for head and neck, since the QLQ-C30 addresses cancer in general. The EORTC QLQ-H&N35 contains 35 questions and assesses the impact of the disease treatment in social life, body image, symptoms post-treatment and sexuality. It is composed by 7 Symptom scales (pain, swallowing, taste and smell problems, speech, social eating, social contact and sexuality) and more 11 single items, such as the use of pain killers and nutritional supplements, feeding tube, weight loss, weight gain. It should be employed in conjunction with the EORTC QLQ-C30 and, for all scales, high scores indicate worse QoL. All answers indicate the patient status during the last week. Scores vary from 0 to 100, where high values refer to better functional and health results. In the symptoms scale, higher values reveal higher problems, reducing the quality of life[33].
UW-QOL
The Quality of Life questionnaire from Washington University (UW-QOL) was developed in 1990, aiming to fulfil the necessity of an assessment instrument specific for patients with head and neck cancer. It consists of 12 single question domains: pain, appearance, activity, recreation, swallowing, chewing, speech, shoulder, taste, saliva, mood and anxiety. Scoring is scaled from 0 (worse) to 100 (better). The calculation may be simple, adding up each domain, or composed which is the average of the 12 domains. The UW-QOL also presents a question that allows the patient to classify the most important domains, the aspects that bothered the most during the past week. Patient classifies his global quality of life. It is the only protocol that has an open question for comments. The UW-QOL is considered easy to be applied, fast and clear. It was translated to Portuguese by the Head and Neck and Otorhinolaryngology Department of Cancer Hospital A.C Camargo in São Paulo[31].

Figure 4. Characterization synthesis of the quality of life questionnaires for head and neck oncologic patients found in the literature review

and it was verified a statistically significant difference between cordectomy and SCPL groups, and between cordectomy and fronto-lateral laryngectomy groups. The SCPL group gave the lowest scores and the cordectomy group gave the highest scores in three survey questions representing the quality of life, performances and new voices. Concerning the social impact, there was no statistical difference between the groups, since all of them evaluated this impact in a similar way. For the author, the removal of one or two arytenoid did not have any significant adverse effects on the quality of life, the functional outcomes, or the quality of voice. In general, all techniques presented in the study showed good results upon the quality of life of patients, with preservation of functional results and voice.

Some authors defend that the decanulation time[1,26,36], the concomitance with adjuvant therapies such as radiotherapy[6,10,11,37], the patient age[5,8,9,38], and the performance of cervical esvaziation[11] are factors that influence on general quality of life, affecting emotional and socials aspects[12,16]. Early decanulated patients are more satisfied with their quality of life than those who remained with the tracheostomy for a long period of time[11,13,26,38], since besides affecting directly the feeding and increasing the permanence in hospital[35], the presence of the tracheal cannula affects significantly the voice, contributing for a difficulty in the speech intelligibility with a consequent prejudice in social communication[1]. Thus, patients tend to have a better self-assessment of quality of life when they are without the nasogastric tube, decanulated and with the possibility of social eating[7,8, 26,37].

Pain and the treatment discomfort were mentioned, in general, as factors that influence negatively on the quality of life[11]. Another aspect quoted by authors is the disease stage, once in early stages treatments are more conservative, increasing the satisfaction level with the treatment method[12,13,27]. By applying the Beck Depression Inventory, used to assess patients' mood after treatment, some authors could conclude that patients with tumors in more advanced stages are more willing to develop depression than patients in early

Title / Authors / Year of Publication	Aim of the study	Summary of the study
Assessment of quality of life in patients treated by supracricoid partial laryngectomy with cricohyoidoepiglottopexy (chep) Moyano, JAM; Gutiérrez, RS; Nogueras, JR; Aumente, PO; Villarejo, PL. 2004.	To assess quality of life in patients diagnosed with epidermoid carcinoma of the larynx, after supracricoid partial laryngectomy (SCPL) with cricohyoidoepiglottopexy CHEP). To examine how quality-of-life may be associated to the treatment received: neck dissection, decannulation and radiotherapy	A descriptive, observational, cross-sectional study was conducted involving 26 patients out of a group of 51. They were all males with an average age of 61.7 years at the time of the interview. We used the disease-specific quality of life questionnaire devised by the University of Michigan: the Head and Neck Cancer-specific Quality of life instrument (HNQOL). Results: During an average follow-up period of 83.65 months, 2 patients (3,92 %) suffered a recurrence. Estimated survival after 3, 5 and 10 years was 95,83%. Communication and overall disturbances caused by treatment were found to be the two quality-of-life domains mainly affected. Generally speaking, patients who had received radiotherapy, those who had not had their tracheal cannula removed or those that had undergone neck dissection were the most affected. Conclusions: SCPL with CHEP as a surgical technique allows good control of the condition and has a low impact on the patient's quality of life.
Surgery for recurrent laryngeal carcinoma after radiotherapy: Partial laryngectomy or total laryngectomy for a better quality of life? Sewnaik, A; Brink, JLVD; Wieringa, MH; Meeuwis, CA; Kerrebjin, JDF. 2004.	To investigate the quality of life after partial laryngectomy versus total laryngectomy for recurrent laryngeal carcinomas after radiotherapy.	Twenty-three patients (N = 12 partial laryngectomy, N = 11 total laryngectomy) with recurrent laryngeal cancer after radiotherapy were included in the study. Three different questionnaires, 1) EORTC Quality of Life Questionnaire (QLQ)-C30 Dutch version 3.0, 2) EORTC-H & N 35, and 3) the Voice Handicap Index, were sent to all patients. The only major difference in quality of life of patients after partial laryngectomy versus total laryngectomy was found to be smell and taste related. No other differences were found. The VHI did not show significant differences between the groups either. The only great difference between patients submitted to PL and to TL was the smell and taste prejudice with a negative impact on the quality of life. Thus, the study did not find much difference in quality of life after treatment with a partial laryngectomy or a total laryngectomy in patients with recurrent laryngeal cancer after radiotherapy.
Quality of life, functional outcome, and voice handicap index in partial laryngectomy patients for early glottic cancer. Kondogan, T; Sanal, A. 2005.	To gather information about the quality of life issues, functional outcomes and voice problems facing early glottic cancer patients treated with the surgical techniques such as laryngofissure cordectomy, fronto-lateral laryngectomy, or cricohyoidopexi. In particular, consistency of life and voice quality issues with the laryngeal tissue excised during surgery is examined. In addition, the effects of arytenoidectomy to the life and voice quality are also studied.	29 male patients were enrolled in the study. The average age was 53.9 years. Three out of 10 patients with laryngofissure cordectomy also had arytenoidectomy. 11 patients had fronto-lateral laryngectomy with Tucker reconstruction (two also had arytenoidectomy). Eight patients with cricohyoidopexi and bilateral functional neck dissection. Three of these patients also had arytenoidectomy. In bilateral functional neck dissection cases, spinal accessory nerve was preserved and level V of the neck was not dissected. None of the patients had neither radiotherapy nor voice therapy. There was a statistically significant difference between cordectomy and cricohyoidopexi group in answers to the University of Washington (UW-QOL). Cricohyoidopexi group gave the lowest scores and the cordectomy group gave the highest scores in three survey questions representing the quality of life, performances and new voices. In conclusion, all patients with early glottic cancer, treated with different surgical technics reported fairly good quality of life outcomes, functional results and voice qualities. This study also found that the removal of arytenoid does not have any adverse effects on the quality of life and voice from the patients' point of view.

Figure 5. Summary of the three studies that used specific quality of life protocols for head and neck cancer

stages. The non-adherence to treatment and the low self-stem are key factors for a worse prognostic[13].

Concerning the voice, there is a divergence of opinions[36], since some authors defend that, in general, patients declare satisfaction with their own voice[35], with little difficulty to speak in public and with an intelligible communication[2,10,34,39] even if the voice is weak and if there is some difficulty to communicate in noisy environments, once it cannot be increased satisfactorily[35,36,38,39]. Some defend that communication was the most affected domain, with lower quality of life[11]. Another explanation may be the fact that patients who have larynx cancer may consider other aspects to assess their quality of life that go beyond the voice, influenced by the satisfaction of the cure and several other factors, such as personality, relationship with the partner, work demands, age, etc. It was recently showed that VHI scores are significantly higher in patients that are retired or adjusted at work[16].

Vocal problems are frequent in SCPL, such as moderate to severe dysphonia[1,16,39], hoarse and breathy, irregular and tense quality of voice[1,8,35,38,39]. All this factors certainly influence quality of life scores[8]. Studies suggest that vocal rehabilitation should occur as soon as possible so there is an improvement in the vocal pattern, minimizing the consequences that affect quality of life of patients caused by vocal disadvantage[1,4,7,14]. Nevertheless, it is necessary that patients are able to adhere to post-operative care and rehabilitation, considering physical and emotional conditions important factors for a better recovery.

In this research study it was possible to observe that, despite showing concern with the quality of life of patients submitted to SCPL, the number of authors using specific head and neck cancer protocols to assess quality of life of these patients is still small, and that there is a lack of a validated questionnaire addressing specific problems of oncologic larynx patients[34]. In this literature review, only three articles using specific quality of life protocols for head and neck cancer were found. These three articles[11,13,34] point difficulties to get to a consistent result due to the lack of publications. Another difficulty found is getting to the real necessities of subjects, once if itemizing the analysis of each question, it is possible to realize which aspects are more affected, and therefore, more difficult for the patients, even if the scores are high and pointing to a good quality of life[12,39]. Thus, qualitative analysis of results are necessary in order to verify specifically which aspects contribute for an impact on the quality of life post SCPL.

Although it was not the purpose of this study to analyze results of quality of life protocols not specific for head and neck cancer, it is important to stress that studies using the Índice *de Desvantagem vocal* – IDV found scores lower than 40, confirming that the resulting voice after SCPL presented low impact on the quality of life[3,7,16,36,37].

Still, three studies affirmed moderate or significant impact on voice-related quality of life, with averages above 43 points[8,39,40], being compatible to dysphonic voices.

CONCLUSION

Oncologic head and neck surgeries affect significantly the quality of life of patients since they almost always impact on communication, feeding, self-image of the individual, leading to a consequent prejudice in the re-integration and social living.

Publications regarding the quality of life of patients, using specific head and neck cancer protocols are scarce. Further studies related to quality of life of patients with head and neck cancer are necessary as well as the creation of specific protocols for patients with larynx cancer, once the necessary surgical treatments modify the laryngeal functional aspects.

REFERENCES

1. Nemr NK, Carvalho MB, Köhle JI, Almeida GC, Rapoport LA, Szeliga, RMS. Functional study of the voice and swallowing following supracricoid laryngectomy. RevBrasOtorrinolaringol.2007;73(2):151-5. DOI. org/10.1590/S0034-72992007000200002
2. Alicandri-Ciufelli M, Piccinini A, Bergamini G, Ruberto M, Ghidini A, Marchioni D et al. Atypical neoglottis after supracricoid laryngectomy: a morphological and functional analysis. Eur Arch Otorhinolaryngol. 2011;268(7):1029-34. DOI: 10.1007/s00405-011-1556-4
3. Castro A, Sanchez-Cuadrado I, Bernaldez R, Palacio AD, Gavilan J. Laryngeal function preservation following supracricoid partial laryngectomy. Head Neck. 2012;34(2):162-7. DOI: 10.1002/hed.21703
4. Vincentiis M, Virgilio A, Bussu F, Gallus R, Gallo A, Bastanza G et al. Oncologic results of the surgical salvage of recurrent laryngeal squamous cell carcinoma in a multicentric retrospective series:

emerging role of supracricoid partial laryngectomy. Head Neck. 2015;37(1):84-91.DOI: 10.1002/hed.23563.

5. Szyfter W, Leszczynska M, Wierzbicka M. Outcome after supracricoid laryngectomies in the material of ENT department, Poznan university of medical sciences. Eur. Arch. Otorhinolaryngol. 2011;268(6):879-83. DOI: 10.1007/s00405-011-1513-2.
6. Gallo A, Manciocco V, Tropiano ML, Simonelli M, Marvaso V, D'Arcangelo E, et al. Prognostic value of resection margins in supracricoid laryngectomy. Laryngoscope. 2004;114(4):616-21. DOI: 10.1097/00005537-200404000-00005.
7. Laudadio P, Presutti L, Dall'Olio D, Cunsolo E, Consalici R, Amorosa L, et al. Supracricoid laryngectomies: long-term oncological and functional results. Acta Otolaryngol. 2006;126(6):640-9. DOI:10.1080/00016480500469024.
8. Clayburgh DR, Graville DJ, Palmer AD, Schindler JS. Factors associated with supracricoid laryngectomy functional outcomes. Head Neck. 2013;35(10):1397 – 403. DOI: 10.1002/hed.23144.
9. Sanchez-Cuadrado I, Castro A, Bernáldez R, Palacio AD, Gavilan J. Oncologic outcomes after supracricoid partial laryngectomy. Otolaryngol Head Neck Surg. 2011;144(6):910-4. DOI: 10.1177/0194599811400368;
10. Goncalves AJ, Bertelli AAT, Malavasi TR, Kikuchi W, Rodrigues AN, Menezes MB. Results after supracricoid horizontal partial laryngectomy. Auris Nasus Larynx. 2010;37(1):84-8. DOI:10.1016/j.anl.2009.04.015.
11. Moyano JAM, Gutiérrez RS, Nogueras JR, Aumente PO, Villarejo, PL. Calidad de vida em pacientes tratados mediante laringectomia parcial supracricoidea com cricohioidoepiglotopexia (CHEP). Acta Otorrinolaringol Esp. 2004;55(9):409-14. ID:ibc-36056.
12. So YK.; Yun YS, Baek CH, Jeong HS, Son YI. Speech outcome of supracricoid partial laryngectomy: comparison with total laryngectomy and anatomic considerations. Otolaryngol Head Neck Surg. 2009;141(6):770-5. DOI: 10.1016/j.otohns.2009.08.028.
13. Kucuk H, Kurnaz SC, Kutlar G. Treatment expectations and quality of life outcomes of patients with laryngeal cancer based on different treatment methods. Eur Arch Otorhinolaryngol. 2015;272(5):1245-50. DOI: 10.1007/s00405-014-3066-7.
14. Decotte A, Woisard V, Percodani J, Pessey JJ, Serrano E, Vergez S. Respiratory complications after supracricoid partial laryngectomy. Eur Arch Otorhinolaryngol 2010;267(9):1415-21. DOI: 10.1007/s00405-010-1238-7.
15. Lima RRMA, Freitas EQ, Kligerman J, Sá GM, Santos IC, Farias T. Supracricoid laryngectomy (chep) for glottic câncer. Rev Col Bras Cir. 2001;28(4):254-8. DOI.org/10.1590/S0100-69912001000400004.
16. Schindler A, Mozzanica F, Ginocchio D, Invernizzi A, Peri A, Ottaviani F. Voice-related quality of life in patients after total and partial laryngectomy. Auris Nasus Larynx. 2012;39(1):77-83. DOI: 10.1016/j.anl.2011.03.009.
17. Vickery LE, Latchford G, Hewlson J, Bellew M, Feber. The impact of head and neck cancer and facial disfigurement on the quality of life of patients and their partners. Head & Neck. 2003;25(4):289-96. DOI: 10.1002/hed.10206
18. Duffy SA, Ronis DL, Valenstein M, Fowler KE, Lambert MT, Bishop C, et. al. Depressive symptoms, smoking, drinking, and quality of life among head and neck cancer patients. Psychosomatics.2007;48(2):142-8. DOI:10.1176/appi.psy.48.2.142.
19. Kasama ST, Brasolotto AG. Percepção vocal e qualidade de vida. Pró-Fono. 2007;1(19):19-28.
20. Anchette D, Menezes MB, Nakay MY, Prandini B, Kikuchi W, Gonçalves AJ. Avaliação da qualidade de vida dos pacientes com câncer de laringe no pós-operatório tardio. Soc Bras Psico-Oncol. 2009;4(3):1-6.
21. Melo Filho MR; Rocha BA; Pires MBO, Fonseca ES; Freitas EM; Martelli Jr H; Santos FBG. Qualidade de Vida de Pacientes com Carcinoma em Cabeça e Pescoço. Braz J Otorhinolaryngol. 2013;79(1):82-9. DOI: org/10.5935/1808-8694.20130014
22. De Lima MAG; Barbosa LNF; Sougey EB. Avaliação do Impacto na Qualidade de Vida em Pacientes com Câncer de Laringe. Rev. SBPH. 2011;14(1):18-40.
23. Garabito RM, Gómez ST, González ML, Macías LM, D´Agostino M, De Cabo JV. Revisiones sistemáticas exploratórias. Med Segur Trab. 2009;55(216):12-9.
24. Bardin L, Reto LA, Pinheiro A. Análise de conteúdo. São Paulo: Edições 70, 2011. Trad.
25. Botelho LLR, Cunha CCA, Macedo M. O método da revisão integrativa nos estudos

organizacionais. Gestao Soc . 2011;5(11):121-36. DOI: http://dx.doi.org/10.21171/ges.v5i11.1220.

26. Yu Y, Wang XL, Xu ZG, Wu YH. Laryngeal reconstruction with a sternohyoid muscle flap after supracricoid laryngectomy: postoperative respiratory and swallowing evaluation. Otolaryngol Head Neck Surg. 2014;151(5):824-9. DOI: 10.1177/0194599815579876.
27. Israel Y, Cervantes O, Abrahão M, Ceccon FP, Marques Filho MF, Nascimento LA et. al. Obstructive sleep apnea in patients undergoing supracricoid horizontal or frontolateral vertical partial laryngectomy. Otolaryngol Head Neck Surg. 2006;135(6):911-6. DOI: 10.1016/j.otohns.2006.02.030.
28. 28. Santos LM, Gasparini G, Behlau M. Validação do protocolo do Índice de Desvantagem Vocal (IDV) no Brasil [monografia]. São Paulo: Centro de Estudos da Voz; 2007.
29. Gasparini G, Behlau M. Quality of life: validation of the Brazilian version of the voice-related quality of life (V-RQOL) measure. J Voice. 2009;23(1):76-81. DOI: 10.1016/j.jvoice.2007.04.005.
30. Behlau M, Oliveira G, Santos LMA, Ricarte A. Validation in Brazil of self-assessment protocols for dysphonia impact. Pró-Fono R Atual Cient. 2009;21(4):326-32. DOI.org/10.1590/S0104-56872009000400011.
31. Vartanian JG, Carvalho AL, Furia CLB, Castro Junior G, Rocha CN, Sinitcovisky IML et. al. Questionnaires validated in the Brazilian population for evaluation of the Quality of Life in patients with head and neck cancer. Rev Bras Cir Cabeça Pescoço.2007;36(2):108-15.
32. Nascimento LA, Ventura JL, Cavalheiro JB, Furtado PL, Pinheiro TG. Comparative study of the validity of questionnaires used to measure the quality of life in laryngectomy patients. Rev Bras Cir Cabeça Pescoço. 2006;35(3):168-73.
33. Silveira A, Ribeiro C, Gonçalves J, Oliveira A, Silva I, Lopes C et. al. Qualidade de vida em doentes oncológicos da cabeça e pescoço tratados no Instituto Português de Oncologia do Porto: comparação de instrumentos de medida. Rev Port Sau Pub. 2009;8(1):59-66.
34. Sewnaik A, Brink JLVD, Wieringa MH, Meeuwis CA, Kerrebijn, JDF. Sugery for recurrent laryngeal carcinoma after radiotherapy: partial laryngectomy or total laryngectomy for a better quality of life? OtolaryngHead Neck 2005;132(1):95-8. doi: 10.1016/j.otohns.2004.09.011.
35. Kandogan T, Sanal A. Quality of life, functional outcome, and voice handicap index in partial laryngectomy patients for early glottic cancer. BMC Ear. 2005;5(3):1-7. DOI: 10.1186/1472-6815-5-3.
36. Schindler A, Favero E, Nudo S, Albera R, Schindler O, Cavalot AL. Long-term voice and swallowing modifications after supracricoid laryngectomy: objective, subjective, and self-assessment data. Am J Otolaryngol Head Neck Med Surg.2006;27:378-83. DOI:10.1016/j.amjoto.2006.01.010.
37. Alicandri-Ciufelli M, Piccinini A, Grammatica A, Chiesi A, Nizzoli F, Ghidini A et al. Voice and swallowing after partial laryngectomy: factors influencing outcome. Head Neck. 2013;35(2):214-9. DOI: 10.1002/hed.22946
38. Nakayama M, Okamoto M, Miyamoto S, Takeda M, Yokobori S, Masaki T et al. Supracricoid laryngectomy with cricohyoidoepiglottopexy or cricohyoido-pexy: Experience on 32 patients. Auris Nasus Larynx.2008;35(1):77-82. DOI:10.1016/j.anl.2007.04.018.
39. Oliveira IB; Augusti ACV, Siqueira DM. *Avaliação de voz e qualidade de vida após* laringectomia supracricóide. Audiol. Commun. Res. 2013;18(4):353-60. DOI.org/10.1590/S2317-64312013000400018.
40. Leszczynska M, Wierzbicka M, Tokarski M, Szyfter W. Attempt to improve functional outcomes in supracricoid laryngectomy in T2b and T3 glottic cancers. Eur Arch Otorhinolaryngol. 2015;272(10):2925-31. DOI: 10.1007/s00405-014-3244-7.