QUALITY OF LIFE ANALYSIS IN LARYNGEAL CANCER PATIENTS AT A REFERRAL HOSPITAL IN SOUTHEASTERN BRAZIL

Análise da qualidade de vida dos pacientes com câncer de laringe em hospital de referência na região sudeste do Brasil

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ABSTRACT

Purpose: to estimate the quality of life and associated factors in a sample of patients with laryngeal tumor, in Southeastern Brazil. **Method:** sample of 60 patients treated for laryngeal cancer in two hospitals in the city of Juiz de Fora, Minas Gerais (Brazil), city and regional center of excellence for the treatment of head and neck cancers in southeastern Brazil. With the application of the questionnaire Functional Assessment Cancer Therapy-Head & Neck, data were collected and submitted to bivariate and multivariate analysis to demonstrate the involvement of variables in the quality of life of institutions of tertiary care for treatment of cancer. **Results:** in bivariate analysis ($p \leq 0.20$) were significant variables: gender, years of education, analysis of treatment received, speech therapy and nutrition. After multivariate analysis also demonstrated an independent association: analysis of treatment received, speech therapy and nutrition. **Conclusions:** the quality of life of patients in the study can be evaluated as satisfactory, being influenced by the physical well-being and functional. The questionnaire Functional Assessment Cancer Therapy-Head & Neck, specific for head and neck, showed that economic factors, clinical and functional, demographic are also linked to quality of life of patients with laryngeal cancer. Also demonstrated was the importance of speech therapy and nutritional rehabilitation treatment gain in quality of life of patients.

KEYWORDS: Epidemiology; Laryngeal Neoplasms; Quality of Life

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Funding: Federal University of Juiz de Fora
Conflict of interest: non-existent

INTRODUCTION

Laryngeal tumors occupy a prominent position among the neoplasms that most affect the quality of life of the patient. In Brazil, where cancer ranks second among the diseases with the highest morbidity/mortality, with 130,000 deaths annually, a number surpassed only by cardiovascular diseases [1,2], this group of tumors represents 25% of head and neck tumors and about 2% of all cancers.

Among all cancer types, tumors of the larynx are the eleventh most common malignancy, affecting particularly males between the sixth and seventh decades of life [1] and accounting for 2.8% of new

cancer cases in men worldwide. In an overall perspective, the estimated number of new cases of laryngeal cancer will grow from 10 million in 2000 to 15 million in 2020 [3].

Assessing the patient's quality of life is of paramount importance in the treatment of patients with head and neck tumors, particularly in laryngeal cancer, because these often cause significant esthetic and functional impairment [4]. The questionnaires addressing issues related to general health, treatment, and symptoms of the disease may be used as an essential framework in the assessment of the quality of life theme [5,6]. Another benefit in this evaluation by questionnaires would be offered by the possibility of screening these patients for conditions such as depression, alcoholism, and risk of incapacity for work, directing the patient to appropriate professional care [4].

Currently, there are a number of instruments used to analyze the lifestyle of patients with cancer of the head and neck, but none of them can be considered the gold-standard [4]. However, among the questionnaires developed for this purpose, one of the most used can be mentioned, the Functional Assessment Cancer Therapy General (FACT-G), with its variant specific to head and neck (FACT-HN), which in addition to the general aspects addressed by the other instruments, even covers the doctor-patient relationship.

This article aimed to assess the quality of life and associated factors in a sample of patients treated for laryngeal tumor, in southeastern Brazil.

METHOD

Patients

In a cross-sectional study, interviews were conducted with 60 patients attended in the city of Juiz de Fora - MG, a health care hub, located in Southeastern Brazil. The 60 patients correspond to the total number cases in the study period that met the inclusion criteria and with whom it was possible to make contact for the interview (there was sufficient identification data). The inclusion criteria were: age over 18 years, primary tumor of the larynx, and at least one year of survival (diagnosis established between the years 2001 and 2007). Patients were treated at 2 referral hospitals in the city. Those with neurological or cognitive impairment and those who refused to sign the Free and Informed Consent form were excluded.

During office visits, patients were interviewed by the same examiner, without the presence of the attending physician, in a space reserved for this purpose within the institution itself. The median interval between curative treatment of the patient and conducting the interview was 25 months.

Two questionnaires were used to collect data. The first contained exploratory data, gathering sociodemographic variables relating to lifestyle, and the characterization of the tumor and treatment adopted, as described in Table 1.

Next, the Functional Assessment Cancer Therapy (FACT-HN) questionnaire was applied. This had been created and validated in English and underwent translation and structural adaptation to Portuguese following the guidelines of the Functional Assessment Chronic Illness Therapy (FACIT)[5-7].

Analysis of the FACT-HN questionnaire is based on three global indices: TOI which involves physical well-being, functional well-being, and additional concerns in cancer of the head and neck; the FACTG, which involves physical, social-familial, emotional, and functional well-being; and the FACTHN, which involves physical, social-familial, emotional, and functional well being, and additional concerns of cancer of the head and neck.

This study was approved by the Ethics Committee of the local institution, under the report number 308/2007.

Data Analysis

Data were entered and analyzed using SPSS for Windows, version 15.0 (STATISTICAL PACKAGE FOR SOCIAL SCIENCES, INC, 2006). For descriptive statistics, we used measures of central tendency (mean, median) and dispersion (standard deviation) for the quantitative variables, and absolute and relative frequencies for the qualitative variables. To compare the quality of life scores of the FACT-HN, between the different strata of sociodemographic, economic, and clinical-functional variables, the ANOVA test was used. After bivariate analysis, predictor variables with p values ≤ 0.20 were selected to undergo multivariate analysis by multiple linear regression using the enter technique. In the final multivariate model, those whose with p values ≤ 0.10 were retained.

Table 1 - Sociodemographic characteristics of the study sample of patients with a tumor of the larynx, Juiz de Fora, Brazil, 2008

Variables	Number of patients	%
Sex		
Male	57	95.0
Female	3	5.0
Age		
< 60 years	16	26.7
>60 years	44	73.3
Education		
Up to 12 years of study	46	76.7
Over 12 years of study	14	23.3
Marital status		
Married	39	65.0
Single	21	35.0
Occupation		
Manual	41	68.3
Non-manual	19	31.7
Health care		
SUS	45	75.0
non-SUS	15	25.0
TNM (T)		
T1, T2	28	46.7
T3, T4	24	40.0
X	8	13.3
TNM (N)		
N0	29	48.3
N1, N2, N3	14	23.3
X	17	28.4
Treatment		
Surgery	5	8.5
Chemotherapy	3	5.0
Radiotherapy	9	15.0
Surgery and chemotherapy	2	2.3
Surgery and radiotherapy	19	32.2
Chemotherapy and radiotherapy	9	15.0
Surgery, chemotherapy and radiotherapy	13	22.0
Type of surgery		
Total laryngectomy	23	38.0%
Partial laryngectomy	16	26.6%
Nonsurgical	21	35.4%

Source: Study data
Legend 1: T – primary tumor extent
N – regional lymph node metastasis
M – distant metastasis
X – tumor can not be assessed

RESULTS

Variables associated with the quality of life of patients with cancer of the larynx

Table 2 describes all the variables selected for construction of the multiple linear regression model ($p \leq 0.20$) for each constituent score of the FACT-HN.

Tables 3 through 5 show the multivariate linear regression results, presenting the independent variables associated with the outcomes represented by the FACT-HN domains (TOI, FACTG, and FACTHN).

Table 2 - Variables associated with quality of life, in the three constituent scores of the fact-hn, mean score and statistical significance (*p*-value)

Variables	TOI		FACTG		FACTHN	
	Mean (sd)	p	Mean (sd)	p	Mean (sd)	p
Sex						
Male	72.2 (16.6)	0.09	86.0 (18.8)	0.20	113.7 (23.6)	0.14
Female	55.7 (8.1)		71.8 (11.9)		93.0 (15.5)	
Education						0.08
Up to 12 years	68.9 (17.4)	<0.01	82.9 (20.2)	0.08	109 (25.1)	
Over 12 years	80.4 (10.0)		93.5 (10.8)		125.1 (13.1)	
Race						
White	71.6 (16.6)	0.06				
Non-white	70.5 (17.2)					
Marital status						
Married	74.3 (14.1)	0.06	87.8 (16.5)	0.16		
Single	66.0 (19.7)		80.6 (22.0)			
Smoking						
Past / current			83.0 (18.9)	0.02	110.4 (24.3)	0.07
Never smoked			98.0(12.7)		125.6 (22.2)	
Occupation						
Manual			85.5 (16.7)	0.04		
Non-manual			54.8 (23.0)			
T staging						
T1 T2	76.6 (14.3)	<0.01	90.2 (16.5)	0.04	119.3 (19.8)	0.02
T3 T4	64.3 (18.4)		79.2 (21.8)		103.3 (27.4)	
X	74.0 (12.1)		68.7 (11.3)		118.0 (14.7)	
Type of treatment						
Isolated	79.2 (8.6)	0.09				
Combined	68.7 (17.9)					
Would do the same treatment						
Yes	74.3 (12.6)	0.15	81.1 (14.1)	0.16	117.0 (17.4)	0.15
No	44.7 (25.2)		88.3 (29.6)		74.2 (37.1)	
Tracheostomy						
Definitive	65.5 (17.9)	0.02	81.1 (19.7)	0.14	105.6 (25.6)	0.05
Provisional	75.5 (14.5)		88.3 (17.7)		117.8 (25.6)	
Communication						
Laryngeal	74.8 (15.3)	0.04			116.7 (22.1)	0.09
Non Laryngeal	65.7 (17.5)				106.2 (25.0)	
Speech Therapy						
Not referred	78.2 (9.2)	0.06	92.5 (11.3)	0.05	122.4 (13.5)	0.04
Completed	70.0 (18.2)		85.0 (20.7)		111.5 (25.6)	
Quit	64.9 (18.8)		52.2 (20.1)		102.5 (26.5)	
Nutrition						
Not referred	74.1 (14.3)	<0.001	88.2 (16.3)	<0.01	114.6 (20.1)	<0.01
Completed	67.6 (13.6)		81.8 (15.5)		122.3 (20.3)	
Quit	24.0 (1.4)		33.0 (12.7)		80.8 (9.2)	
Psychology						
Not referred			86.7 (16.8)	0.01	114.6 (21.1)	0.01
Completed			94.3 (9.0)		122.3 (13.2)	
Quit			59.8 (31.4)		80.8 (40.2)	

Source: Study data

Table 3 - Predictive variables of quality of life characterized by the TOI score, according to multiple regression analysis, patients with tumors of the larynx, Brazil, 2008

TOI Final total index of the physical, functional, and additional concerns domains of cancer of the head and neck			
Variables	**ρ**	**95% CI**	**p-value**
Sex			
Male	1.0	Ref.	0.082
Female	-14.120	-30.126 – 1.885	
Analysis of the treatment received			
Would have done the same	1.0	Ref.	
Would not have done the same	-24.953	-37.286 – -12.620	0.000
Education			
Up to 12 years of study	1.0	Ref.	0.024
Over 12 years of study	-9.431	-17.554 – -1.307	

Source: Study data
Legend 3: ***ρ*** – Linear regression coefficient
CI – confidence interval

Table 4 - Predictive variables of quality of life characterized by the FACTG score, according to multiple regression analysis, patients with a tumor of the larynx, Brazil - 2008

FACTG Final total index of the physical, social-familial, emotional, and functional domains			
Variables	**ρ**	**95% CI**	**p-value**
Sex			
Male	1.0	Ref.	0.094
Female	-17.149	-37.313 – 3.015	
Analysis of the treatment received			
Would have done the same	1.0	Ref.	0.004
Would not have done the same	-22.211	-36.986 – -7.436	
Speech Therapy			
Not referred / Quit	1.0	Ref.	0.057
Completed	-6.425	-13.064 – 0.213	
Education			
Up to 12 years of study	1.0	Ref.	0.062
Over 12 years of study	-9.074	-18.612 – 0.464	
Smoking			
Past / current	1.0	Ref.	0.035
Never smoked	-11.496	-22.175 – -0.817	

Source: Study data
Legend 4: ***ρ*** – Linear regression coefficient
CI – confidence interval

Table 5 - Predictive variables of quality of life characterized by the FACTHN score, according to multiple linear regression, patients with a tumor of the larynx, Brazil - 2008

	FACTHN Final total index of the domains: physical, social-familial, emotional, functional, and additional concerns about cancer of the head and neck		
Variables	**ρ**	**95% CI**	**p-value**
Analysis of the treatment received			
Would have done the same	1.0	Ref.	0.000
Would not have done the same	-33.784	-51.317 – -16.251	
Speech Therapy			
Not referred / Quit	1.0	Ref.	0.103
Completed	-6.934	-15.322 – 1.455	
Nutrition			
Not referred / Quit	1.0	Ref.	0.103
Completed	-9.646	-21.313 – 2.021	
Education			
Up to 12 years of study	1.0	Ref.	0.015
Over 12 years of study	-14.947	-26.837 – -3.022	

Source: Study data
Legend 5: ***ρ*** – Linear regression coefficient
CI – confidence interval

DISCUSSION

Numerous studies have been targeted to analyze the quality of life in cases of head and neck cancers, and particularly in tumors of the larynx [5,7,8-12].

There are a variety of questionnaires designed to measure the broad area under discussion [5,9,10,13-15], allowing the assessment of quality of life, both pre- and post-treatment, facilitating for the researcher follow the evolution of these parameters after a therapeutic period. In the present study, we chose to use the FACT-HN in accordance with various authors [5,16,17]. This instrument was chosen because it is multi-dimensional, easy to apply, with an average interview time of 10 minutes, and has been validated for the Portuguese language [4]. However, we emphasize the efficiency of all instruments [18] that were used in the articles cited above.

It was decided, in this work, to conduct the interview with patients with a survival of at least 1 year, as this is the period in which a stability in the improvement in quality of life is seen, which some authors call the scores plateau [10,16].

A close examination of the study patients' profile shows that the vast majority of them were male (57/60), consistent with the reports from other investigations [11,15,19]. Age was also consistent with that reported in the literature (44/60), as laryngeal cancer was more frequent in patients over 60 [10,11,16,20]. Most patients were married (39/60), manual laborers (41/60), with up to 12 years of schooling (46/60), and the health care most used by them was the Unified Health System, a public health system, universal and free (45/60).

A favorable prognosis is dependent on disease staging, with overall 5-year survival rates of 65% - 70% for tumors in stages T1 and T2, whose treatment appears compatible with cure [10,19]. This study showed a higher frequency of patients with the tumor in these two stages, 28 (46.7%), which points, in a way, to a potential survival bias in the analysis. There are indications that when the tumor stage is initial, it allows the patient a better quality of life [10,21-23], backing the findings in the present analysis.

Tumors in stages T3 and T4 suffer frequent relapses and many of them do not present conditions for a new curative treatment, leading to a discussion about the actual treatment needed. Thus, the option for non-treatment may be an alternative [24].

It can be observed that, as a rule, the more advanced tumors require multimodal treatment (surgery, radiation, and chemotherapy), and so are more likely to have consequences and to determine a poorer quality of life for the patient [24].

The most widely used form of treatment was combined surgery and radiation therapy, in 32.2% of cases (n = 19), agreeing with the findings of other researchers [5,11,19]. In general, radiotherapy or surgery are indicated for tumors classified as T1 and T2, while T3 and T4 tumors require multimodal therapy, usually surgery combined with adjuvant

radiotherapy [17]. This study, although gathering 46.7% of the patients in stages 1 and 2, indicated that isolated therapeutic modalities of surgery and radiation therapy were only used in 8.5% (5/60) and 15.0% (9/60) of the patients, respectively.

Agreeing with an earlier national study, other therapeutic modalities, termed "alternative", are being reported in the literature [5], among them religious and spiritual assistance. Of the patients studied, 98.3% (n = 59) reported professing some form of religious belief and turning to spirituality for comfort in facing their health situation, agreeing with what Furia (2006) [5] reported.

In caring for patients with laryngeal cancer, a multidisciplinary team is of paramount importance, but in the international literature, works that emphasize the influence of such teams on patients' quality of life are not common. However, in this study, we noticed a large number of referrals to rehabilitation treatment, comprising a multidisciplinary team, in the patient's treatment. The specialty referenced most often was speech therapy, with 68.3% of referrals (41 cases), but of these only 28.3% (n=17) had completed the treatment.

The patient referred to nutrition and speech therapy services, and who completed treatment, tends to exhibit a better quality of life. On the other hand, those who dropped out of therapy or who, even given a referral, did not adhere to the therapeutic proposal, presented the poorest quality of life values, influencing both the bivariate analysis in the three segments, TOI, FACTG, and FACTHN, as well as the multivariate (the speech therapy treatment for FACTG and FACTHN; and the nutritional treatment for FACTHN). Some factors may be associated with the difficulty of patient adherence to the rehabilitation treatments under discussion, such as patient expectations, depression, need for family support, and need to control risk factors [17].

This research has even shown that, for the segments FACTG and FACTHN, speech therapy treatment improved the perception of quality of life. This rehabilitation contributes in reducing the gap between the treatment phase and the patient's return to the daily lifestyle, as reported by Chaukar et al. (2008) [2]. This finding agrees with the study by Furia (2006) [5].

Overall, quality of life was satisfactory upon observation of the adjusted scores in the three domains of the FACT-HN. The biggest impact on the quality of life of patients with laryngeal cancer relates to general well-being and the issues specific to cancer in the head and neck that relate to voice quality, difficulty in swallowing and breathing, and to the use of tobacco products and alcoholic beverages. This shows that the patient's daily conduct of social functions and family relationships are linked to the clinical-functional perspective. In other findings described in the area literature, similar results were found [5,17], and it is emphasized that, in those studies, the questionnaire used was the same one used in the present study.

The bivariate analysis showed that the variables: gender, educational level, T stage, presence of tracheostomy, would use the same treatment, speech therapy and nutritional treatment, showed statistical significance ($p \leq 0.20$) for the three segments of the FACT-HN (TOI, FACTG, FACTHN). The research by Furia (2006) [5] showed a similar result for the educational level factor.

In the present work, in the bivariate analysis, the smoking factor was associated with the FACTG and with the FACTHN as a determinant of quality of life, and this remained significant in the multivariate analysis, associated solely with the FACTG, aligning with the result of a previous study done in Eastern Europe [20]. The study by Furia (2006) [5], however, showed tobacco use associated with the three segments of the FACT-HN.

In the multivariate analysis, to determine the variables associated with quality of life in the three domains, there remained: analysis of the treatment received and educational level. These variables appear to exhibit greater impact on quality of life, as they appeared significantly associated with the TOI, FACTG, and FACTHN, which aligned with the findings of Aastad et al. (2006) [10,16,23] which documented differences in quality of life related to head and neck tumors in patients undergoing different treatments. However, the question, analysis of the treatment received (adherence to the same therapeutic proposal, if it were offered to the patient as an optional choice) was the most significant and positively associated with better quality of life, in the three domains of the questionnaire, showing that adherence to the type of treatment intervenes effectively in the quality of life of victims of laryngeal cancer.

Despite the potential survival bias, which may have overestimated the quality of life of the sample analyzed, this study contributes to the theoretical framework that allows the incorporation of studies on quality of life as one of the assessment items to determine the therapeutic and rehabilitative conduct of patients with laryngeal cancer. The present findings produce support for the formulation of protocols for referral of these patients to the care centers aimed at multidisciplinary care and information exchange among the professionals involved. This instrument proved to be easy to use and accepted by patients. Major difficulties were encountered when analysis of information contained in medical records was

required, underscoring the need for a health care team committed to the trustworthy recording of information.

CONCLUSION

The quality of life of the patients involved in this study can be considered satisfactory, being influenced by both sociodemographic, socioeconomic, and clinical- functional factors, albeit in a differentiated manner.

The questions, analysis of the treatment received and years of education, were significant in the multivariate analysis for all the FACTHN domains. We also emphasize the association of speech therapy and nutrition treatment with quality of life, related to the FACTHN, specific for cancer of the head and neck.

The appropriate referrals to multidisciplinary rehabilitation services can be critical in minimizing the acute and delayed effects of the treatment for these tumors, maximizing the capacity of these patients.

RESUMO

Objetivo: estimar a qualidade de vida e fatores a ela associados de uma amostra de pacientes portadores de tumor laríngeo, na região Sudeste do Brasil. **Método**: amostra constituída por 60 pacientes em tratamento para o câncer de laringe em 2 Hospitais do município de Juiz de Fora, estado de Minas Gerais (Brasil), cidade polo regional e referência para tratamento de cânceres de cabeça e pescoço na região sudeste do Brasil. Com a aplicação do questionário Functional Assessment Cancer Therapy- Head&Neck , foram coletados os dados e submetidos à análises bivariada e multivariada, para atestar a implicação das variáveis na qualidade de vida dos pacientes de instituições de atenção terciária para tratamento de câncer. **Resultados**: na análise bivariada, foram significantes as variáveis: sexo; anos de escolaridade; análise do tratamento recebido; acompanhamento fonoaudiológico e nutricional. Após a análise multivariada, ainda demonstraram associação independente: análise do tratamento recebido, tratamento fonoaudiológico e nutricional. **Conclusões**: a qualidade de vida dos pacientes envolvidos no estudo pode ser avaliada como satisfatória, sendo influenciada pelo bem-estar físico e funcional. O questionário Functional Assessment Cancer Therapy- Head&Neck, específico para cabeça e pescoço, mostrou que além dos fatores socioeconômicos e clínico-funcionais, os sociodemográficos também estão ligados à qualidade de vida dos portadores de câncer de laringe. Foi demonstrada também a importância do tratamento reabilitador fonoaudiológico e nutricional no ganho da qualidade de vida dos pacientes.

DESCRITORES: Epidemiologia; Neoplasias Laríngeas; Qualidade de Vida

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Received on: May 05, 2011
Accepted on: July 13, 2013

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