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Quality of life related to swallowing in patients with head and neck cancer

Qualidade de vida relacionada à deglutição em pacientes com câncer de cabeça e pescoço

Calidad de vida relacionada con la deglución en pacientes con cáncer de cabeza y cuello

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Abstract

Introduction: In head and neck cancer (HNC), the sequelae related to the treatment and the location of the tumor itself can bring physical and functional changes, with an impact on the quality of life (QoL) of these patients. **Objective:** measure the impact of oral cancer on quality of life related to swallowing and oral health in patients with head and neck cancer after radiotherapy and/or surgery. **Methods**: 10 patients participated on study in medical post-treatment for head and neck cancer and they were submitted the quality of life questions *M.D. Anderson Dysphagia Inventory, Oral Health Impact Profile* (OHIP-14) and University *of Washington quality of life questionnaire* (UW-QOL). **Results:** The results of the emotional and functional domains of the MDADI protocol showed positive means, while the physical domain showed low day-to-day functioning and quality of life means. From the OHIP-14 questionnaire, it was found that 40% of participants were hated with a high index of impact on oral health. The dimensions

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"psychological discomfort" and "deficiency" negatively impact on patients QOL. "Activity" and "spittle" were the problems most reported, showing that, "spittle", "humor" and "chewing" were the three most important domains on patient's view verified from the UW-QOL protocol. **Conclusion:** Despite the small number of patients and the heterogeneity of tumor location, the results demonstrate that the CCP and the sequelae of its treatment can significantly impact the QoL of patients in several domains.

Keywords: Deglutition; Head and neck neoplasm; Quality of life; Deglutition disorders.

Resumo

Introdução: No câncer de cabeça e pescoço (CCP), as sequelas relacionadas aos tratamentos e à própria localização do tumor podem trazer alterações físicas e funcionais, com impacto na qualidade de vida (QV) destes pacientes. **Objetivo:** mensurar o impacto do câncer de boca sobre a qualidade de vida relacionada à deglutição e saúde bucal em pacientes com câncer de cabeça e pescoço, após tratamento médico com radioterapia e/ou cirurgia. **Métodos:** participaram do estudo dez pacientes em pós-tratamento médico para o CCP e que foram submetidos aos questionários de qualidade de vida *M.D. Anderson Dysphagia Inventory (MDAD), Oral Health Impact Profile (OHIP-14)* e Questionário de Qualidade de Vida da Universidade de Washington (UW-QOL). **Resultados:** Os resultados dos domínios emocional e funcional do protocolo MDADI demonstraram médias positivas, enquanto o domínio físico apresentou médias que demonstraram baixo funcionamento do dia-a-dia e qualidade de vida. A partir do questionário OHIP-14, verificou-se que 40% dos participantes foram classificados com alto índice de impacto na saúde bucal. As dimensões ''desconforto psicológico'' e ''deficiência'' impactam negativamente na QV dos pacientes. "Atividade'' e "saliva" foram os problemas mais relatados, mostrando que, ''saliva'', ''humor'' e ''mastigação'' foram os três domínios mais importantes na visão dos pacientes, verificado a partir do protocolo UW-QOL. **Conclusão:** Apesar do número reduzido de pacientes e da heterogeneidade de localização dos tumores, os resultados demonstram que o CCP e as sequelas de seu tratamento podem impactar de maneira significativa a QV dos pacientes em diversos domínios.

Palavras-chave: Deglutição; Neoplasia de cabeça e pescoço; Qualidade de vida; Transtornos de deglutição.

Resumen

Introducción: En el cáncer de cabeza y cuello (CCC), las secuelas relacionadas con el tratamiento y la propia localización del tumor pueden traer cambios físicos y funcionales, con impacto en la calidad de vida (CV) de estos pacientes. **Objetivo:** medir el impacto del cáncer bucal en la calidad de vida relacionada con la deglución y la salud bucal en pacientes con cáncer de cabeza y cuello después del radioterapia y/o cirurgía. **Metodos:** participaron del estudio diez pacientes en postratamiento médico por cáncer de cabeza y cuello y fueron sometidos a cuestionarios de calidad de vida *M.D. Anderson Dysphagia Inventory (MDADI), Oral Health Impact Profile* (OHIP-14) y cuestionario de calidad de vida de la Universidad de Washington (UW-QOL). **Resultados:** Los resultados de los dominios emocional y funcional del protocolo MDADI mostraron medias positivas, mientras que el dominio físico mostró medias que evidenciaron bajo funcionamiento cotidiano y calidad de vida. Del cuestionario OHIP-14 se encontró que 40% de los participantes fueron clasificados como de alto impacto en la salud bucal. Las dimensiones "malestar psicológico" y "discapacidad" tienen un impacto negativo en la calidad de vida de los pacientes. "Actividad" y "saliva" fueron los problemas más reportados, mostrando que "saliva", "estado de ánimo" y "masticar" eran los tres dominios más importantes en la opinión de los pacientes verificado a partir del protocolo UW-QOL. **Conclusión:** A pesar del pequeño número de pacientes y la heterogeneidad de la localización del tumor, los resultados demuestran que el CCP y las secuelas de su tratamiento pueden impactar significativamente la calidad de vida de los pacientes en varios dominios.

Palabras clave: Deglución; Neoplasia de cabeza y cuello; Calidad de vida; Trastornos de la deglución.

Introduction

Head and neck cancer (henceforth HNC) makes up 3% of all types of malignant neoplasms. The disease can cause sequelae in patients, and there may be impairment in physical aspects, nutrition, phonation and breathing, causing possible psychological changes and limitations in daily activities. Its treatment modifies oral communication and social interaction, considered basic vital functions[1].

In data unveiled by the Brazilian Association of Mouth and Throat Cancer (ACBG)[2], oral cancer alone is the 4th most frequent type of tumor, with most of the population diagnosed at an advanced stage – around 65% of cases – being considered a public health issue.

Dysphagia is a common symptom in cancer patients, since it causes abnormalities that affect the phases of swallowing, due to the consequences of surgery and radiotherapy in areas where the structures that are involved in swallowing are adjacent. A speech and language therapist makes the diagnosis and an early detection is essential to minimize its effects[3].

Among the clinical manifestations of dysphagia, chewing and swallowing aggravation may be present, which leads the patient to present food aspiration and/or saliva into their body airway, pneumonia, malnutrition and dehydration[4]. Because of dysphagia, the patient may have episodes of aspiration and aspiration pneumonia, directly affecting their quality of life (QoL), with the onset of discomfort while eating[5].

Changes in swallowing occur because of complications from the tumor location in the head and neck region and sequelae of its treatment, especially when radiotherapy is used. This may result in mucositis, characterized by oral and oropharyngeal mucosa inflammation, triggering local discomfort, pain and struggle while drinking, swallowing, eating and speaking. Also, ageusia, decreased flow and viscosity of saliva that affect chewing, swallowing and can cause intolerance to the fitting of dental prostheses as well as the presence of trismus or limited mouth opening inducing difficulty in oral hygiene, speech, oral ingestion and discomfort to the patient[6].

From the perception of swallowing and eating limitations owing to the sequelae of cancer and its treatment, the patient may become socially isolated and often avoid the act of eating. This individual will start looking for new ways and adaptations to perform this function, but with an aftermath on their QoL, to a greater or lesser degree[7].

Cancer occurs in parallel with other confrontations and the professional must preserve this individual's dignity, if he/she reaches the terminal state, and be alert to minimize his/her physical and psychosocial discomforts, since the disease has a relevant outcome on the individual's interpersonal relationship. Attention to aspects related to QoL is determining for therapeutic management and has great significance in the survival of cancer patients, in addition to demonstrating the need for family support and psychological support during treatment[8].

Accordingly, the aim of this study was to measure the impact of oral cancer on the QoL related to swallowing and oral health in patients with HNC after treatment with chemotherapy, radiotherapy and/or surgery.

Method

This is a cross-sectional study with patients undergoing radiotherapy and/or surgical treatment for HNC in Federal University of Santa Catarina Hospital. This paper was approved by the Ethics Committee in Research with Human Beings from Federal University of Santa Catarina, under the assent CAAE - 99249018.7.0000.0121. All participants signed the Free and Informed Consent Form.

The inclusion criteria adopted in this study were patients over 18 years of age, both male and female, assisted at the Head and Neck Surgery outpatient clinic and Hospital Dentistry Center from the Federal University of Santa Catarina Hospital, 45 days after the end of radiotherapy and/or surgery for HNC treatment. The questionnaires were carried out in the same day and following the same sequence. Patients with neurological and/or cognitive impairment and those who underwent head and neck surgeries not related to cancer were excluded from the study.

To collect data from the interviewees, a form was designed with data from the interviewees, such as name, age, gender, level of education, use of medication during treatment, neck dissection procedure, tobacco use in addition to speech and language therapy. Cancer-related data were also collected, such as the type of cancer, primary site of

the lesion, time of diagnosis, type and information of the medical treatment performed (radiotherapy, surgery or other treatments). Furthermore, all recruited patients answered three specific quality of life questionnaires.

The M.D. Questionnaire Anderson Dysphagia Inventory (MDADI), aimed to evaluate the impact of dysphagia on the QoL of patients who underwent treatment for HNC. It is a self-administered protocol, validated and translated into Portuguese by Guedes[9]. The MDADI consists of 20 questions, subdivided into a global question that assesses general aspects of QOL related to swallowing and three domains over which another 19 items are distributed: emotional (E), physical (P), and functional (F). The global question was scored individually and the mean score from each subscale (emotional, physical and functional) was multiplied by 20 in order to obtain a total score ranging from zero (extremely low functioning) to 100 (high functioning). A higher MDADI score was considered indicative of better day-to-day functioning and QoL. For standardization purposes, the speech language therapist applied the questionnaires to all patients.

The application of the Oral Health Impact Profile (OHIP-14) questionnaire was one of the instruments focusing on oral health, described by Slade[10]. It contains 14 questions divided into seven dimensions with two questions each, such as functional limitation, physical pain, psychological discomfort, physical, psychological and social impairment and disability. Patients were asked how often they have perceived each item present in their lives in the last 12 months. Each response received a rate, as follows: 4 (always), 3 (repeatedly), 2 (sometimes), 1 (rarely) and 0 (never). The scores were added and the higher the score, the worse the QoL related to oral health of the individual was considered.

Besides the instruments mentioned above, the University of Washington Quality of Life Questionnaire - UW-QOL, translated and validated into Portuguese by Vartanian et al.[11], was applied, which assesses the health and QoL of patients with HNC. The questionnaire consists of 12 questions, in which each item is scored from 0 to 100, and the answers can be scored with 0, 25, 50, 75 or 100. The score is composed of the average of the 12 domains. A higher score was indicative of better QoL.

Results

The sample consisted of 10 patients, recruited from the Head and Neck Surgery Outpatient Clinic and the Hospital Dentistry Center, at Federal University of Santa Catarina Hospital. From the results, it was found that the frequency of men was higher and the age ranged from 36 to 80 years old, obtaining an average age of 58. Sixty percent of them were smokers or still smoke, and two patients declined to inform. The patients' characterization in terms of gender, age, and tobacco use and speech language therapy is presented in Table 1. The data obtained were extracted from the patients' medical records.

As shown in Table 1, the most frequently described histological type was squamous cell carcinoma (SCC). All patients underwent surgery and/or radiotherapy as a form of treatment, with surgery being the method used by 80% of patients. The data sample regarding the histological type of the tumor, the primary site of the lesion and the type of treatment each patient went through can be seen in Table 2.

Table 1. Patients' Individual characteristics (n=10), regarding gender, age, tobacco use as well as speech, language therapy.

Patient	Age	Gender	Tobacco Use	Speech and language Therapy
1	56	F	Not informed	No
2	54	F	Ex-smoker	Yes
3	36	M	Never smoked	No
4	57	M	Ex-smoker	No
5	62	M	Ex-smoker	No
6	54	M	Not informed	No
7	56	M	Ex-smoker	No
8	62	F	Never smoked	Yes
9	80	M	Ex-smoker	Yes
10	67	M	Ex-smoker	Yes

Source: Research Data

Table 2. Data sample regarding the histological type of the tumor, its location and the type of treatment the patients went through.

Patient	Histological type	Tumor location	Neck dissection (ND)	Surgical Treatment	Radiotherapy Treatment
1	Adenoid Cystic Carcinoma	Hard palate	No	Yes	Yes
2	Squamous cell carcinoma	Soft palate	No	Yes	Yes
3	Squamous cell carcinoma	Edge of the Tongue	Yes	Yes	Yes
4	Squamous cell carcinoma	Jaw	No	No	Yes
5	Squamous cell carcinoma	Tongue	No	Yes	No
6	Squamous cell carcinoma	Lower lip	No	Yes	No
7	Squamous cell carcinoma	Pyriform sinus	No	Yes	No
8	Squamous cell carcinoma	Jugal mucosa	Yes	Yes	Yes
9	Squamous cell carcinoma	Soft palate	No	No	Yes
10	Squamous cell carcinoma	Edge of the Tongue	Yes	Yes	Yes

Source: Research Data

The score survey and mean score of the subscales, regarding the MDADI questionnaire, can be seen in Tables 3, 4 and 5, separated by their respective domains.

Table 3 shows the scores and mean score from the Emotional domain (E) of each subscale of each patient referring to the MDADI questionnaire. The subdomains "E2" and "E3'', which ask about their shame towards eating habits and whether other people get angry on account of their swallowing problem, obtained equal results, with the best scores. The subdomain that presented the lowest mean score was "E3", which refers to sadness secondary to the swallowing problem.

Table 4 shows the score and mean scores from the Functional domain (F) of each subscale of each patient referring to the MDADI questionnaire. The domain with the best average was "F4" (I feel isolated because of my swallowing problem). "F2", which asks the patient about feeling comfortable going out to eat with friends, neighbors and relatives, showed the lowest mean score.

Table 3. Scores and mean score from the Emotional domain (E) from each subscale of each patient referring to the MDADI questionnaire.

Patient	E2	E7	E4	E5	E3	E6	TOTAL MEAN SCORES
P1	5	5	2	5	5	5	90
P2	5	2	5	5	5	5	90
P3	5	5	5	5	5	5	100
P4	5	1	2	5	5	5	76,66
P5	5	5	5	5	5	1	86,66
P6	5	5	2	1	5	1	63,33
P7	5	5	4	5	5	4	83,33
P8	5	4	2	2	5	4	73,33
P9	5	5	5	5	5	5	100
P10	5	5	2	5	5	5	73,33
Average	50	42	34	43	50	40	83,66

Source: Research Data

Table 4. Scores and mean score from the Functional domain (F) of each subscale of each patient referring to the MDADI questionnaire.

Patient	F1	F5	F3	F2*	F4	TOTAL MEAN SCORES
P1	5	2	5	5	5	88
P2	5	5	5	5	5	100
P3	5	5	5	5	5	100
P4	5	1	2	1	5	56
P5	2	5	5	1	5	72
P6	5	1	5	1	5	68
P7	5	2	5	5	5	88
P8	3	1	2	2	5	52
P9	5	5	5	5	4	96
P10	5	5	5	1	5	84
AVERAGE	45	32	44	31	49	80,4

Source: Research Data
Caption:
*F2 items are scored as follow: one point to *strongly* agree and five points for *totally disagree*.

Table 5. Scores and mean score from the Physical domain (P) of each subscale of each patient referring to the MDADI questionnaire.

Patient	P2	P6	P7	P3	P8	P5	P1	P4	TOTAL MEAN SCORE
1	5	2	2	5	2	1	2	1	50
2	5	5	2	5	5	5	5	4	90
3	5	5	5	5	5	5	2	1	82,5
4	2	4	5	1	1	1	4	4	55
5	1	5	2	5	2	3	5	1	60
6	5	5	2	2	5	1	1	4	62,5
7	5	5	5	5	5	5	1	1	80
8	1	1	1	1	2	2	1	5	35
9	5	4	5	4	5	2	2	4	82,5
10	5	5	5	4	2	2	1	4	70
AVERAGE	39	41	34	37	34	27	25	29	66,75

Source: Research Data

Table 5, where the scores and mean score from the Physical domain (P) of each subscale of each patient referring to the MDADI questionnaire were exposed, shows that the subdomain "P6" got better results. Thus, it was categorized as the best mean score and it appears to be connected to the patient's perception of "swallowing is a big effort". The domain that received the lowest mean score was ''P1" (weight loss as a consequence of swallowing problem).

Among the three domains (emotional, functional and physical), the one with the lowest total mean score and, consequently, the worst score, was the ''physical (P)" domain, with a total score of 66.75. The "emotional (E)" domain presented the best total average scores (83.66), followed by the "functional (F)" domain, with a score of 80.4, being these two domains considered with satisfactory average scores.

The OHIP-14 questionnaire obtained an overall mean score of 15.9. The highest score achieved was 41, and the lowest was 1, for a maximum score of 56 points. The score survey is presented in Table 6, where it can be seen that patients who obtained an index lower than the mean score of 15.9 points were classified as having a low rate of impact of oral health on QoL (60% of patients).

Table 6. Scores referring to the OHIP-14 questionnaire, under each individual domain, mean scores of each domain and each patient's total mean score.

Patient	Functional limitation	Physical Pain	Psychological discomfort	Physical impairment	Psychological impairment	Social impairment	Disability	TOTAL MEAN SCORE
1	6	2	2	3	0	0	0	13
2	3	0	0	1	0	1	1	6
3	0	1	0	0	0	0	0	1
4	3	4	3	7	4	1	7	29
5	2	0	8	2	3	3	3	21
6	6	2	8	8	8	1	8	41
7	0	0	0	0	3	0	0	3
8	8	6	4	4	2	2	4	30
9	2	2	0	0	0	0	0	4
10	7	0	0	3	0	1	0	11
Average	3,7	8,5	12,5	14	2	4,5	11,5	15,9

Source: Research Data

Patients who had an average higher than the overall mean score were sorted as having a high influence of oral health on QoL (40% of patients). The most frequent issues reported as having an impact on QoL as a result of problems related to oral health conditions were "problems to utter a word", "impaired feeding", "got stressed", "food taste has worsened" and "felt ashamed because of problems with his/her teeth, mouth or dentures".

The items that pointed out the highest prevalence were: "feeling stressed" in the domain "psychological discomfort" and "has been unable to perform daily activities" in the domain "disability". There was no domain in which patients, in general, did not show problems in relation to oral health.

The score for each domain and the overall mean scores for each patient, according to the University of Washington Quality of Life Questionnaire (UW-QOL), can be seen in Table 7.

Table 7. Scores from each domain and each patient's overall scores for the UW-QOL questionna.

Patient	1	2	3	4	5	6	7	8	9	10	11	12	OVERALL AVERAGE
P1	100	75	75	100	67	50	67	100	100	0	75	67	73
P2	100	100	100	100	100	100	100	100	100	0	100	100	91,66
P3	100	100	100	100	100	100	100	100	100	100	100	0	91,6
P4	100	100	25	50	33	50	100	100	67	33	25	100	65,25
P5	50	75	0	75	100	100	0	100	67	100	50	33	62,5
P6	100	25	25	75	100	50	33	33	33	33	25	0	44,33
P7	100	75	50	100	100	100	100	100	100	33	100	100	88,16
P8	100	75	25	50	67	50	67	33	33	33	25	67	52,08
P9	100	100	0	100	100	100	100	100	33	67	100	100	83,33
P10	100	100	75	100	67	50	0	33	0	33	75	100	61,08
Average	95	82,5	47,5	85	83,4	75	66,7	79,9	63,3	43,2	67,5	66,7	71,29

Fonte: Dados da Pesquisa

The overall average concerning QoL score reached a score of 71.29 points for post-treatment patients for HNC. The domains that received the lowest mean scores were "activity" and "saliva". The "pain" and "recreation" domains obtained the best scores.

Discussion

This study evaluated the impact of QoL related to swallowing and oral health of patients who have undergone treatments for HNC, using objective protocols.

Most individuals were male, 70% of the participants, with an age average of 58. In general, all patients were diagnosed with cancer in the oral cavity region; ergo, corroborating the current data described by the National Cancer institute – INCA[12] in 2020, when it was estimated that mouth and oral cavity cancer would reach, at least, 15,000 individuals, of whom 11,180 men over 40 years of age.

Besides this male prevalence, squamous cell carcinoma was the most present histological type in the study. Valle et al.[13] reported that it is the most frequent histological type of cancer located in the head and neck area and that smoking is one of the main carcinogenic agents. At least 60% of the interviewees are ex-smokers or are still active smokers. One of them, in addition to tobacco use, consumes alcoholic beverages, which, according to the authors, increases the chances of acquiring cancer by 141 times.

From the findings of the MDADI dysphagia questionnaire, the ''Emotional'' and ''Functional'' domains obtained final averages above 80 points. As for the "Physical" domain, a relatively low final average was obtained: 66.75 points. For the emotional domain, the most frequently asked questions answered with the lowest scores were "I am ashamed of my eating habits" and "Other people get angry because of my swallowing problem". As for the "Physical" domain, they were "I feel isolated because of my eating habits", "People find it difficult to cook for me" and "My swallowing problems interfere with my personal and social life".

According to the study by Andrade et al.[14], who applied the protocol to patients treated with cancer of the oral cavity, oropharynx, hypopharynx and larynx, it was possible to observe that the patients obtained the worst mean scores in the "physical" domain, not finding relevant damages in the ''functional'' aspect. The authors correlated the MDADI results with swallowing alterations by means of videofluoroscopy and observed that individuals who have penetration and/or aspiration had worse QoL scores.

In general, one of the most affected domains in the study by Andrade et al.[14] was the ''physical'', where all questions involved problems related to swallowing, such as weight loss, food limitation, presence of cough and the level of adversity for the patient to feel safe and comfortable to perform such action. The present study showed that the patients had minimal limitations in the "emotional" domain, a point that does not corroborate the author in question, where it was possible to observe that the "emotional" domain was also affected. The authors say that patients may present "'physical"

and/or "functional" alterations, but they will not necessarily manifest complaints or show traits related to "well-being" and "emotions".

For the OHIP-14 instrument, the study obtained an average of 15.9 points. The highest score achieved was 41 and the lowest was 1, for a maximum score of 56 points. It was observed that only 40% of the participants were classified as having a high rate of impact on oral health on QoL.

The study by Barrios et al.[15] showed that their patients treated for oral or oropharyngeal cancer had the dimensions "physical pain" and "functional limitation" most affected verified by the OHIP protocol[14], and these issues were related to food and nutrition, uttering and pronouncing clearly on a daily basis, correlated to the Oral Impacts on Daily Performances (OIDP) protocol. The author reported in his study that the patients had, at least, six months of post-treatment to participate in the study and that the malnutrition factor or risk of malnutrition was present. These factors can result in alarming clinical implications for patients' QoL since it showed that more than half of the population studied belonged to the lowest social class. Although nutrition was not a factor evaluated in the present study, seven of the ten patients reported, on MDADI protocol, weight loss after cancer treatment.

Nascimento et al.[16] highlighted a mean score of 11 points in the OHIP-14 protocol for patients who have undergone radiotherapy by virtue of the diagnosis of malignant neoplasia in the head and neck region. Their patients reported ''always'' or ''repeatedly'' in response to questions such as: ''have you felt that the taste of food got worse?'' and ''discomfort when eating some food''. In addition, the author revealed that almost all of his patients (97.5%) had reduced saliva flow as an oral complication, for the sake of the head and neck radiotherapy sessions. The complaint rate of xerostomia and use of artificial saliva in the current study was less than or equal to 40%. However, considering that three patients did not undergo RTx, more than half of the individuals who underwent this treatment modality had a complaint related to a reduced salivary flow. As reported by Vissink et al.[6], xerostomia can cause not only the sensation of dry mouth, but also loss of taste, phonoarticulatory alterations, oral discomfort and swallowing problems.

Yang et al.[17] applied the OHIP-14 protocol in a male-predominant population, treated with surgery for squamous cell carcinoma, at least 12 months after surgery. Of the 115 patients recruited, 34 had undergone mandibular resection surgery. The author revealed that the individuals reported that the surgery brought serious damage to their oral function. Despite this, it shows that the item ''disability'' was the dimension with the best result, that is, it showed the lowest impact on the patients' oral health, and that the dimensions ''functional limitation'' and ''physical pain'' were the ones that demonstrated a negative effect on patients' quality of life.

Unlike the current study, the item 'disability' was one of the most negative points affected according to patients. Although only one patient in the present study had mandibular resection, three patients had palate resection and three had tongue resection. It is known that these surgical interventions have an impact on chewing and swallowing, as shown by Furia et al.[18] that patients with tongue resection may experience difficulties in preparing the bolus, food stasis in the hard palate, among other factors, depending on type, surgery location and reconstruction.

According to the study by Chen et al.[19], patients with resection associated with radiotherapy have a great impact on QoL, since there are chances of developing xerostomia, hyposalivation, mucositis and trismus, also taking into account possible impediments in fitting the prosthesis. All these complications caused by the sequelae of surgeries described in the literature may have reflected in the negative impact on the "disability" domain of the individuals in the present study.

Li et al.[20], applied the OHIP-14 in patients with tongue cancer who have been submitted to immediate reconstruction surgery using a free flap of the radial forearm or pectoralis major muscle. The study, with large male participation, observed that ''psychological discomfort'' and ''social disability'' stood out, due to the large difference in scores between the two types of reconstruction. Patients had a better performance in ''shoulder'' domains, in addition to the worst domains in ''appearance''. In the current study, only two of the patients reported some type of flap surgery after surgical treatment for cancer, in which it was not possible to access this piece of information because of lack of data in their medical records. The three patients who underwent glossectomy also had worse scores in the ''psychological discomfort'' and ''functional

limitation'' domains, as they reported obstacles in pronouncing words after surgery.

For 40% of the patients in the present study, the scores were higher than the mean scores (15.9 points). For that reason, they were classified as having a high negative impact of oral health on QoL. The interviewees reported poorer oral hygiene after starting radiotherapy given excessive pain caused by mucositis. In addition, the percentage was composed of patients who mentioned being either total or partially edentulous even before starting treatment.

As for the UW-QOL questionnaire, the study obtained an overall mean score of 71.29 points. The domains that received the lowest mean scores were "activity" (47.5) and "saliva" (43.2). The domains "pain" (95) and "recreation" (85) obtained the most positive scores.

The authors Yang et al.[17] and Li et al.[20] continued to contribute to the data comparison from the UW-QOL questionnaire. Yang et al.[17] obtained, as a response for their population treated for squamous cell carcinoma, "saliva" as the worst domain, together with "chewing". In the present study, ''saliva'' was also one of the domains in evidence and the patients were also treated for ECC. This domain was present due to the possible consequences of radiotherapy.

Li et al.[20] found ''chewing'' as the worst dimension, followed by the dimension ''speech'' for their population with tongue cancer. Different from what was found in the current study, as only 30% of Interviewees were diagnosed with tongue cancer, located in the border region, and not all of them had speech and chewing complaints after treatment.

The study carried out by Angelo et al.[21] on QoL in patients with HNC showed ''chewing'' as the most worrisome domain, followed by ''pain'', ''swallowing'' and ''saliva'', but that, even patients having specific limitations in relation to cancer, all reported, in general, having a good QoL. The author also revealed that patients who had a higher level of education, consequently, had a better financial life; therefore, they had good jobs and benefits, among these, quality health care, justifying, thus, a better QoL. In the present study, the analysis of the socioeconomic level was not carried out, but as the majority reported that they had a family support network, the option of help (both financial and personal) was reported, if necessary.

When the UW-QOL was applied in the study by Bonzanini et al.[22], it became clear that low QoL was present, especially when patients were diagnosed with an advanced tumor. 50% of them had trismus and 75% of them exhibited hyposalivation. The author also showed that even Interviewees below 60 years of age indicated low QoL in all subscales of the questionnaire, and that patients with cancer in the mouth and oropharynx region showed an advantage concerning pain, swallowing, chewing and saliva when comparing patients with cancer in the hypopharynx and larynx region. When the patients were ranked as having an advanced tumor, it was evident that the dimensions of pain, activity, chewing and saliva were deficient. In the present study, patients did not report similar comorbidities or morbidities at the same frequency as in the study by Bonzanini et al.[22]. Furthermore, 90% of the interviewees in the present study reported that they sought medical care at the onset of symptoms, demonstrating that their diagnoses were not late.

In the present study, patients were asked to answer the UW-QOL question regarding their three most important domains in the last week. The answers were ''saliva'' (I have little saliva or I do not have saliva), ''mood'' (I am a little depressed because of my cancer) and ''chewing'' (I can eat light solid food, but I cannot chew some types of food) as the three most important domains in their view. For all authors mentioned here, Yang et al.[17], Li et al.[20], Angelo et al.[21] and Bonzanini et al.[22], chewing and saliva were also the most reported domains among Interviewees.

Limitations such as the small sample size can be noted in this study, as it is a general hospital with low uptake of patients for the treatment of HNC. In addition, there was heterogeneity in the location of the lesion, which, although all patients had HNC, the impact on functions and QoL may be different. In addition, the scarce data in the medical records influenced the lack of detailed information related to the surgeries and much was based on patient reports.

Conclusion

Patients treated for HNC showed a relatively negative impact on QOL for the "physical" (P), "emotional" (E) and "functional" (F) domains, related to the MDADI protocol. The presence of stress and limitations in daily activities caused by

problems and/or pain in the oral cavity resulted in impairments and psychological impacts in 40% of the participants, with a negative impact on QoL due to oral health conditions. The UW-QOL protocol pointed out that "activity" and "saliva" were the most negatively reported items among patients. As well as the saliva domain, mood and chewing were the three domains seen as the most important in the last week, according to the interviewees.

Despite the small number of patients and the heterogeneity of tumor location from the results of this study, it was possible to verify that HNC and the sequelae of its treatment can affect patients' QoL significantly in different domains. This demonstrates the importance of multidisciplinary care aimed not only at treating the tumor, but also at each individual's physical, functional and psychosocial changes.

It is suggested to continue studies with the objective of seeking knowledge about the main functional and psychosocial impacts in this population for the continuous improvement of the quality of care for these patients.

References

1. Rodrigues AB, Cunha GH, Aquino CBQ, Rocha SR, Mendes CRS, Firmeza MA et al. Head and neck cancer: validation of a data collection instrument. Rev. Bras. Enferm. [Internet]. 2018; 71(4): 1899-1906

2. Associação de Câncer de Boca e Garganta. Tipo de Câncer [Internet]. Florianópolis: ACBG, 2018. Disponível em: https://www.acbgbrasil.org/tipos-de-cancer/

3. Chavoni RC, Silva PB, Ramos GHA. Nutritional status of patients from the head and neck service and its relationship with dysphagia in a cancer hospital of Paraná. Revista de Cirurgia de Cabeça e Pescoço (2014) v.43, nº 1, p. 35-41

4. Carrera M, Medrado A, Martins G, Lima H, Marques R, Costa A. SWALLOWING QUALITY OF LIFE AND HEAD AND NECK CANCER: LITERATURE REVIEW. Journal of Dentistry & Public Health. (2017) 8(1), 26-32

5. Gonçalves BFT, Bastilha GR, Costa CC, Mancopes R. Utilização de protocolos de qualidade de vida em disfagia: revisão de literatura. Rev. CEFAC [Internet]. 2015 Aug [cited 2020 Ago 2] ; 17(4): 1333-1340

6. Vissink A, Jansma J, Spijkervet FK, Burlage FR, Coppes RP. Oral sequelae of head and neck radiotherapy. Crit Rev. Oral Biol Med. 2003;14(3):199-212.

7. Melo Filho MR, Rocha BA, Pires MBO, Fonseca ES, Freitas EM, Martelli JH et al. Qualidade de vida de pacientes com carcinoma em cabeça e pescoço. Braz. j. otorhinolaryngol. [Internet]. 2013 Feb [cited 2019 Ago 22] ; 79(1): 82-88

8. Freire MEM, Sawada NO, França ISX, Costa SFG, Oliveira CDB. Qualidade De Vida Relacionada À Saúde De Pacientes Com Câncer Avançado: Uma Revisão Integrativa. Rev. esc. enferm. USP [Internet]. 2014 Apr [cited 2019 Ago 23]; 48(2): 357-367

9. Guedes RL, Angelis EC, Chen AY, Kowalski LP, Vartanian JG. Validation and application of the M.D. Anderson Dysphagia Inventory in patients treated for head and neck cancer in Brazil. Dysphagia. 2013; 28(1): 24-32.

10. Slade GD. Derivation and validation of a short-form oral health impact profile. Community Dent Oral Epidemiol. 1997; 25(4): 284-90.

11. Vartanian JG, Carvalho AL, Yueh B, Furia CL, Toyota J, McDowell JA et al. Brazilian-Portuguese validation of the University of Washington Quality of Life Questionnaire for patients with head and neck cancer. Head Neck 2006; 28(12): 1115-21.

12. Instituto Nacional do Câncer. Câncer de Boca: Estatísticas [Internet]. Rio de Janeiro, 2020. Disponível em: https://www.inca.gov.br/tipos-de-cancer/cancer-de-boca

13. Valle CN, Passos RM, Gonçalves JT, Gomes C, Bastos AM, Guedes VR. Carcinoma espinocelular oral: um panorama atual. Revista de Patologia do Tocantins. v.3, n.4, 2016.

14. Andrade MS, Gonçalves AN, Guedes RL, Barcelos CB, Slobodticov LD, Lopes Simone AC et al. Correlation between swallowing-related quality of life and videofluoroscopy after head and neck cancer treatment. CoDAS [Internet]. 2017 [cited 2020 Ago 2] ; 29(1): e20150175

15. Barrios R, Tsakos G, García-Medina B, Martínez-Lara I, Bravo M. Oral health-related quality of life and malnutrition in patients treated for oral cancer. Support Care Cancer. 2014; 22(11): 2927-2933

16. Nascimento ML, Farias AB, Carvalho AT, Albuquerque RF, Ribeiro LN, Leão JC, Silva IHM. Impact of xerostomia on the quality of life of patients submitted to head and neck radiotherapy. Med Oral Patol Oral Cir Bucal. 2019 Nov 1; 24 (6): e770-5.

17. Yang W, Zhao S, Liu F, Sun M. Health-related quality of life after mandibular resection for oral cancer: Reconstruction with free fibula flap. Med Oral Patol Oral Cir Bucal. 2014 Jul 1; 19 (4): e414-8.

18. Furia CL, Carrara AE, Martins NM, Barros AP, Carneiro B, Kowalski LP. Video fluoroscopic evaluation after glossectomy. Arch Otolaryngol Head Neck Surg. 2000 Mar; 126(3): 378-83.

19. Chen C, Ren W, Gao L, Cheng Z, Zhang L, Li S et al. Function of obturator prosthesis after maxillectomy and prosthetic obturator rehabilitation. Braz. j. otorhinolaryngol. [Internet]. 2016 Apr [cited 2020 Sep 15]; 82(2): 177-183

20. Li W, Zhang P, Li R, Liu Y, Kan Q. Radial free forearm flap versus pectoralis major pedicled flap for reconstruction in patients with tongue cancer: Assessment of quality of life. Med Oral Patol Oral Cir Bucal. 2016; 21(6): e737-e742.

21. Angelo AR, Medeiros AC, De Biase RCCG. Quality of life in patients with cancer of the head and neck. Rev Odontol. UNESP. 2010; 39(1): 1-7.

22. Bonzanini LIL, Soldera EB, Ortigara GB, Schulz RE, Antoniazzi RP, Ardenghi TM, Ferrazzo KL. Clinical and sociodemographic factors that affect the quality of life of survivors of head and neck cancer. Support Care Cancer. 2020 Apr;28(4): 1941-1950.