NUTRITIONAL MONITORING: PATIENTS WITH HEAD AND NECK CANCER

ACOMPANHAMENTO NUTRICIONAL: PACIENTES COM CÂNCER DE CABEÇA E PESCOÇO

SEGUIMIENTO NUTRICIONAL: PACIENTES CON CÁNCER DE CABEZA Y CUELLO

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ABSTRACT

To monitor the nutritional status of patients with head and neck cancer undergoing cancer treatment at a Reference Center. Cross-sectional study with 9 patients of both sexes and over 18 years of age. Nutritional status was determined by body mass index (BMI), arm circumference (AC), calf circumference (PC), percentage of weight loss (%PP) and Subjective Global Assessment (SGA-PPP). The mean age was 58.7 years, with a predominance of male patients, smokers and alcohol drinkers and low-wage patients. Most malnutrition was identified, according to BC, %PP and ASG-PPP, but the BMI showed eutrophy. There was a prevalence of pharyngeal tumors and symptoms of pain, swallowing problems and dry mouth. After two nutritional consultations, there was an increase in eu-trophy by SGA-PPP, a reduction in %PP and symptomatic complaints. Nutritional intervention helps in the advancement of malnutrition, minimizing the effects caused by the disease and treatment.

Descriptors: *Head and Neck Neoplasms; Radiotherapy; Nutrition Assessment; Nutrition Therapy.*

RESUMO

Acompanhar o estado nutricional de pacientes com câncer de cabeça e pescoço em tratamento oncológico em um Centro de Referência. Estudo transversal com 9 pacientes de ambos os sexos e acima de 18 anos. O estado nutricional foi determinado pelo índice de massa corporal (IMC), circunferência do braço (CB), circunferência da panturrilha (CP), percentual de perda de peso (%PP) e Avaliação Subjetiva Global (ASG-PPP). A média de idade foi de 58,7 anos, predominando pacientes homens, fumantes e etilistas e de baixos salários. Identificou-se desnutrição em sua maioria, segundo CB, %PP e ASG-PPP, porém o IMC constatou eutrofia. Houve prevalência de tumores na faringe e sintomas de dor, problemas para engolir e boca seca. Após dois atendimentos nutricionais, houve aumento de eutrofia pela ASG-PPP, redução no %PP e das queixas sintomáticas. A intervenção nutricional auxilia no avanço da desnutrição, minimizando os efeitos causados pela doença e tratamento.

Descritores: *Neoplasias de Cabeça e Pescoço; Radioterapia; Avaliação Nutricional; Terapia Nutricional.*

RESUMEN

Monitorear el estado nutricional de pacientes con cáncer de cabeza y cuello en tratamiento oncológi-co en un Centro de Referencia. Estudio transversal con 9 pacientes de ambos sexos y mayores de 18 años. El estado nutricional se determinó mediante el índice de masa corporal (IMC), la circunferencia del brazo (AC), la circunferencia de la pantorrilla (PC), el porcentaje de pérdida de peso (%PP) y la Evaluación Global Subjetiva (SGA-PPP). La edad media fue de 58,7 años, con predominio de pacientes del sexo masculino, fumadores y alcohólicos y de bajos ingresos. Se identificó mayor des-nutrición, según BC, %PP y ASG-PPP, pero el IMC mostró eutrofia. Hubo un predominio de tumores faríngeos y síntomas de dolor, problemas de deglución y sequedad de boca. Después de dos consultas nutricionales, hubo un aumento de la eutrofia por SGA-PPP, una reducción del %PP y quejas sintomáticas. La intervención nutricional ayuda en el avance de la desnutrición, minimizando los efectos causados por la enfermedad y el tratamiento.

Descriptores: *Neoplasias de Cabeza y Cuello; Radioterapia; Evaluación Nutricional; Terapia Nutricional.*

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INTRODUCTION

Head and neck cancer is a collective term to define malignant neoplasms that affect the upper aerodigestive tract, which includes the oral cavity, pharynx, larynx and thyroid regions. Brazil is one of the countries with the highest incidence of head and neck squamous cell carcinoma[1]. For each year of the 2020-2022 triennium, the forecast number of new cases will be 15,190 in the oral cavity and another 7,650 cases in the larynx. Oral cavity cancer is predominant in males, occupying the fifth position among all cancers[2].

Risk factors related to this neoplasm include genetic, behavioral and environmental aspects[3]. Tobacco and alcohol are the main etiological agents for the disease; other factors include poor dental and oral hygiene, gastroesophageal reflux, inadequate nutrition and human papillomavirus (HPV) infection, an important risk factor in cases of oropharyngeal carcinoma[1].

Head and neck cancer patients have a clear risk of nutritional deficiency, due to their pre-morbid lifestyle, the complications inherent to cancer treatment and the location of the tumor, which can interfere with chewing, the secretion of enzymes by the salivary glands and the food intake, compromising the ability to offer nutrition to the patient[4,5]. About half of these patients are malnourished and about 80% of them suffer significant unintentional weight loss during treatment, leading to worse outcomes, increased morbidity and mortality, and poor quality of life[6].

The clinical and nutritional conditions and the epidemiological data described above indicate the need to develop protocols for nutritional assistance offered to cancer patients. In 2004, the 1st National Consensus on Oncology Nutrition was conceived, with the objective of standardizing therapy and nutritional assistance, aiming at improving the quality of care provided to these patients[7].

Therefore, nutritional assessment should be individualized and include screening for nutritional risk associated with measurements of anthropometric, laboratory and nutritional variables[3]. Among the screening tools for cancer patients, the Subjective Global Assessment (SGA) stands out, introduced by Detsky in 1987 and used in several clinical conditions. In 1996, Ottery adapted this assessment method to meet the characteristics of cancer patients and in 2010, this version was validated in Portuguese, named Subjective Global Assessment – Produced by the Patient (ASG-PPP), used exclusively in the assessment of the nutritional status of cancer patients, due to its sensitivity and prediction of complications[8]. Thus, nutritional monitoring is essential to identify the degree of nutritional impairment, minimizing weight loss and signaling benefits to patients in terms of food intake, quality of life and mortality[7,8].

Exposing the importance of early and individualized nutritional assistance should be motivated and presented to health professionals committed to caring for cancer patients, as it has benefits such as preventing the progression of malnutrition, recovering the nutritional status and minimizing the effects caused by the disease and treatment. This work aims to monitor the nutritional status of patients with head and neck cancer undergoing oncological treatment at a Reference Center.

METHODS

A descriptive and cross-sectional study, with a quantitative approach, was carried out from July 2021 to February 2022, at the Nutrition Outpatient Clinic of the Centro Regional Integrado de Oncologia - CRIO, located in the city of Fortaleza - CE. The study population was represented by individuals of both genders, aged over 18 years and diagnosed with malignant neoplasm of the head and neck, who were undergoing adjuvant or neoadjuvant radiotherapy treatment and who were seen at the nutrition service for the first time within the period of data collection.

Subjects who had other associated hypercatabolic diseases, such as Acquired Immunodeficiency Syndrome, and patients undergoing palliative treatment were excluded. The sample consisted of 9 patients with head and neck cancer, selected using the convenience sampling technique. We included those who had a primary tumor located in the lip and oral cavity, pharynx and larynx and their subsites, described by the International Classification of Diseases (ICD-10) and present in the Manual of Clinical Oncology of Brazil

(2021), as they are in anatomical regions that share risk factors in common and are considered similar in their epidemiology, treatment and prognosis (accounting for 90% of all cancers in this region)[9,10].

The selection of participants took place at the time of the previously scheduled nutritional consultation at the nutrition clinic, where patients were instructed about the purpose of the study, followed by reading and signing the Free and Informed Consent Form. The interview began with the application of the ASG-PPP, a screening tool used in cancer patients to assess nutritional risk, food intake and symptoms. It has two stages, where the first, the patient evaluates himself and, in the second, the questionnaire is completed by the professional nutritionist. At the end, the patient is classified as: well nourished, moderate or suspected malnutrition, or severely malnourished[11]. Then, a semi-structured evaluation form designed for this study was applied to collect identification information, demographic, socioeconomic, cultural, clinical and anthropometric data. Clinical data, such as diagnosis, disease staging and type of treatment were obtained from the patient's electronic medical record.

The anthropometric evaluation was carried out by obtaining weight (kg) and height (m), using a Mechanical Scale with an anthropometric Balmak® 150 kg ruler and 100 g accuracy, calibrated and installed on a surface far from the wall, smooth, flat and firm. Subsequently, the Body Mass Index (BMI) was calculated using the formula: weight in kg divided by height in meters squared and the classification followed the criteria of the World Health Organization[12] for adults (< 60 years) and the Pan-American Organization. American Society of Health[13] for the elderly (≥ 60 years). Measurements of arm circumference (AC) and calf circumference (LC) were performed using a Sanny® measuring tape, a circular fiberglass model with lock, and subsequently classified14. Finally, for patients who had unintentional weight loss, the percentage of weight loss (%PP) was calculated, classified by the parameters of Rossi, Caruso and Galante[14]. All anthropometric data were collected in accordance with the guidelines prepared by the Ministry of Health[15].

At the end of the nutritional consultation, patients received a personalized dietary prescription, written nutritional guidelines, advice on diet care and symptom management. The return for reassessment of the patient was scheduled for a period ranging from 15 to 60 days, depending on the nutritional diagnosis. At the follow-up visit, a new anthropometric assessment was carried out and the application of the ASG-PPP was repeated, in order to monitor the patient's nutritional evolution. In the end, all patients in the study underwent two nutritional consultations. The collected data were tabulated and analyzed using the Microsoft Excel®, 2019 Office Package program and presented in tables.

The research followed the ethical norms established by the Resolution of the National Health Council (CNS) nº 466/2012 and was approved by the Research Ethics Committee of the Integrated Regional Center of Oncology and the School of Public Health of Ceará (CEP/ESP/CE), opinion No. 4,848,548.

RESULTS

The study showed a predominance of male patients 66.67% (n = 6), with a mean age of 58.7 years (± 8.69) and a range of 42 and 65 years. Most participants were unemployed (55.56%, n = 5), with a monthly family income of less than 1 minimum wage (88.89%, n = 8), declaring themselves as Catholics (88.89%, n = 8) and with marital status married (44.44%, n = 4). Regarding the lifestyle of the evaluated individuals, 77.78% (n = 7) reported having been smokers and 55.55% (n = 5) were alcoholics. Only 3 (33.33%) of them reported having some comorbidity, with hypertension being mentioned exclusively (Table 1).

Table 1. Socioeconomic, cultural and lifestyle characteristics of head and neck cancer patients

Variable	N	(%)
Gender		
Male	6	66,67
Female	3	33,33
Age (years)		
< 60 anos	4	44,44
≥ 60 anos	5	55,56
Family Income (SM)¹		
< 1 SM	8	88,89
1-2 SM	1	11,11
Occupation		
Paid work	1	11,11
Unemployed	5	55,56
Retired	2	22,22
Other (aid)	1	11,11
Religion		
Catholic	8	88,89
Protestant	1	11,11
Marital status		
Single	3	33,33
Married	4	44,44
Divorced	1	11,11
Widower	1	11,11
Risk factors		
Smoking	7	77,78
Alcoholism	5	55,55
Hypertension		
No	6	66,67
Yes	3	33,33

Fonte: Autoria própria. ¹SM: Salário-mínimo. Valor do salário-mínimo vigente na época da coleta: R$ 1.100,00.

The primary tumors with the highest predominance were located in the pharynx (66.67%, n = 6). Most patients underwent neoadjuvant treatment, with radiotherapy associated with chemotherapy or only radiotherapy with the same frequencies (33.33%, n = 3). It was observed that 55.55% of the patients had the first contact with the professional nutritionist when they were already with at least 10 radiotherapy sessions performed, such data is observed in table 2.

Table 2: Distribution of head and neck cancer patients evaluated, according to tumor site, type of treatment and number of sessions.

Variable	N	(%)
Tumor site		
Pharynx		
Oropharynx	4	44,44
Hypopharynx	1	11,11
Pyriform sinus	1	11,11
Oral cavity and lip		

Tongue	2	22,22
Larynx	1	11,11
Type of Treatment		
Neoadjuvant		
RT	3	33,33
RT + QT	3	33,33
Adjuvant		
Surgery + RT	2	22,22
Surgery + RT + QT	1	11,11
Nº of RT sessions in the first service		
1-10	4	44,44
10-20	3	33,33
20-30	2	22,22

Source: Own authorship. RT: Radiotherapy; QT: Chemotherapy.

Regarding anthropometric data, according to BMI, most patients 77.78% (n = 7) were eutrophic in the first assessment. However, in disagreement with this indicator, there was a prevalence of malnutrition or nutritional risk through the measures of AC, %PP and ASG-PPP, as shown in table 3.

Table 3: Comparison and classification of anthropometric assessment and ASG-PPP in nutritional care for head and neck cancer patients

Variables	First attendance		Second attendance	
	N	**(%)**	**N**	**(%)**
Categories ASG-PPP				
Well nourished	1	11,11	3	33,33
Moderate malnutrition	5	55,55	4	44,44
Severely malnourished	3	33,33	2	22,22
IMC				
Low weight	1	11,11	2	22,22
Eutrophy	7	77,78	6	66,67
Overweight	1	11,11	1	11,11
CB				
Eutrophy	3	33,33	2	22,22
Mild malnutrition	3	33,33	2	22,22
Malnutrition mod	2	22,22	4	44,44
Severe malnutrition	1	11,11	1	11,11
CP				
Eutrophy	7	77,78	6	66,67
Malnutrition	2	22,22	3	33,33
%PP				
Mean ± SD	10,86 ±10,57	-	4,3 ± 4,72	-
Serious	4	44,44	3	33,33
Significant	4	44,44	3	33,33
No changes	1	11,11	0	0
Weight gain	0	0	3	33,33

Source: Own authorship. AGS-PPP: Subjective global assessment produced by the patient himself; BMI: Body Mass Index; AC: Arm Circumference; CP: Calf Circumference; %PP: Weight Loss Percentage.

The main symptoms cited by patients in the first nutritional consultation were: Pain 25% (n = 6) and Problems swallowing 25% (n = 6). In the second visit, there was a reduction in symptomatic complaints,

but the symptom Problems swallowing continued to predominate with 27.78% (n = 5) and the second most cited symptom, Dry mouth with 22.22% (n = 4), as shown in Table 4.

Table 4: Most prevalent symptoms in the two nutritional consultations of head and neck cancer patients

Symptoms	First attendance		Second attendance	
	N	(%)	N	(%)
No feeding problems	2	8,33	1	5,55
Nausea	1	4,17	1	5,55
Puke	2	8,33	1	5,55
Mouth sores	3	12,50	2	5,55
Dry mouth	1	4,17	4	22,22
Food tastes weird or doesn't taste at all	3	12,50	1	5,55
Quickly satisfied	-	-	1	5,55
Pain	6	25	2	11,11
Trouble swallowing	6	25	5	27,78

Source: Own authorship.

Table 5: Relationship between the number of symptoms presented by patients in the two consultations Fonte: Autoria própria.

Number of symptoms	First attendance		Second attendance	
	N	%	N	%
0-1 symptoms	2	22,22	5	55,56
≥ 2 symptoms	7	77,78	4	44,44

Source: Own authorship.

In view of the symptoms presented, we observed that initially 77.78% (n = 7) had at least two symptoms and in the second visit, we found a reduction in symptoms, since most patients 55.56% (n = 5) reported having none or only one symptom (Table 5).

DISCUSSION

Head and neck cancers are predominantly found in males in the fifth decade of life[1,2]. In this study, the dominant incidence in male patients and mean age of 58.7 ± 8.69 years is similar to the results of similar studies, where the mean age of the population was between 57 and 59.5 years[16,17]. With regard to socioeconomic characteristics, most were unemployed and had a family income of less than one minimum wage. Studies that used occupation as a socioeconomic indicator identified a higher odds ratio of cancer for these more underprivileged population groups[18], and associate low socioeconomic levels with precariousness in health care and inadequate hygiene[19].

Several risk factors contribute to the onset of head and neck cancer, but tobacco and alcohol remain the main etiological agents for the disease and, for those who smoke and drink, they present a 30 times greater risk[1,20]. Pootz et al21 report that 88% of their participants were smokers and 56% were alcoholics, data that corroborate the study.

The location of the tumor causes difficulties in swallowing and passing food, creating a risk of nutritional deficiency in these patients[4]. In this study, the location of the tumor predominated in the pharynx region, followed by the oral cavity and larynx, prevalence also observed in other studies[16,17]. However, they differ from the world and Brazilian scenario, where the types with the highest incidence and mortality are those of the oral cavity and lip, followed by laryngeal cancer[2,20].

Treatment can be performed by means of surgery, radiotherapy and chemotherapy, used alone or in combination. We observed in this and in the study by Lima et al.[22] that there was a predominance of

radiotherapy with or without chemotherapy and 33.33% reported having undergone surgery as the primary form of cancer treatment. All these therapeutic modalities have a strong impact on the functionality of patients, compromising their ability to provide nutrition and influencing their nutritional status[5,20]. Radiotherapy, associated or not with chemotherapy, can cause transient and very limiting side effects, which disappear at the end of treatment. Surgery, on the other hand, can cause permanent mutilation, loss of organs and/or changes in their functions[20].

With regard to nutritional status, before dietary advice, there was a predominance of malnutrition or nutritional risk when measured by anthropometric indices of AC, %PP and ASG-PPP. Studies carried out with patients undergoing cancer treatment[17,22], mostly presented some degree of malnutrition, that is, moderate or severe malnutrition, and suffered a significant unintentional weight loss[22]. For AC, 66.67% of the patients were classified as having some degree of malnutrition and when compared to the literature, it is identified that the arm circumference was a predictor of malnutrition identification in the majority of the studied population[17,23].

A difference in classification was found when comparing previous results with BMI. Thus, considering the age classification, malnutrition did not show prevalence as indicated in the ASG-PPP, as eutrophy prevailed in 77.78% of the patients. The same was identified in other studies[17,22,2]3, which alerts us to the importance of using other anthropometric instruments, not just BMI, and their association to provide more accurate nutritional diagnoses.

Being one of the biggest concerns, weight loss was observed in this study and in another[24], by more than 85% of the patients, which can start from the moment of diagnosis and last up to 3 months after the end of the treatment[24]. It was seen in the first consultation that the average weight loss in six months was 10.86% (±10.57) and, regardless of having a BMI in eutrophy, unintentional weight loss of 10% or more in the last six months can lead to a series of problems, such as muscle weakness, increased risk of infection, reduced response to treatment and increased mortality[25]. Cacicedo et al[26] concluded that the location of the tumor and the use of radiotherapy were independent risk factors for weight loss in these patients, since a study that included tumors in other sites during radiotherapy, the mean weight loss was significantly higher in patients with head tumors and neck.

Studies show that involuntary weight loss is associated with increased treatment toxicity because they are factors that interfere with eating[16,17]. In this research, in the first consultation, patients who presented at least two symptoms (77.78%) had an average %PP of 13.35%. At the return appointment, 55.56% of the patients reported having none or one symptom and of these, the average %PP was 1.06% and the others (44.44%) who had at least two symptoms had an average of 8.40%. It is also noteworthy that 33.33% had already finished the radiotherapy treatment in the second visit and they gained weight.

Among the symptoms reported, the most frequent were pain, swallowing problems and dry mouth, similar to a study[17]. The feeling of dry mouth is constantly mentioned by head and neck cancer patients during and at the end of radiotherapy treatment[16]. Pain is a common symptom in cancer patients[27] and may be the result of tumor effects or treatment complications, thus impacting quality of life[28].

With the purpose of nutritional follow-up of the research patients, two nutritional assessments were carried out. By monitoring AC and CP measurements, there were no significant changes in classification between appointments. Likewise, in the clinical trial21 which, despite not generating significant results when compared, showed a gradual decrease in these measures. When evaluating other parameters, it was seen that the number of eutrophic patients increased according to ASG-PPP, that there was a reduction in the mean %PP and a decrease in symptomatic complaints.

Studies on the effects of dietary advice on the nutritional status of this group of patients undergoing radiotherapy have reported positive effects on nutritional status, with less loss or maintenance of body weight in patients who received advice versus no advice[29]. Nutritional management in these individuals plays an

important role and contributes to successful treatment and patient survival, highlighting the importance of nutritional status for planning an individualized nutritional plan, which must be prepared by a nutritionist[6].

Guidelines on nutritional management in patients with head and neck cancer recommend offering evaluation before any treatment, as the intervention aims to improve, maintain or reduce the decline in nutritional status of these patients who have or are at risk of malnutrition, or even those identified as well-nourished, as the treatment can impact their future nutritional status and should receive dietary assessment and intervention at any stage of the disease[25].

Knowing the importance of nutritional therapy in cancer patients, the nutrition clinic where the study was carried out underwent changes in its care protocol for head and neck patients in particular, and started nutritional monitoring before treatment with radiotherapy. In view of this, we had an impact on the size of the research sample and this was limiting and made it difficult to evaluate the results. However, we make it clear that nutritional assessment and intervention are integral components of the treatment of head and neck cancer, essential to preserve the nutritional status and allow the proper functioning of vital organ systems.

CONCLUSÃO

Monitoring the nutritional status of patients with head and neck cancer helps to prevent the progression of malnutrition and to restore their nutritional status, minimizing the effects caused by the disease and treatment. There was an increase in the number of eutrophic patients according to ASG-PPP, a reduction in the mean %PP and a decrease in symptomatic complaints. Nutritional as-sessment should be individualized and follow a protocol for better nutritional care, including nutri-tional risk screening associated with variable anthropometric measurements.

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