ISSN: 1676-4285

OBJN Online Brazilian Journal of Nursing
ENGLISH
Federal Fluminense University
AURORA DE AFONSO COSTA NURSING SCHOOL
uff
Original Articles

Multiple symptoms in people with head and neck neoplasia: a descriptive study

Roberta Marjorie Cunha Pinto[1], Andrea Bezerra Rodrigues[2], Patrícia Peres de Oliveira[3]

1. Ceará Cancer Institute
2. Federal University of Ceará
3. Federal University of São João del-Rei

ABSTRACT

Aims: To describe the presence and intensity of multiple symptoms in people with head and neck cancer, and the impact of these symptoms on daily life (by applying the *MD Anderson Symptom Inventory/Head and Neck Module*); to compare the anatomical location of the cancer and the type of treatment. **Method**: a descriptive, quantitative study, conducted in the clinic of a hospital in the state of Ceará. We used ANOVA to assess the existence of differences in the subscale scores. **Results**: In the scale, the general and specific symptoms were different (frequency: 4.99; p≤0,01). In separate assessments, there were differences in the intensity of the symptoms. **Discussion**: it was found that the symptoms with regard to anatomical site showed significant differences between the group with cancer in the oral cavity and larynx, and the one with oral cavity and thyroid cancer. **Conclusion**: The influence of treatment was found in multiple symptoms. There were statistical differences between the group undergoing surgery combined with radiotherapy and the others.

Descriptors: Medical Oncology; Head and Neck Neoplasms; Quality of Life.

INTRODUCTION

Head and neck cancer (HNC) affects many thousands of people throughout the world[1]. In Brazil, there were an estimated 15,290 new cases of oral cancer in 2014[2].

In general, patients with HNC present advanced locoregional disease, with anemia, weight loss, and very poor pulmonary conditions being very common[3]. However, each anatomical location has its specific characteristics, and therefore different clinical manifestations.

The treatment of HNC is complex, and requires the involvement of many healthcare professionals with a wide range of knowledge. It may involve surgery, radiotherapy, chemotherapy, biological therapy, or a combination of two or more of these modes[3-4]. More complex surgical procedures are often necessary, with the resection of soft tissues, bones of the face, and sometimes the skin, which may need closure flaps. These can lead to complications such as aspiration, difficulty chewing, dysphagia, dysphonia, aphasia and other speech alterations, as well as cosmetic changes that can lead to psychological and social problems[5-6].

The radiotherapy associated with HCN, in turn, has adverse effects such as mucositis, xerostomia, cavities due to radiation, dysgeusia, dermatitis and osteoradionecrosis[5]. With regard to chemotherapy, most drugs leads to bone marrow depression, while alopecia, mucositis and dysgeusia are frequent, leading to poor dietary intake and subsequent weight loss[6-7].

As a result, the functionality of these patients can be affected, impairing their quality of life, a paradigm in oncology due to the realization that extending the life of the patient without an adequate level of functionality is not justified as a standard in practice. Functionality can be understood as the result of interactions between health conditions (diseases, disorders) and contextual factors[8]. So, the question is: is there a correlation between the anatomical location of the cancer and type of treatment, with the presence and intensity of multiple symptoms in people with head and neck cancer, as well as with the impact of these symptoms in daily life, in terms of applying the *MD Anderson Symptom Inventory/Head and Neck Module* functionality scale?

The *MDASI - Head and Neck (MDASI-H&N)* scale was developed by the MD Anderson Hospital in Texas, to exclusively evaluate the functionality of patients with head and neck cancer. The structure and content of *MDASI--H&N* are able to assist nurses in the registration of functional data, and in defining targets for intervention and for the documentation of outcomes, allowing the adoption of a new model to guide clinical practice[9-10]. Besides its necessity from the clinical and practical point of view, the functional classification model is important on an economic basis, since it favors the allocation of resources to match the real needs of the service[10].

Nursing plays a key role in the planning of actions that optimize the factors which may influence improvement in terms of the quality of life, with the aim of preventing, suppressing or minimizing the ones that lead to a deterioration[11]. Thus, the promotion, prevention, rehabilitation and recovery are connected to the conditions presented by the patient, in this case, individuals with head and neck cancer.

Given these considerations, we found it appropriate to carry out this study with the purpose of describing the presence and intensity of multiple symptoms in people with HNC and the impact of these symptoms on their daily lives, by applying the *MD Anderson Symptom Inventory/ Head and Neck Module* scale and comparing the anatomical location of the cancer and the type of treatment.

Pinto RMC, Rodrigues AB, Oliveira PP.Multiple symptoms in people with head and neck neoplasia: a descriptive study.Online braz j nurs [internet] 2014 Sep [cited year month day]; 13 (4):591-601. Available from: http://www.objnursing.uff.br/index.php/nursing/article/view/5091

METHOD

This is a prospective, cross-sectional, correlational study adopting a quantitative approach, which uses quantitative research concepts proposed by some authors as a methodological framework[12-13].

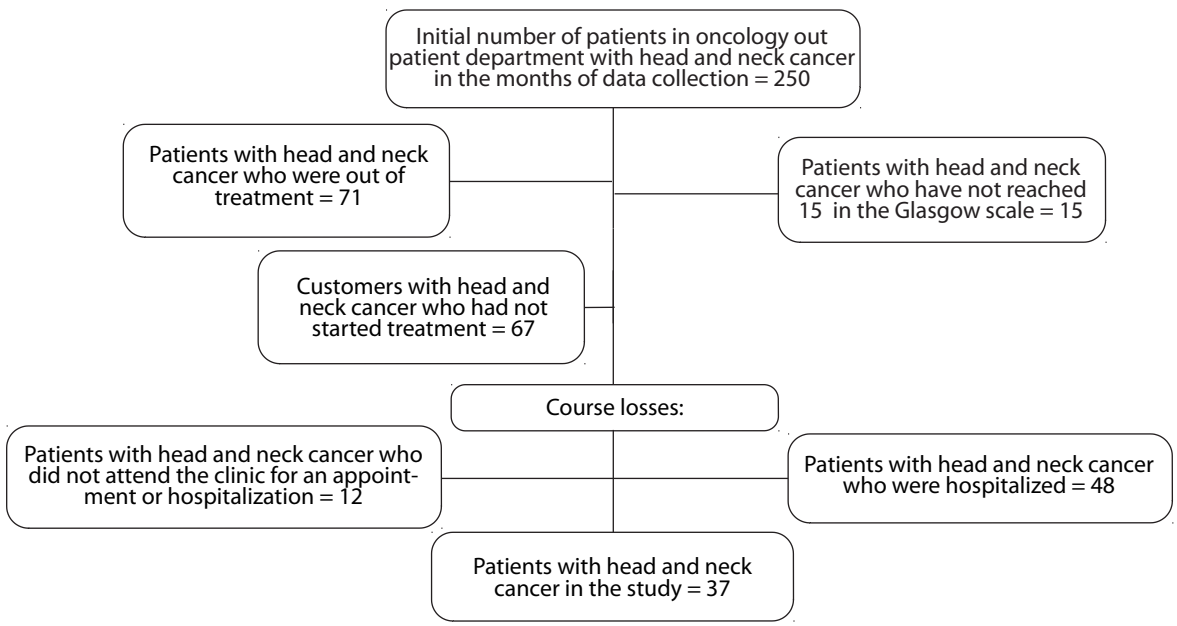
The study was conducted in a head and neck clinic of a university hospital in the state of Ceará. Based on convenience sampling, we adopted the following inclusion criteria: patients presenting head and neck neoplasia in the oral cavity, larynx, pharynx, or thyroid; conscious, with a score of 15 on the Glasgow scale; and being clinically monitored during clinical treatment or after surgery. There was a total of 37 participants in the study, as described in **Figure 1**.

Two instruments were used for data collection: a form prescribed by the researchers aimed at the investigation of demographic, clinical and therapeutic data, and another to collect data on the functionality, the MDASI-H&N. This is a form prescribed by the MD Anderson Hospital in Texas, United States, an important institution in the oncology area. The instrument consists of 28 items, nine for evaluating general symptoms (resulting from cancer or its treatment), six to evaluate the impact of symptoms on life, and nine HNC-specific items. The items are valued at an eleven-point scale (zero to ten) and refer to the last 24 hours. The higher the value assigned by the client, the greater the intensity of the symptom or its interference with the activities of life. It is emphasized that the instrument was translated and validated for Portuguese use in 2008[10].

Data collection was conducted from February to May 2013 after approval by the Ethics Committee of the Federal University of Ceará, registration number 253959. The socio-demographic, clinical, therapeutic and functional data were stored in a spreadsheet in Microsoft Excel® and analyzed with the help of SPSS® 13.0 for Windows®.

We used the ANOVA F-test analysis of variance to assess the existence of differences in the subscale scores of the MDASI-H&N, first among the four cancer groups evaluated. Soon after, a new analysis to compare the average values of each issue of the instrument with each group of

Figure 1 - Flowchart of the sample of the study. Fortaleza, 2013.



Source: Authors' research, 2013.

cancer patients was made, in order to ascertain what were the general and specific symptoms that most influenced the functionality of individuals with HNC by anatomical site.

For the correlation between the type of treatment and the scores obtained in the MDASI-H&N we also used the ANOVA F-test. Three groups were considered for analysis: surgery, surgery+radiotherapy and radiotherapy+chemotherapy. The group "surgery+chemotherapy+radiotherapy" was removed from analysis since it did not contain the minimum number of participants required for *post hoc* analysis (the Bonferroni test), and The Dunn procedure also indicates the consolidation of each test at a limited significance level to ensure that the false/positive rate on the family does not exceed the specified value[10]. The significance level was 5%, i.e., p-value <0.05.

RESULTS

The participants were 37 people with HNC, mostly women (54.1%), aged between 37 and 81 years (mean 62.49 years and a standard deviation of 1), who lived in the state (52.8%), with incomplete primary education (40.5%), and an income between zero and one minimum wage (53.6%).

By anatomical region, the distribution was as follows: oral cavity (37.8%), thyroid (37.8%), larynx (16.2%), and pharynx (8.1%); and were subjected to four different treatments: surgery (43.2%), surgery and radiation therapy (40.5%), chemotherapy and radiotherapy (13.5%), surgery, chemotherapy and radiotherapy (2.7%).

The highest average for the *general symptoms* related to "dry mouth feeling" (4.65), "their concerns" (3.57) and "numbness or tingling sensation" (3.32). Regarding the *specific symptoms,* the highest averages focused on "problems with voice / speaking" (5.03) and "difficulty swallowing/chewing" (4.14), as shown in Table 1.

To assess the existence of differences in the scores of the scales dealing with general and specific symptoms, and interference in the life based on the MDASI-H&N instrument between the four evaluated cancer groups, an analysis of variance (ANOVA F test) was performed and the results can be observed in Tabl e 2.

In the score scale, *general and specific symptoms* were significantly different (frequency 4.99; $p \leq 0.01$). However, when evaluated separately through the *post hoc*, differences occurred specifically among people with oral cancer and those in the thyroid cancer group, and the participants of the first group (average = 2.61) presented a higher average score than those in the second (1.23). This result indicated that the individuals with oral cancer analyzed as having higher perceived levels of intensity of symptoms than those with thyroid cancer.

To assess the general and specific symptoms that most influenced the functionality of patients with HNC by anatomical site, an averages' comparison was carried out for each question of the instrument with each group of cancer participants. In items related to *general symptoms,* there were no significant differences ($p \leq 0.05$) between the oral cavity (average = 0.71) and the larynx group (4.50) under "no appetite" (item 8), and between the oral cavity (7.00) and the thyroid group (1.93) with regard to item 10 of the scale ("dry mouth feeling"), with a relevant difference of $p \leq 0.001$.

When analyzing the *specific symptoms* factor, it can be seen that the oral cavity group (average = 1.86) had a statistically lower average value ($p \leq 0.05$) than the group with laryngeal cancer (average = 5.50) with respect to problems with mouth or throat mucus (item 14).

Significant differences were also observed in terms of items 15 and 16 between the oral

Table 1 - Descriptive statistics for the scores of general and specific symptoms and interference in the life in MDASI-H&N scale. Fortaleza, 2013.

Item	Average	Standard Deviation	95% I.C.	Rng*	% ≥ 5**	% ≥ 7 †
General Simptoms						
1. Pain at its worst level	2,05	0,47	1,09 – 3,01	0 – 10	21,6	10,8
2. Tiredness (fatigue) at its worst level	2,05	0,49	1,06 – 3,04	0 – 10	24,3	13,5
3. Nausea at its worst level	0,57	0,25	0,06 – 1,07	0 – 6	5,4	-
4. Sleep problems at its worst level	2,76	0,59	1,57 – 3,95	0 – 10	37,8	21,6
5. Concerns (hassles) at its worst level	3,57	0,64	2,27 – 4,87	0 – 10	40,5	29,7
6. Shortness of breath at its worst level	1,3	0,41	0,46 – 2,14	0 – 10	13,5	2,7
7. Memory problems at its worst level	2,51	0,76	1,51 – 3,52	0 – 10	32,4	10,8
8. Lack of appetite at its worst level	1,84	0,53	0,77 – 2,91	0 – 10	21,6	10,8
9. Drowsyness at its worst level	1,97	0,48	1,00 – 2,95	0 – 8	27	10,8
10. Dry mouth feeling at its worst level	4,65	0,62	3,40 – 5,90	0 – 10	59,5	37,8
11. Sadness feeling at its worst level	1,95	0,51	0,91 – 2,99	0 – 10	21,6	10,8
12. Vomiting at its worst level	0,11	0,11	-0,11 – 0,33	0 – 4		
13. Numbness or tingling feeling at its worst level	3,32	0,56	2,19 – 3,14	0 – 10	45,9	18,9
14. Problems with phlegm in the mouth or throat, at its worst level	2,14	0,52	1,08 – 3,19	0 – 10	21,6	13,5
15. Difficulty swallowing / chewing at its worst level	4,14	0,63	2,86 – 5,41	0 – 10	48,6	35,1
16. Problems with choking (when food / drink go down the wrong way) at its worst level	1,84	0,53	0,77 – 2,91	0 – 10	21,6	13,5
17. Problems with voice / to speak at its worst level	5,03	0,65	3,71 – 6,34	0 – 10	51,4	40,5
18. Problems with pain / burning or irritation at its worst level	1,22	0,46	0,29 – 2,15	0 – 10	13,5	10,8
19. Constipation at its worst level	1,03	0,42	0,18 – 1,88	0 – 10	13,5	8,1
20. Difficulties to taste the food at its worst level	2,38	0,62	1,12 – 3,64	0 – 10	24,3	18,9
21. Problems with sores in the mouth / throat at its worst level	0,27	0,16	-0,06 – 0,60	0 – 5	2,7	-
22. Problems with teeth / gums at its worst level	0,16	0,12	-0,08 – 0,40	0 – 4	-	-
23. Activities in general	0,65	0,36	-0,07 – 1,37	0-10	5,4	
24. Humour	1,32	0,45	0,40 – 2,24	0-10	16,2	
25. Work (including home activities)	1	0,39	0,20 – 1,80	0–10	10,8	
26. Relationship with other people	0	-	-	0-0	-	
27. Walking	0,27	0,16	-0,05 – 0,59	0-4	-	
28. Enjoyment of life	0,57	0,25	0,07 – 1,07	0–5	8,1	

**Rng = Range*
***≥ 5 Moderate to Severe*
† ≥ 7 Severe
Source: Authors' research, 2013.

Table 2 - Difference in average levels in general and specific symptoms and interference in the live scores of four cancer groups. Fortaleza, 2013.

Scale	Cancer Group	N	Average	Std Dev	Frequency	P*
General and specific symptoms	Oral cavity	14	2,61	0,98	4,99	≤ 0,01
	Larynx	6	2,7	0,59		
	Pharynx	3	2,9	2,02		
	Thyroid	14	1,23	1,17		
Interference with life	Oral cavity	14	0,25	0,41	1,75	>0,05
	Larynx	6	0,72	0,75		
	Pharynx	3	1,44	1,5		
	Thyroid	14	0,81	1,2		

** p-value - ANOVA*
Source: Authors' research, 2013

cavity and thyroid groups. The second group obtained statistically lower scores ($p \leq 0.001$).

As for item 17, the group with thyroid cancer (average = 1.71) differed from the other groups, with lower scores in terms of "mouth" (average = 6.43; $p \leq 0.001$), "larynx" (average = 8.17, $p \leq 0.001$) and "pharynx" (average = 7.67, $p \leq 0.05$). When analyzing the items associated with the *Interference with life* factor, no significant differences between the scores of the four groups were observed.

In Table 3 the average values with regard to general and specific symptoms and interference with life between the three types of treatment, namely surgery, surgery+chemotherapy and radiotherapy+surgery, are described.

The scores obtained with regard to the *general* and *specific symptoms'* scales also showed significant differences when evaluated according to the type of treatment adopted (frequency = 5.05; $p \leq 0.05$ - Table 3). More specifically, looking at the *post hoc* results, the difference appeared when comparing surgery (average = 1.47) and surgery+radiotherapy treatments (average = 2.79). The second group had a higher perception of symptom intensity. The *Interference with life* factor presented no significant differences between the three types of treatment (frequency = 0.21; $p > 0.05$).

With respect to the *general symptoms* items, there was a significant difference between treatments analyzed in item 10 (frequency = 8.69; $p \leq 0.001$), between the surgery (average = 2.19) and surgery+radiotherapy groups (average = 6.80), indicating that the second group showed greater intensity levels of symptoms with respect to the "dry mouth feeling" (item 10).

In terms of the *specific symptoms*, we can observe that there are significant differences between different types of treatment for items 15, 16, 17 and 20. The surgery group (average = 1.79) had a statistically lower average with regard to the following four items when compared to the chemotherapy+radiotherapy and surgery+radiotherapy groups, indicating that the group that underwent surgical treatment showed lower perceptions of symptoms. The symptoms were listed as "difficulty swallowing/chewing"; "problems with choking"; "problems with voice/speaking"; and "difficulty in tasting food". When we analyzed the items associated with *Interference with life* with the type of treatment, no significant differences were observed.

DISCUSSION

The study participants were mostly composed of women (diverging from the data in the

Pinto RMC, Rodrigues AB, Oliveira PP.Multiple symptoms in people with head and neck neoplasia: a descriptive study.Online braz j nurs [internet] 2014 Sep [cited year month day]; 13 (4):591-601. Available from: http://www.objnursing.uff.br/index.php/nursing/article/view/5091

Table 3 - Difference in average levels in general and specific symptoms and interference in the live scores between the three courses of treatment. Fortaleza, 2013.

Scale	Course of treatment	n	Average	Std Dev	Frequency	P*
General and Specific Symptoms	Surgery	16	1,47	1,3	5,05	≤ 0,05*
	Chemotherapy+Radiotherapy	5	2,34	1,18		
	Surgery+Radiotherapy	15	2,79	0,99		
Scale	**Course of treatment**	**n**	**Average**	**Std Dev**	**Frequency**	**P***
Interference with life	Surgery	16	0,76	1,14	0,21	>0,05
	Chemotherapy+Radiotherapy	5	0,66	1,31		
	Surgery+Radiotherapy	15	0,53	0,63		

** p-value - ANOVA*
Source: Authors' research, 2013.

literature). However, the large number of women can be explained by the high thyroid cancer rate in the study population, which is more prevalent in females[14].

The low levels of education and income found have already proved to be possible barriers to access to diagnosis, to an understanding of the treatment and the management of its complications. Studies show that the diagnosis occurs later in lower socioeconomic groups[15-16].

In terms of the anatomical location of the tumor, the most prevalent were the oral cavity (37.8%) and the thyroid (37.8%), followed by the larynx (16.2%). This result is in accordance with a study that analyzed the evolution of cancer types from 2000 to 2008, and noted that the primary locations that showed greatest growth were the oral cavity and the larynx, respectively[16], and observing the estimates for cancer in Brazil, we note that thyroid cancer ranks third among the most common cancers forecast for 2014 in women[2].

The *general symptoms* item with the highest average achieved by the MDASI-H&N scale in this study was "dry mouth feeling". Xerostomia is the name given to this feeling, being one of the main oral complications associated with radiation therapy in people with HNC. The loss of the salivary function can also lead to other adverse consequences, including altered/reduced taste function and difficulty with chewing and swallowing[3,6].

With regard to the *specific symptoms* items, the "difficulty in swallowing/chewing" got the highest average (4.14). A study with 103 head and neck cancer patients undergoing monitoring in the ENT clinic of Unicamp Clinical Hospital showed that the most important problems reported were the reduction of saliva, chewing, swallowing and speech problems. These same symptoms had higher averages in this study, and the item "problems with the voice/speaking" had the highest average scores in terms of *specific symptoms*[17].

The second item in terms of *general symptoms* with a high average was "concerns (hassles)" (3.57). This can happen as a result of living with cancer, which triggers a new degree of reflection. The main source of concern includes the uncertainty, the perceived negative results, and the consequences of the disease[3].

In this study, people analyzed with oral cancer had higher perceived levels of intensity of symptoms than did the thyroid cancer group. In cases of oral cavity cancer, surgical treatment often requires large resections with complex reconstructions, which can lead, in addition to aesthetic conditions, to a loss of basic oral functions such as containment of food, speech impairment, chewing, swallowing and breathing. Surgical treatment may still be associated with radiotherapy that can generate other symptoms such as mucositis, xerostomia and loss of taste[3,18].

On the other hand, in terms of thyroid cancer, the treatment of choice is generally thyroidectomy, which can be safely performed with a low incidence of permanent complications. In rare cases, temporary problems of voice alteration may occur (which usually resolves in a few weeks), parathyroid gland injuries, and recurrent laryngeal nerve injury. The difficulty in terms of swallowing/chewing occur essentially in advanced cases of the disease, in which there is a compression of the esophagus and other related structures[19].

With regard to problems with phlegm in the mouth or throat (item 14), the group with oral cavity cancer (average = 1.86) showed statistically lower average values than the ones from the group with laryngeal cancer (average = 5.50). Cancer of the larynx causes mucus secretion due to the cancer itself, and to procedures related to the treatment, such as tracheostomy. The tracheostomy tube irritates the mucosa of the trachea, causing increased mucus production. Similarly, all laryngectomized patients accumulate more mucus due to the increased amount of particles inhaled due to the lack of a natural filter, which is the mucosa of the nasal cavity[20].

The four cancer groups had higher averages in terms of the *specific symptoms* in item 17 ("problems with voice/speaking"), but when comparing the averages among them, the group with thyroid cancer differs from the others, with lower scores (average = 1.71). Treatment modalities such as surgery, chemotherapy and radiation therapy, common in the treatment of cancer of the oral cavity, larynx and pharynx, may have acute and late effects on speech. Differently, speech alterations in the treatment of thyroid cancer, as discussed earlier, are more subtle and temporary[19].

When analyzing the averages of *general* and *specific symptoms* depending on the type of treatment, there is a significant difference between the surgery (average = 1.47) and the surgery+radiotherapy group (2.79). In addition, when we analyze items with regard to the "general symptoms" factor, these same groups showed significant differences in item 10, indicating that the surgery and radiotherapy group presented higher levels of intensity of symptoms with respect to the feeling of a dry mouth (xerostomia).

In a study conducted with people undergoing radiotherapy and chemotherapy treatment at the dental clinic of the dental school of the Federal University of Minas Gerais, the prevalence of xerostomia was 75.5% and 96.4%, respectively, showing a high prevalence of these symptoms[22].

Chemotherapy for HNC involves drugs that have great potential to cause mucositis, and when combined with radiotherapy, increases its incidence, severity and duration. Mucositis is an inflammation characterized by epithelial cell death with mucosal edema formation and a reduction of the blood supply. This explains why the group which underwent only surgery present a statistically lower average when compared to other groups in terms of items 15 ("difficulty in swallowing/chewing"), 16 ("problems with choking"), 17 ("problems with voice/speaking") and 20 ("difficulty in tasting food")[21].

In a survey of 50 people in a teaching hospital in São Paulo who underwent surgery followed by radiotherapy and adjuvant chemotherapy, and radiotherapy and concomitant chemotherapy, it was observed that of the total participants, 86% had the treatment discontinued at some point, and in 36% because of mucositis. The main complaints of individuals after the initiation of treatment were loss of taste (41%) and dry mouth (29%)[5].

From the data obtained, we realize that the role of nurses is crucial in the continuous and dynamic process of providing care to the patient with cancer, since they are the professionals

Pinto RMC, Rodrigues AB, Oliveira PP.Multiple symptoms in people with head and neck neoplasia: a descriptive study.Online braz j nurs [internet] 2014 Sep [cited year month day]; 13 (4):591-601. Available from: http://www.objnursing.uff.br/index.php/nursing/article/view/5091

who have most contact with the patient and, because of this, can form a bond and an assertive dialogue with them in order to earn their trust, improve their quality of life, and provide support and guidance in adopting the best course to be taken[23], especially in the case of individuals with compromised functionality.

Despite being in accordance with the criteria set out in the methodology, one of the limitations of the study was the small sample, because it was made up of individuals with head and neck cancer attending outpatient monitoring during clinical treatment or after surgery. The results were restricted to a period of four months of collection and performed in a single hospital in Brazil. These drawbacks limit the generalizability of the results for patients with head and neck cancer. However, this fact does not invalidate the research, and responds satisfactorily to the propositions. The results encourage a continuity of this type of evaluation with a larger group, for a longer period, and with a more detailed measurement of adhesion criteria, for a possible confirmation of our preliminary results.

CONCLUSION

The general and specific symptoms by anatomical site showed significant differences between cancer in the oral cavity and the larynx, and between oral cavity and thyroid patient groups. People with oral cancer had higher perceived levels of intensity of symptoms than did the thyroid cancer groups, while in the case of the *specific symptoms* we observed that the oral cavity group had a statistically lower average than the group with laryngeal cancer with regard to problems with phlegm in the mouth or throat.

In terms of the treatment influence, we obtained, with regard to general and specific symptoms, statistically significant differences between the surgery group and surgery combined with radiotherapy group.

National studies are scarce on the evaluation of functionality of such participants. This underlines the importance of developing more studies on the subject by expanding the sample size.

However, we hope that the results will assist in organizing a record of functional data in outpatient services that meet the needs of this type of patients, with the main objective to determine intervention targets, making the provision of care for the individual affected by cancer more efficient and complete, because by informing stakeholders about the implications of intervention targets on the functionality of people with head and neck cancers, it will serve as a means of support to the practice of nurses in the planning of a health assistance, focused on key symptoms and the needs of the patient, as well as providing a means for the reduction of symptoms and consequently, an improved impact on their quality of life.

REFERENCES

1. Stewart B, Wild CP. World Cancer Report 2014. Lyon, France: International Agency for Research on Cancer; 2014.
2. Brasil. Ministério da Saúde. Instituto Nacional de Câncer José Alencar Gomes da Silva. Estimativas 2014: Incidência de Câncer no Brasil. Rio de Janeiro: INCA; 2014. Acessado em 03 de setembro de 2014. Disponível em: http://www.inca.gov.br/estimativa/2014/estimativa-24042014.pdf
3. Rossi VC, Fernandes FL, Ferreira MA, Bento LR, Pereira PS, Chone CT. Larynx cancer: quality of life and voice after treatment. Braz J Otorhinolaryngol. 2014;80(5):403-8.
4. Sharma S, Chaukar DA, Kapre N, Deshmukh A, D'Cruz AK. Factors affecting pharyngocutaneous fistula and role of pectoralis major myofascial flap in salvage total laryngectomy. JAMA Otolaryngol Head Neck Surg. 2014:S314.

5. Santos RCS, Dias RS, Giordani AJ, Segreto RA, Segreto HRC. Mucosite em pacientes portadores de câncer de cabeça e pescoço submetidos à radioquimioterapia. Rev Esc Enferm USP. 2011; 45 (6):1338-344.
6. Sharma A, Madan R, Kumar R, Sagar P, Kamal VK, Thakar A, et al. Compliance to therapy-elderly head and neck carcinoma patients. Can Geriatr J. 2014 Sep 5;17(3):83-7.
7. Carraro JL, Schwartz R, Behling EB. Comparação do estado nutricional obtido por meio de antropometria e bioimpedância em crianças e adolescentes submetidos a tratamento quimioterápico em um hospital no Sul do Brasil. Revista HCPA. 2012; 32(1): 35-41.
8. Mansano-Schlosser TC, Ceolim MF. Qualidade de vida de pacientes com câncer no período de quimioterapia. Texto Contexto Enferm. 2012; 21 (3): 600-07.
9. Gunn GB, Koukourakis MI, Mendoza TR, Cleeland CS, Rosenthal DI. Linguistic validation of the Greek M. D. Anderson Symptom Inventory - Head and Neck Module. Forum of Clinical Oncology. 2012; 3(1): 17-19.
10. Ferreira KASL, William Júnior WN, Mendonza TR, Kimura M, Kowalski LP, Rosenthal D I, et al. Tradução para a língua portuguesa do M.D. Anderson Symptom Inventory – head and neck module (MDASI-H&N). Rev Bras Cir Cabeça Pescoço. 2008; 37(2):109-13.
11. Freire MEM, Sawada NO, França ISX, Costa SFG, Oliveira CDB. Qualidade de vida relacionada à saúde de pacientes com câncer avançado: uma revisão integrative. Rev Esc Enferm USP. 2014; 48(2):357-67.
12. Richardson RJ. Pesquisa Social: métodos e técnicas. 3 ed. São Paulo: Athas, 2010.
13. May T. Social Research: Issues, Methods and Research. 4 ed. London: British Library, 2011.
14. Cramer JD, Fu P, Harth KC, Margevicius S, Wilhelm SM. Analysis of the rising incidence of thyroid cancer using the surveillance, epidemiology and end results national cancer data registry. Surgery 2010; 148 (6): 1147- 153.
15. Harris JR, Lau H, Surgeoner BV, Chua N, Dobrovolsky W, Dort JC, et al. Health care delivery for head--and-neck cancer patients in Alberta: a practice guideline. Curr Oncol. 2014 Oct;21(5):e704-14.
16. Casati MFM, Vasconcelos JA, Vergnhanini GS, Contreiro PF, Graça TB, Kanda JL, et al. Epidemiologia do câncer de cabeça e pescoço no Brasil: estudo transversal de base populacional. Rev Bras Cir Cabeça Pescoço. 2012; 41 (4): 186-91.
17. Sommerfeld CE, Andrade MGG, Santiago SM, Chone, CT, Carvalho GM, Aquino Y, et al. Qualidade de vida em pacientes com câncer de cabeça e pescoço. Rev Bras Cir Cabeça Pescoço. 2012; 41 (4): 172-77.
18. Gandhi AK, Roy S, Thakar A, Sharma A, Mohanti BK. Symptom Burden and Quality of Life in Advanced Head and Neck Cancer Patients: AIIMS Study of 100 Patients. Indian J Palliat Care. 2014 Sep;20(3):189-93.
19. Accetta P, Accetta I, Accetta AC, Araújo MS, Accetta R, Campos KB. Tireoidectomia total nas doenças benignas da tireóide. Rev Col Bras Cir. 2011; 38(4): 223-26.
20. Fahsl S, Keszte J, Boehm A, Vogel HJ, Völkel W, Meister EF, et al. Clinical relevance of quality-of--life data in laryngectomized patients. Laringoscópio. 2012; 122 (7): 1532-8.
21. Yarom N, Ariyawardana A, Hovan A, Barasch A, Jarvis V, Jensen SB, et al. Systematic review of natural agents for the management of oral mucositis in cancer patients. Support Care Cancer. 2013 Nov; 21(11):3209-21.
22. Bueno AC, Magalhães CS, Moreira NA. Associações entre fatores de risco e complicações bucais em pacientes com câncer de cabeça e pescoço tratados com radioterapia associada ou não à quimioterapia. Pesq Bras Odontoped Clin Integr 2012; 12 (2): 187-93.
23. Alves PC, Santos MCL, Fernandes AFC. Estresse e coping em mulheres com câncer de mama: um estudo transversal. Online Braz J Nurs. [serial on the Internet]. 2012 [cited 2013 Dec 12] 11(2). Available from: http://www.objnursing.uff.br/index.php/nursing/article/view/3714/pdf

Pinto RMC, Rodrigues AB, Oliveira PP.Multiple symptoms in people with head and neck neoplasia: a descriptive study.Online braz j nurs [internet] 2014 Sep [cited year month day]; 13 (4):591-601. Available from: http://www.objnursing.uff.br/index.php/nursing/article/view/5091

All authors participated in the phases of this publication in one or more of the following steps, in According to the recommendations of the International Committee of Medical Journal Editors (ICMJE, 2013): (a) substantial involvement in the planning or preparation of the manuscript or in the collection, analysis or interpretation of data; (b) preparation of the manuscript or conducting critical revision of intellectual content; (c) approval of the versión submitted of this manuscript. All authors declare for the appropriate purposes that the responsibilities related to all aspects of the manuscript submitted to OBJN are yours. They ensure that issues related to the accuracy or integrity of any part of the article were properly investigated and resolved. Therefore, they exempt the OBJN of any participation whatsoever in any imbroglios concerning the content under consideration. All authors declare that they have no conflict of interest of financial or personal nature concerning this manuscript which may influence the writing and/or interpretation of the findings. This statement has been digitally signed by all authors as recommended by the ICMJE, whose model is available in http://www.objnursing.uff.br/normas/DUDE_eng_13-06-2013.pdf

Received: 4/11/2014
Revised: 1/12/2014
Approved: 1/12/2014