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Health-related quality of life of patients with squamous cell carcinoma: a comparison according to tumor location

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Abstract: The aim of this study was to evaluate the health-related quality of life (QOL) of patients with squamous cell carcinoma (SCC) according to tumor location. The sample consisted of 27 patients with primary SCC in the oral cavity (n = 15), pharynx (n = 7), and larynx (n = 5) who were undergoing cancer treatment at the Cancer Hospital of Londrina, regardless of age, sex, clinical stage, and type of antineoplastic treatment. Health-related QOL was evaluated using the 30-item Cancer-Quality of Life Questionnaire (QLQ-C30), the 35-item Head and Neck Cancer-Quality of Life Questionnaire (QLQ-HN35), and the University of Washington Quality of Life Questionnaire (UW-QOL). These questionnaires were administered individually to each patient before ambulatory care. Sociodemographic data (age and sex) and clinical data (T stage, tumor location, and type of antineoplastic treatment) were collected from the patients' medical records. Scores were compared according to tumor location using the chi-squared test and one-way analysis of variance ($p < 0.05$). No score differed significantly according to tumor location. It can be concluded that the health-related QOL of patients with SCC was not influenced by tumor location.

Keywords: Quality of Life; Carcinoma, Squamous Cell; Neoplasms.

Declaration of Interest: The authors certify that they have no commercial or associative interest that represents a conflict of interest in connection with the manuscript.

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Introduction

The World Health Organization defined quality of life (QOL) as being relative to an individual's perception of their position in life, the cultural context, and the individual's goals, expectations, parameters, and social relations.[1] QOL is a multidimensional abstract construct that may be based on individual or collective assessment, and may be evaluated generically or specifically by various instruments and questionnaires.[2,3,4,5,6,7] Generic questionnaires do not evaluate a specific disease; specific questionnaires are used to evaluate groups of patients with a certain type of disease in common.[3,8] Head and neck cancer is among the diseases that can affect health-related QOL profoundly.[4,5,9,10,11,12]

Most tools available for evaluation of QOL in head and neck cancer patients were developed originally in English,[13] and must be translated and validated for use in populations that speak other languages. The instruments used most commonly to assess health-related QOL in head and neck cancer are the 30-item Cancer-Quality of Life Questionnaire (QLQ-C30) and

the 35-item Head and Neck Cancer-Quality of Life Questionnaire module (QLQ-HN35), developed by the European Organisation for Research and Treatment of Cancer (EORTC), and the University of Washington Quality of Life Questionnaire (UW-QOL).[2,3,4,6,8] The QLQ-C30 and QLQ-HN35 are instruments composed of questions that assess the patient's QOL in the last week with total score ranges of 0–100L.[3,14] The QLQ-C30, which is the EORTC's core QOL instrument, includes a single general health/QOL scale, five functional scales, eight physical symptom scales, and a single item related to financial difficulty (see Table 1 for scales). The QLQ-HN35 is the EORTC's head and neck cancer-specific module questionnaire (EORTC modules are each administered with the core QLQ-C30 assessment). It includes 7 multi-item scales and 11 single-item scales (see Table 2 for scales). The UW-QOL questionnaire is structured as a 12-item (see Table 3 for items).[5,8] Each item is scored on a 0–100 scale.[3,14]

Given the small number of QOL studies in patients with head and neck cancer, an expansion of knowledge about QOL assessment in patients undergoing cancer treatment is needed.[15] Therefore, the aim of this study was to evaluate the health-related QOL of patients with squamous cell carcinoma (SCC) according to tumor location.

Methodology

This study was quantitative, observational, and cross-sectional. The sample consisted of 27 patients with primary SCC in the oral cavity (n = 15), pharynx (n = 7), and larynx (n = 5) who were undergoing treatment at the Cancer Hospital of Londrina. Inclusion did not depend on patients' age, sex, clinical stage, or type of antineoplastic treatment. Patients with recurrent disease were not included. The Ethics Committee of the University of North Paraná approved this study (protocol no. 846,397). All patients provided written information consent to participate in this study.

Patients' health-related QOL was evaluated individually using the QLQ-C30 (version 3.0), the QLQ-HN35 module, and the UW-QOL (version 4) prior to outpatient care. The UW-QOL domain-importance question, in which patients are asked to identify which 3 of the 12 domains have been the most important to their QOL in the last 7 days, was applied in addition to the 12 main domain items. After questionnaire application, sociodemographic (age and sex) and clinical (diagnostic, tumor location, clinical stage, type of antineoplastic treatment) data were collected from the patients' medical records. Questionnaire

Table 1. QLQ-C30 scores according to tumor location.

Scale/item	SCC location						P
	Oral (n = 15)		Pharyngeal (n = 7)		Laryngeal (n = 5)		
	Mean	SE	Mean	SE	Mean	SE	
Functional scales							
Physical	74	5	66	12	65	12	0.760
Role	78	5	50	11	63	13	0.063
Emotional	69	6	50	14	52	16	0.418
Cognitive	28	9	24	11	60	14	0.186
Social	82	6	62	14	80	11	0.277
Physical symptoms							
Fatigue	42	7	56	7	38	8	0.432
Nausea and vomiting	19	8	43	13	10	6	0.164
Pain	33	7	45	12	33	11	0.642
Dyspnoea	9	4	29	12	33	16	0.207
Insomnia	51	8	43	13	33	16	0.601
Appetite loss	36	11	62	14	40	17	0.394
Constipation	11	6	24	11	13	12	0.571
Diarrhoea	18	8	14	9	13	7	0.948
Financial difficulties	33	11	52	16	20	7	0.407
Global health status	65	6	48	8	52	12	0.322

SE: standard error.

Table 2. QLQ-HN35 scores according to tumor location.

Scale/item	SCC location						P
	Oral (n = 15)		Pharyngeal (n = 7)		Laryngeal (n = 5)		
	Mean	SE	Mean	SE	Mean	SE	
Pain	43	7	35	12	23	10	0.444
Swallowing	46	9	40	14	38	12	0.918
Teeth	44	12	24	13	53	20	0.541
Opening mouth	33	10	33	16	0	0	0.254
Dry mouth	40	11	48	15	33	19	0.846
Sticky saliva	53	11	57	16	40	17	0.785
Senses problems	52	9	50	13	37	15	0.698
Coughing	20	7	38	14	40	15	0.462
Speech problems	36	7	32	12	24	11	0.729
Felt ill	22	9	62	12	33	16	0.072
Trouble with social contact	27	6	30	13	21	7	0.862
Trouble with social eating	39	9	35	12	33	14	0.942
Less sexuality	41	10	50	11	20	12	0.359
Pain killers	53	13	86	13	80	18	0.312
Nutritional supplements	47	13	71	17	20	18	0.203
Feeding tube	20	10	43	19	0	0	0.201
Weight loss	67	12	71	17	60	22	0.919
Weight gain	20	10	29	17	60	22	0.228

SE: standard error.

Table 3. UW-QOL scores according to tumor location.

Scale/item	SCC location						P
	Oral (n = 15)		Pharyngeal (n = 7)		Laryngeal (n = 5)		
	Mean (SE)	% best score	Mean (SE)	% best score	Mean (SE)	% best score	
Pain	50 (8)	13	57 (11)	29	75 (7)	20	0.267
Appearance	67 (8)	27	46 (6)	0	85 (9)	60	0.063
Activity	52 (6)	0	61 (11)	14	50 (19)	20	0.809
Recreation	57 (7)	7	46 (8)	0	50 (7)	0	0.646
Swallowing	58 (10)	33	67 (13)	43	73 (11)	40	0.698
Chewing	50 (9)	27	64 (13)	43	50 (14)	20	0.685
Speech	71 (8)	40	71 (14)	57	67 (16)	40	0.972
Shoulder function	84 (8)	73	90 (9)	86	100 (0)	100	0.503
Taste	51 (10)	33	38 (16)	29	60 (22)	60	0.671
Saliva	76 (7)	53	71 (14)	57	73 (15)	60	0.962
Mood	57 (8)	20	61 (15)	43	70 (13)	40	0.754
Anxiety	51 (10)	27	72 (12)	43	57 (15)	20	0.505
Global questions							
A. Health-related QOL compared to month before had cancer	75 (9)	80	75 (5)	100	65 (15)	80	0.828
B. Health-related QOL during the past 7 days	49 (6)	47	34 (8)	29	56 (4)	80	0.243
C. Overall QOL during the past 7 days	53 (6)	53	40 (6)	29	60 (11)	80	0.287
Composite scores							
Physical function	75 (5)	-	60 (6)	-	68 (6)	-	0.614
Social function	58 (4)	-	65 (5)	-	67 (6)	-	0.387

SE: standard error.

scores were calculated according to the instructions provided in the instrument manuals.

The chi-square test and one-way analyses of variance (ANOVAs) were used to compare QLQ-C30, QLQ-HN35, and UW-QoL scores across tumor location groups. The Statistica software (version 7.0 for Windows; StatSoft, Inc., Tulsa, OK) was used, and the significance level was established as $p < 0.05$.

Results

Patients' sociodemographic and clinical data are presented, and compared between the groups, in Table 4. Age, sex, T stage, and antineoplastic treatment type did not differ according to tumor location, namely oral, pharyngeal, or laryngeal. QLQ-C30, QLQ-HN35, and UW-QoL scores are presented according to tumor location in Tables 1–3. None of the mean scores obtained for the three questionnaires differed significantly among the three tumor location groups.

As reported in Table 1, QLQ-C30 scores did not differ among SCC location groups for any of the scales. Among patients with oral-cavity SCC, the highest average scale score was for social function and the lowest was for dyspnea. Among those with pharyngeal cancer, the highest average scale score was for physical function and the lowest was for diarrhea. Among patients with SCC in the larynx, the highest average scale score was for social function and the lowest was for nausea and vomiting.

As reported in Table 2, the QLQ-HN35 scale with the highest mean score in the oral-cavity cancer group was weight loss and the lowest scores were for coughing, feeding tube, and weight gain. Among patients with pharyngeal cancer, the highest average score was for the painkillers scale and the lowest was for the teeth scale. Among patients with laryngeal cancer, the highest average score was for the painkillers scale and the lowest was for the mouth opening scale.

Among the UW-QOL scales (Table 3), the shoulder function scale had the highest mean score in the all three tumor-location groups. The lowest mean scale scores among patients with oral-cavity cancer were obtained for pain and chewing. The lowest mean scale scores among patients with pharyngeal cancer was taste. Finally, the lowest mean scale scores among patients with laryngeal cancer were obtained for recreation and chewing. Regarding the UW-QOL issue importance question, patients with oral SCC prioritized taste, pain, and chewing; those with pharyngeal SCC prioritized pain, appearance, and taste; and patients with laryngeal SCC tended to rank pain, chewing, and speech as most important (Table 5).

Discussion

To our knowledge, this work is the first to assess health-related QoL in patients with SCC according to tumor location. In this study, health-related QOL was evaluated using the QLQ-C30, QLQ-HN35, and UW-QOL, as in previous studies.[2,3,5,6,8,14,16,17] Our QLQ-C30 results are similar to those reported by Crombie *et* al.[3] and Ch'ng et al.[16] for oral SCC and to those reported by Tribius et al.[17] for head and neck SCC. The global health status scores obtained in this study are similar to those reported in a previous study of patients with head and neck cancer.[17]

Although questionnaire scores did not differ significantly among the study groups for any of the scales, we observed some trends that could be clinically

Table 4. Sociodemographic and clinical data.

Variable	Total cohort	SCC location			Chi-square
	(n = 27)	Oral (n = 15)	Pharyngeal (n = 7)	Laryngeal (n = 5)	p
Mean age ± SD, years	59.89 ± 9.61	61.07 ± 10.09	57.43 ± 4.27	59.80 ± 11.69	0.3510
Gender, males: females	21:06	12:03	05:02	04:01	0.8956
T stage, T1/T2:T3/T4	16:11	07:08	05:02	04:01	0.3128
Antineoplastic treatment* Surgery:radiotherapy:chemotherapy	04:13:21	02:09:11	01:02:05	01:02:05	0.1076

SD: standard deviation; *Some patients received more than one type of antineoplastic therapy.

Table 5. Ranking of patient priorities according to tumor location.

Priority rank	SCC location		
	Oral (n = 15)	Pharyngeal (n = 7)	Laryngeal (n = 5)
1	Taste	Pain	Pain
2	Pain	Appearance	Chewing
3	Chewing	Taste	Speech
4	Saliva	Mood	Taste
5	Anxiety	Anxiety	Mood
6	Mood	Activity	Anxiety
7	Swallowing	Chewing	Saliva
8	Appearance	Speech	Appearance
9	Activity	Saliva	Activity
10	Recreation	Recreation	Recreation
11	Shoulder function	Swallowing	Swallowing
12	Speech	Shoulder function	Shoulder function

relevant. Notably, the mean QLQ-HN35 dyspnea score was 20 or more points worse in the oral-cavity SCC group than in the other two groups. The mean role and social function scores were more than 10 points worse in the pharyngeal SCC group than in the other groups, and the mean financial difficulties score was more than 10 points worse in the laryngeal cancer group than in the other two groups.

Our QLQ-HN35 results were similar to those reported by Tribius et al.[17] for head and neck SCC. Relative to the other two tumor-location groups' mean QLQ-HN35 scores, the mean QLQ-HN35 scale scores obtained for the oral-cavity cancer group were 20 points worse for painkillers and 10 points worse for coughing and feeling ill. Meanwhile, the pharyngeal cancer group's mean teeth score was more than 20 points worse than the scores of the other two groups; and the laryngeal cancer group's mean scores for mouth opening, nutritional supplements, and feeding tube were more than 20 points worse than those of the other two groups.

Our finding that the shoulder function scale score was the highest UW-QOL scale score for all three tumor-location groups (oral cavity, pharynx, and larynx) corroborates the results of Andrade et al.[2] and Crombie et al.[3] Notably, the UW-QOL appearance score was more than 20 points worse in the pharyngeal SCC group than in the other groups. The UW-QOL data show that pain was one of the most important problems experienced by these patients in the previous 7 days. This finding, similar to that reported by Andrade et al.,[2] reflects the importance of patient monitoring in all phases of treatment and rehabilitation.

This study had several limitations. First, the sample was small, reflecting the number of patients with SCC undergoing treatment at the Cancer Hospital of Londrina. Second, previous studies have suggested that variables such as age, sex, T stage, and antineoplastic treatment type can influence health-related QOL analysis.[2,7,8] However, the homogeneity of the present sample in terms of these variables and the treatment of all of the patients in the same hospital strengthen the validity of the comparisons made in this study.

Conclusion

Based on the results of this study, it can be concluded that the health-related QOL of patients with SCC was not influenced by tumor location.

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