

Evaluation of treatment results of oral cavity tumors with the University of Washington Quality of Life Questionnaire

Oral kavite tümörlerinin tedavi sonuçlarının Washington Üniversitesi Yaşam Kalitesi Anketi ile değerlendirilmesi

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ABSTRACT

Objectives: This study aimed to assess the quality of life in patients with oral cavity tumors who underwent either surgical resection or surgical resection followed by radiotherapy (RT) using the University of Washington Quality of Life Questionnaire (UW-QOL).

Patients and Methods: The retrospective study included a total of 40 patients (31 males, 9 females; mean age: 64.1±8.3 years; range, 40 to 85 years) who were diagnosed with primary oral cavity tumors and treated between January 2015 and June 2021. Group 1 (n=20) consisted of patients who underwent surgical resection, while Group 2 (n=20) included patients who underwent surgical resection followed by RT. Each participant completed the UW-QOL questionnaire, and the scores were compared between the two groups.

Results: There were no significant differences in pain (p=0.149), recreation (p=0.495), and shoulder (p=0.102) parameters. However, the RT group showed significantly lower scores in appearance (p=0.003), activity (p=0.010), swallowing (p=0.001), chewing (p=0.003), speech (p=0.001), taste (p=0.006), saliva (p=0.001), mood (p=0.002), and anxiety (p=0.007) parameters. There were no significant differences in the rates of the most disturbing parameters, such as pain (p=0.548), activity, recreation, shoulder (p=0.292), mood (p=0.311), and anxiety (p=0.072), in the last seven days (p>0.05). However, those who received RT had significantly higher rates of appearance (p=0.04), swallowing (p=0.001), chewing (p=0.001), speech (p=0.002), taste (p=0.035), and saliva (p=0.008) issues in the last seven days.

Conclusion: The data we obtained may be helpful during pretreatment patient counseling. Consequently, patients can be informed about the morbidities they may encounter after treatment, and preliminary information can be given to the patients in line with this information.

Keywords: Head and neck cancer, oral cavity cancer, quality of life, radiotherapy.

ÖZ

Amaç: Bu çalışmada, oral kavite tümörü olan hastalarda cerrahi rezeksiyon veya cerrahi rezeksiyon sonrası radyoterapi (RT) tedavisi alan hastaların yaşam kalitesi, Washington Üniversitesi Yaşam Kalitesi Anketi (UW-QOL) kullanılarak değerlendirildi.

Hastalar ve Yöntemler: Bu retrospektif çalışma, Ocak 2015 - Haziran 2021 tarihleri arasında primer oral kavite tümörü tanısı konulan ve tedavi edilen toplam 40 hastayı (31 erkek, 9 kadın; ort. yaş: 64.1±8.3 yıl; dağılım, 40-85 yıl) içerdi. Grup 1 (n=20), cerrahi rezeksiyon uygulanan hastalardan oluşurken, Grup 2 (n=20) cerrahi rezeksiyon sonrası RT uygulanan hastalardan oluşmaktaydı. Katılımcıların tamamı UW-QOL anketini tamamladı ve skorlar iki grup arasında karşılaştırıldı.

Bulgular: Ağrı (p=0.149), istirahat (p=0.495) ve omuz (p=0.102) parametreleri arasında anlamlı bir fark yoktu. Ancak RT grubunda, görünüm (p=0.003), aktivite (p=0.010), yutma (p=0.001), çiğneme (p=0.003), konuşma (p=0.001), tat alma (p=0.006), tükürük (p=0.001), ruh hali (p=0.002) ve anksiyete (p=0.007) parametrelerinde skorlar istatistiksel olarak anlamlı derecede düşüktü. Son yedi günde, ağrı (p=0.548), aktivite, istirahat, omuz (p=0.292), ruh hali (p=0.311) ve anksiyete (p=0.072) gibi en rahatsız edici parametrelerde anlamlı farklılık yoktu (p>0.05). Bununla birlikte, RT alan hastalar son yedi günde görünüm (p=0.04), yutma (p=0.001), çiğneme (p=0.001), konuşma (p=0.002), tat alma (p=0.035) ve tükürük (p=0.008) sorunlarında önemli ölçüde daha yüksek oranlara sahipti.

Sonuç: Elde ettiğimiz veriler tedavi öncesi hasta danışmanlığı sırasında faydalı olabilir. Bu sayede hastalar tedavi sonrası karşılaşılabileceği morbiditeler hakkında bilgi sahibi olunabilir bu bilgiler doğrultusunda hastalara ön bilgilendirmeler yapılabilir.

Anahtar sözcükler: Baş-boyun kanseri, oral kavite kanseri, yaşam kalitesi, radyoterapi.

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Head and neck cancers are the seventh most common type of cancer in the world.^[1] The most common type of head and neck cancer is oral cavity cancer, and the most common subtype is oral cavity squamous cell cancer (OCSCC).^[1] The primary treatment of OCSCC is surgery.^[1] Postoperative radiotherapy (RT) can be added to the treatment according to various characteristics of the tumor.^[2]

Health-related quality of life (QoL) of the patient has always been a subject of focus for oncology. The structures in the oral cavity have essential features that affect the person's functional and psychological health, such as speaking, chewing, and swallowing. The deterioration of these functions after treatment may affect the patient's essential daily functions. Furthermore, it has been found that psychiatric disorders, such as social isolation and anxiety, are more common in OCSCC patients after treatment.^[3,4]

University of Washington Quality of Life Questionnaire (UW-QOL), initially published in English, is used worldwide to evaluate the QoL of patients with head and neck cancer.^[5] It is an easily understandable questionnaire that can be administered to patients in less than 10 min.^[5] In this study, we aimed to evaluate the QoL with UW-QOL in oral cavity cancer patients who received only surgery or surgery + RT.

PATIENTS AND METHODS

A retrospective analysis was conducted on the medical records of 120 patients diagnosed and treated for primary oral cavity tumors at the Department of Otorhinolaryngology of the Prof. Dr. Cemil Taşcıoğlu City Hospital between January 2015 and June 2021. The inclusion criteria were as follows: (i) patients aged below 80 years; (ii) patients with no previous or concurrent malignancies; (iii) patients with no cognitive impairment; (iv) literate patients; (v) a follow-up period of six months. Patients who experienced relapse or death within one year were excluded from the study. A total of 75 patients who met these criteria were contacted via phone. After excluding patients who declined to participate, the data of 40 patients (31 males, 9 females; mean age: 64.1±8.3 years; range, 40 to 85 years) were evaluated for the study.

Among the 40 patients diagnosed with oral cavity cancer, the treatment interventions were as follows: partial glossectomy + pectoral flap repair in three patients, total glossectomy + pectoral flap repair in one patient, palate tumor resection + reconstruction in seven patients, lip tumor resection and reconstruction in 18 patients, mouth base tumor resection + repair

with tongue flap in four patients, retromolar trigone tumor resection + repair with buccal fat in three patients, and buccal tumor resection + repair with buccal fat in four patients. Fifteen patients underwent neck dissection, with eight undergoing bilateral dissection and seven undergoing unilateral dissection. Additionally, 20 patients received postoperative RT.

The patients were divided into two groups: patients who underwent surgical resection alone (n=20, Group 1 [non-RT group]) and patients who underwent surgical resection combined with RT (n=20, Group 2 [RT group]). Patients who could come to the hospital were evaluated face to face, and those who could not come were evaluated by phone.

University of Washington Quality of Life Questionnaire

The results were analyzed using the modified scoring system of the UW-QOL version 4, developed by Rogers.^[6] The UW-QOL version 4 specifically focuses on the head and neck region, comprising 12 questions that assess the overall QoL and allow patients to select three areas of importance within the past seven days. These 12 domain questions cover various aspects, including pain, appearance, activity, recreation, swallowing, chewing, speech, shoulder function, taste, saliva, mood, and anxiety. Furthermore, the questionnaire also includes general questions related to physical and social functioning. General questions present in the questionnaire are as follows: (i) "How do you evaluate your health-related QoL compared to the month before cancer;" (ii) "How would you describe your health-related QoL over the past seven days;" (iii) "How would you rate your overall QoL over the past seven days, considering everything in your life that contributes to your happiness?"

The patient assigns a score out of 100 points for each physical function. The biological functions section encompasses chewing, speaking, swallowing, taste, saliva, and appearance. The social function division includes anxiety, mood, pain, activity, recreation, and shoulder function. The questionnaire also features a general questions section about patients' precancer health, health-related QoL, and overall QoL. The worst possible response is rated as 0, while the best possible response is 100. Other available response options for each domain include scores of 0, 25, 30, 40, 50, 60, 75, and 80, reflecting a range of responses from the worst to the best. In the "importance question," patients are asked to select three areas that have had the most significant impact on them in the past seven days.

Table 1							
Evaluation of the difference in terms of age and sex according to the groups							
	Non-RT group (n=20)			RT group (n=20)			p
	n	%	Mean±SD	n	%	Mean±SD	
Age (year)			62.8±8.0			65.4±8.6	0.328
Sex							0.058
Male	18	58.1		13	41.9		
Female	2	22.2		7	77.8		

RT: Radiotherapy; SD: Standard deviation.

Statistical analysis

Data of the patients were analyzed with SPSS version 17.0 (SPSS Inc., Chicago, IL, USA) package program. Student's t-test and the chi-square test were used to evaluate the difference between groups regarding age and sex. The Mann-Whitney U test was used to assess the difference between the groups according to the questionnaire score. The chi-square test was used to compare the selection rates in the last seven days. A p-value <0.05 was considered a statistically significant difference.

RESULTS

The demographic information of the patients is presented in Table 1. There were no significant differences between the groups in terms of age (p=0.328) and sex (p=0.058).

The study compared various parameters, including pain, appearance, activity, recreation, swallowing, chewing, speech, shoulder function, taste, saliva, mood, and anxiety, between the two groups. Statistical analysis revealed no significant differences in pain (p=0.149), recreation (p=0.495), and shoulder (p=0.102) parameters between the groups. However, significant differences were observed in the appearance (p=0.003), activity (p=0.010), swallowing (p=0.001), chewing (p=0.003), speech (p=0.001), taste (p=0.006), saliva (p=0.001), mood (p=0.002), and anxiety (p=0.007), with lower scores reported in the RT group (Table 2).

General questions 1, 2, and 3, and the importance question were found to be significantly lower in the group receiving RT (p=0.001) (Table 3). There was no difference in the rates of the most disturbing parameters (pain (p=0.548), activity (p=0.311), recreation (p=0.311), shoulder (p=0.292), mood (p=0.311), and anxiety

Table 2			
Comparison of survey parameters between groups			
	Non-RT group (n=20)		p*
	Main±SD	RT group (n=20)	
Pain	97.50±7.70	85.00±23.50	0.149
Appearance	91.25±14.68	72.50±19.70	0.003
Activity	93.75±15.97	77.50±21.31	0.010
Recreation	82.50±20.03	73.75±30.86	0.495
Swallowing	93.40±13.54	58.35±32.33	0.001
Chewing	92.50±18.31	52.50±41.27	0.003
Speech	98.75±5.59	58.35±35.75	0.001
Shoulder	98.35±7.37	8.40±27.55	0.102
Taste	100.00±0	61.55±40.94	0.006
Saliva	98.35±7.37	46.55±29.55	0.001
Mood	92.50±20.03	65.00±31.83	0.002
Anxiety	90.05±19.00	56.65±39.21	0.007
Total	1128.90±98.22	791.10±264.98	0.001

SD: Standard deviation; * p<0.05, Mann-Whitney U test.

Table 3			
Evaluation of the difference between the groups in terms of general 1, 2, 3 and importance question			
	Non-RT group (n=20)		p*
	Main±SD		
General 1	81.25±26.74	48.75±29.77	0.001
General 2	86.50±18.92	56.00±22.10	0.001
General 3	86.50±8.92	53.40±26.19	0.001

SD: Standard deviation; * p<0.05, Mann-Whitney U test.

Table 4					
Intergroup comparison of election rates in the last seven days					
	Non-RT group (n=20)		RT group (n=20)		p*
	n	%	n	%	
Pain	1	5	2	10	0.548
Appearance	7	35	0	0	0.04
Activity	1	5	0	0	-
Recreation	1	5	0	0	-
Swallowing	2	10	13	65	0.001
Chewing	1	5	11	55	0.001
Speech	0	0	8	40	0.002
Shoulder	1	5	3	10	0.292
Taste	1	5	4	20	0.035
Saliva	1	5	8	40	0.008
Mood	1	5	0	0	0.311
Anxiety	3	15	0	0	0.072

P<0.05, Chi-square test.

(p=0.072)) in the last seven days (p>0.05). Appearance (p=0.04), swallowing (p=0.001), chewing (p=0.001), speech (p=0.002), taste (p=0.035), and saliva (p=0.008) selection rates in the last seven days was significantly higher in those receiving RT (Table 4).

DISCUSSION

The UW-QoL is designed to assess the QoL in the head and neck region. It is applicable not only to oral cavity cancers but also to all types of head and neck cancers. Numerous studies have utilized this scale to evaluate the QoL in patients with head and neck tumors.^[7,8]

While many studies have examined the QoL following the treatment of oral cavity tumors, most of them have been retrospective.^[9,10] These studies often included heterogeneous patient groups based on tumor location and stage. However, there are limited studies

that specifically focus on evaluating QoL within a specific anatomical region.

In a study examining 38 patients after resecting early-stage (T1/T2) tongue and mouth floor tumors, 89% of patients rated their health-related QoL as approximately the same, slightly better, or much better than one month before cancer.^[10]

In a study assessing 38 patients who underwent partial glossectomy, the majority of patients (71.8%) reported an improvement in their QoL.^[11] Swallowing, speech, and saliva-related issues were the most commonly reported problems within the last seven days. Notably, patients who underwent reconstruction, neck dissection, and RT had significantly lower QoL scores. Additionally, patients who experienced complications also exhibited a significant decrease in their QoL scores.

In a study evaluating 75 patients who received surgery ± RT with the diagnosis of oral and

oropharyngeal tumors, the QoL scores of patients with late-stage cancer (Stage 3/4) and combined therapy were significantly lower than early-stage cancer.^[12]

In a study conducted by Abbas et al.,^[13] involving 59 patients with oral cavity cancer, the lowest scores were observed in the domains of chewing and salivation (dry mouth), while pain and anxiety had the highest scores. Patients with tongue tumors, advanced Stage (3 and 4) tumors, and limited mouth opening tended to have lower overall QoL scores. These patients exhibited significantly lower scores in pain, swallowing, mood, and anxiety. The severity of advanced tumors also correlated with lower scores in swallowing, taste, gaze, appearance, and recreation, as well as increased anxiety. Furthermore, patients with limited mouth opening experienced significantly lower scores in pain, speech, appearance, recreation, and anxiety domains.

In a study involving 33 patients with head and neck cancer, three different quality-of-life scales were utilized.^[14] All patients underwent RT, with a majority (90.9%) also receiving chemotherapy, and a smaller proportion (63.6%) undergoing surgery. The scores for shoulder function, social performance, and overall well-being were reported to be high, indicating positive outcomes in these domains. On the other hand, scores related to nausea, vomiting, and emotional well-being were found to be low, indicating challenges and lower levels of satisfaction in these areas.

In a study conducted by Curran et al.,^[15] involving 424 patients, the participants were divided into two treatment groups. One group received RT alone, consisting of 213 patients, while the other group received a combination of RT and cetuximab treatment. At the 12-month follow-up, no statistically significant difference was observed between the two groups in terms of QoL scores.

This study is a retrospective study to show the effect of treatment options for oral cavity tumors on patients' QoL. The main finding of this study is that patients who received RT had lower scores on most of the UW-QOL parameters. At the same time, no significant difference was found between the two treatments in pain, shoulder functions, and recreational parameters. This finding is essential in providing information about the process in patients who received and did not receive postoperative RT.

Information in the literature has shown that the QoL of patients with oral cavity cancer may preclude treatment. Regardless of the preferred method, it is the physician's responsibility to monitor the conditions that affect the patient's performance closely. It should be noted that a socially isolated individual is a candidate for

treatment noncompliance. Therefore, QoL evaluations of patients with oral cavity cancer should be made at regular intervals. Supportive treatment options, such as psychiatric therapy, swallowing therapy, and speech therapy, should be offered to the patient when necessary.

This study has certain limitations. First, the sample size was relatively small and lacked diversity. Obtaining results from a larger and more diverse patient population, including tumors in various anatomical locations and at different stages, could provide more robust findings. Additionally, this study was retrospective in nature, which may introduce inherent biases. Conducting prospective studies with larger sample sizes would yield more reliable and consistent results.

In conclusion, the findings of this study can be valuable for preoperative patient counseling. They provide important insights into the potential occurrence of temporary or permanent morbidity following treatment, allowing healthcare professionals to have a clearer understanding and better inform patients about possible outcomes.

Main points

The main takeaways of this study are (i) oral cavity cancers are the most common type of head and neck cancer; (ii) functions such as speaking, swallowing, chewing, and appearance may be impaired after oral cavity cancer treatment; and (iii) the choice of treatment (surgery ± RT) may affect the state of function.

Ethics Committee Approval: The study protocol was approved by the University of Health Sciences Prof. Dr. Cemil Taşçıoğlu City Hospital Ethics Committee (date: 03.03.2021, no: 061). The study was conducted in accordance with the principles of the Declaration of Helsinki.

Patient Consent for Publication: A written informed consent was obtained from each patient.

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

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