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Effects of Oral Findings on Quality of Life in Patients Using Complete Denture

Tam Protez Kullanan Hastalarda Oral Bulguların Yaşam Kalitesine Etkisi

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ABSTRACT

Objectives: The aim of this study was to investigate the relationships between soft and hard tissue oral findings of complete denture wearers and their oral health related quality of life (OHRQoL).

Materials and Methods: In the study, 200 patients treated with complete dentures were included in the study. The OHIP-14 scale was applied to the patients and oral findings were recorded after clinical and radiographic examination. Analyzes were performed in IBM SPSS Statistics 25.0 (IBM Corp. NY), ($p<0.05$).

Results: Oral findings were found in 67% of 200 edentulous patients participating in this study. There was a significant difference between oral findings and OHRQoL ($p=0.00$). While there was a significant difference between age and OHRQoL ($p=0.00$), no significant difference was found with gender ($p>0.05$). There was a statistically significant difference in bone undercuts ($p=0.00$), and traumatic ulcerations ($p=0.00$) between patients with oral findings and patients without oral findings groups according to the OHIP-14. The resorbed crests were significant only in the physical pain subgroup ($p=0.01$).

Conclusion: According to the results of this study, oral mucosal findings adversely affect OHRQoL. Therefore, dissatisfied patients should undertake a comprehensive clinical and radiographic examination after insertion.

Keywords: *Complete Denture, Edentulous, Quality of Life*

ÖZET

Amaç: Bu çalışmanın amacı, geleneksel tam protez kullanan hastaların yumuşak ve sert doku ağız bulguları ile ağız sağlığı ile ilişkili yaşam kaliteleri (OHRQoL) arasındaki ilişkileri incelemektir.

Gereç ve Yöntemler: Çalışmaya 200 tam protez ile tedavi edilen hasta dahil edildi. Hastalara OHIP-14 ölçeği uygulandı ve oral bulgular klinik ve radyografik muayene sonucu kaydedildi. Analizler IBM SPSS Statistics 25.0 (IBM Corp. NY) programında yapıldı ($p<0,05$).

Bulgular: Bu çalışmaya katılan 200 dişsiz hastanın %67'sinde oral bulgular görüldü. Oral bulgular ile OHRQoL arasında anlamlı fark bulundu ($p=0.00$). Yaş ile OHRQoL arasında anlamlı fark bulunurken ($p=0.00$), cinsiyet ile anlamlı fark bulunmadı ($p>0.05$). Ayrıca, kemik andırkatları ($p=0.00$), travmatik ülserasyonlar ($p=0.00$) ile OHRQoL arasında istatistiksel olarak anlamlı fark vardı. Kret rezorpsiyonu bulgusu yalnızca fiziksel ağrı alt grubunda anlamlıydı ($p=0.01$).

Sonuç: Bu çalışmanın sonuçlarına göre oral bulgular ağız sağlığı ile ilişkili yaşam kalitesini olumsuz etkilemektedir. Bu nedenle, protezlerinden memnun olmayan hastalar protez teslimi sonrasında kapsamlı bir klinik ve radyografik muayeneden geçirilmelidir.

Anahtar Kelimeler: *Dişsiz, OHIP-14, Tam Protez, Yaşam kalitesi*

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Introduction

After insertion of complete dentures for edentulous patients, adaptation to the prostheses is a process that may be uncomfortable for patients.[1] During function and parafunction of complete dentures may occur painful red ulcerated lesions, such as traumatic mucosal ulcerations, epulis fissuratum (EF), and prosthetic stomatitis (PS); therefore, postinsertion of prostheses follow-ups are required to assess both patient acceptance and adaptation of the denture.[2,3]

Complete denture treatment has positively affected chewing, esthetics, and oral status.[4-6] However, poor design and/or fabrication, parafunction, diet, mental status, oral hygiene, and acute or chronic reactions of bacterial plaque adhering to denture bases may result in mucosal findings related to complete dentures.[7-9] Soft tissue hyperplasia, called EF, is a hyperplastic condition of the oral mucosa caused by low-grade chronic trauma from poor fitting dentures.[10] Bone undercuts covered with thin atrophic mucosa may cause pain. Therefore, in the maxilla and mandible, tori are prominences of bone that may adversely affect the function and comfort of dentures.[11] Also, traumatic mucosal ulcers may cause pain, and have been found to be the most common complaint in the post-insertion period in people wearing complete dentures.[3,12,13] Inflammatory changes in the oral mucosa of the denture bearing area are associated with chronic exposure of the soft tissues to denture plaque and are described as PS.[7]

Oral health-related quality of life (OHRQoL) is a significant aspect of defining treatment results in individuals with edentulism who receive a new removable denture.[14] OHRQoL describes a specialized condition that indicates how pain and discomfort in the orofacial area affect an individual's well-being in terms of functional, psychological, and social factors.[15] Oral Health Impact Profile (OHIP-14) is a quality of life scale belonging to the oral and dental health family that can be used in all medical conditions involving the mouth area.

When examining databases, the effect of general health, nutritional status, and socio-demographic backgrounds on OHRQoL in complete denture wearers have been investigated.[15,16] To the authors' knowledge, there is not enough data on the association between oral findings and OHRQoL of complete denture wearers. Therefore, the aim of this study was to evaluate the relationship between oral findings and OHRQoL in complete denture wearers using the OHIP-14 scale. The null hypothesis was that oral findings have no effect on OHRQoL.

Materials and Methods

This retrospective study was carried out with edentulous patients who applied to the Usak University Faculty of Medicine, Non-invasive Clinical Research Ethics Committee for complete dentures of the maxilla and mandible. It was approved by the ethics committee of the university (Protocol No: 57-11). A power analysis was used for the minimum size of the sample. In this study 200 patients (106 male, 94 female) who had previously completed complete dentures in the Usak University, Faculty of Dentistry and used their prostheses and shown oral findings were included. The inclusion criteria were patients who had adequate general health and mental health, worn complete dentures, attend to the clinic after denture insertion. The exclusion criteria were patients who had orofacial motor disorders, psychological or psychiatric disorders and did not attend follow-up sessions after dental treatment.

After radiological and clinical examinations, oral findings such as EF, bone undercuts, resorbed crests, traumatic ulcer, Type 1-2-3 PS, torus, and angular cheilitis were researched. Clinical differences between PS and allergic stomatitis should be known for diagnosis. Clinically, allergic stomatitis may occur as severe erythema, erosions, ulcers, or a combination that may expand beyond the denture bases contact zone and is usually associated with pain, burning mouth, or itchiness.[17] PS classification was graded according to Newton:18

- Newton Type 1: Mild inflammation (hyperemia, localized spots)
- Newton Type 2: Moderate inflammation (generalized erythema)
- Newton Type 3: Papillary hyperplasia with severe inflammation

Subsequently, oral findings such as EF, traumatic ulcer, crest undercut were recorded as present or absent by visual inspection. The residual crest quality was determined according to the Atwood classification:19 High and well-rounded crests were good, resorbed and rounded or depressed to bone level were poor. In this study, if alveolar ridge classification was poor, resorbed crests was marked. Also, radiological examination with panoramic x-rays (PCH-2500 Digital X-Ray Imaging System, PAX-I Panoramic, Gyeonggi, Korea) was used to detect hard tissue findings.

The OHIP-14 scale was administered to the patients by one researcher. The validity and reliability of the Turkish version of the OHIP-14 scale was conducted by Mumcu et al.[20] Statistical analysis was performed with the IBM SPSS Statistics 25.0 (IBM Corp., Armonk, NY) program. Descriptive statistics (number, percentage, mean, standard deviation, minimum, and maximum) of the data are given. The normality assumption was checked with the Shapiro-Wilk test. The Mann-Whitney U test was used to examine the mean difference between two independent and non-normally distributed groups ($p<0.05$).

Results

One hundred twenty-four patients (74 male, 60 female) of 200 patients had oral findings. Average age of participants of 68.7±9.7 years. There was a significant difference between participant age and the existence of oral findings (p=0.00), however, according to gender, no statistically significant difference was found (p>0.05). The frequency of oral findings is presented in Table 1. In the patients, resorbed crests (3.0%) was observed the least, Type 1 PS (15.0%), characterized as palatal localized spots was detected the most. There were no findings of Type 3 PS, angular cheilitis, or torus during the clinical examinations for all participants. The comparison of the OHIP-14 and oral findings is shown in Table 2.

Table 1. The number and frequency of oral findings

Oral Findings	N (%)
EF	23 (11.5%)
Bone Undercuts	22 (11.0%)
Resorbed Crests	6 (3.0%)
Traumatic Ulcer	21 (10.5%)
Type 1 PS	30 (15.0%)
Type 2 PS	9 (4.5%)
Total Oral Findings	134 (67.0%)

Table 2. Comparison of OHIP-14 and subgroups according to oral findings

OHIP-14 Scale	Total Oral Findings	EF	Bone Undercuts	Resorbed Crests	Traumatic Ulcer	Type 1 PS	Type 2 PS
Functional limitation	0.00*	0.17	0.00*	0.35	0.00*	0.96	0.66
Physical pain	0.00*	0.50	0.00*	0.01*	0.00*	0.59	0.71
Psychological disturbance	0.00*	0.61	0.00*	0.32	0.00*	0.36	0.27
Physical Disability	0.00*	0.37	0.00*	0.55	0.00*	0.37	0.21
Psychological disability	0.00*	0.68	0.00*	0.18	0.00*	0.88	0.16
Social disability	0.00*	0.60	0.00*	0.58	0.00*	0.85	0.56
Handicap	0.00*	0.45	0.00*	0.39	0.00*	0.36	0.40
OHIP Total Score	0.00*	0.40	0.00*	0.36	0.00*	0.76	0.23

*p<0.05

Considering the mean scores obtained from patients with symptoms of oral findings and patients without oral findings, a statistically significant difference was found between the groups according to the OHIP-14 (p=0.00). Those patients with oral findings had higher total score averages than did those patients without. When the OHIP-14 was evaluated according to the EF, no statistically significant difference was found (p>0.05). There was a statistically significant difference between the OHIP-14 and bone undercuts (p=0.00). A statistically significant difference was found between the mean scores of the OHIP-14 subgroup, physical pain (p=0.018), for patients with resorbed and non-resorbed crests (p<0.05). When the OHIP-14 were evaluated for traumatic ulcers, the difference was statistically significant (p=0.00). In

the Type 1 and Type 2 PS, no statistically significant difference was found between the groups in mean OHIP-14 scores ($p>0.05$).

Discussion

The oral findings of the complete denture wearers in the study were examined, and patients with findings of EF, bone undercuts, crest resorption, traumatic ulcers, and PS were identified. It was concluded that oral findings affected OHRQoL. According to the results, the OHRQoL values of patients with oral findings were found to decrease. Therefore, the null hypothesis was rejected.

The health of the soft tissues that provide support to complete dentures is considered an important factor contributing to OHRQoL.[4,21] In this study, OHRQoL was seen to be lower in patients with oral findings. Various factors, such as dental prostheses that are incompatible with the underlying mucosa, poor oral hygiene, and wearing prostheses all day and all night, may cause EF.[10,22] EF generally asymptomatic but sometimes occur severe inflammation and ulceration.[10] In this study, it was determined that the EF had no effect on OHRQoL. This may be because most of the EF findings are asymptomatic.

In this study, a significant relationship was found between bone undercut irregularities and OHRQoL. It could be said that the quality of life of patients with bone undercuts is lower than without. Bone undercuts in the residual crests covered by thin atrophic mucosa may affect OHRQoL due to pain during chewing.[11] Also, Limpuangthip et al.[23] stated that poor alveolar ridge morphology may be a predisposing factor for impaired chewing ability; thus, a visual inspection and palpation of the residual ridge should be performed before complete denture treatments.

Cerutti-Kopplin et al.[24] reported that residual crests affect patient satisfaction. In the present study, it was found that crest resorption associated with the physical pain subscale of the OHIP-14. Problems such as insufficient retention and stability of the prosthesis due to alveolar crest resorption and pain during chewing explain the physical pain. Hence, there is a decrease in patient satisfaction.[25]

Kivovics et al.[12] concluded that excessive length of complete denture flanges poses a great risk of traumatic injury to the mobile mucosa. According to a study by Sadr et al.[26], the highest incidence of maxillary ulcerations was observed in the posterior palatal area, and the second highest frequency was observed in the buccal slope of the residual crest in the maxillary canine and molar regions. Brunello and Mandikos[13] determined that the most common complaints after the insertion of complete dentures were pain and discomfort due to mucosal injuries and traumatic ulcerations. In the present study, a statistically significant difference was found between traumatic ulcerations and OHRQoL. It found that individuals with traumatic ulcerations reported low OHRQoL. Furthermore, Martori et al.[27] reported that patients with resorbed residual crest had a higher risk of developing traumatic ulcers. From the present study, the existence of resorbed crests was also recorded in denture-induced traumatic ulcers.

In this study, the OHRQoL of patients with Type 1 and Type 2 PS were evaluated. It was found that the Type 1 and Type 2 PS had no effect on OHRQoL. Similarly, Perea et al.[8] was found no relationship was found between the OHRQoL of patients and PS. They concluded that this might be that individuals with PS did not be able to recognize prosthesis-related disorders since they have other serious diseases such as cancer, and their daily use of pain medication.[8]

The limitations of this study could be overcome by increasing the number of individuals using complete dentures, increasing the diversity of oral findings, and considering to the parameters, such as oral health and general health, which affect quality of life.

Conclusion

According to results of this study there were significant differences in patients with oral findings and the OHRQoL in complete denture wearers. The results of this study indicated that bone undercut, resorbed crests, and denture-induced traumatic ulcers were important risk factors for QHRQoL in complete denture wearers. Results from this study can guide clinicians and patients before and after complete denture treatment.

Conflict of interest

None of the authors of this article has any relationship, connection or financial interest in the subject matter or material discussed in the article.

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