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RESEARCH

PATIENT SATISFACTION WITH DENTURE ADHESIVES USED IN COMPLETE DENTURES

ABSTRACT

Introduction: This study investigates the effect of using denture adhesives on patient satisfaction in patients wearing new dentures.

Materials and Method: The study includes fifty edentulous patients wearing complete dentures (26 female, 24 male, mean age: 60.48 ± 9.53). Twenty-five patients started using denture adhesive in the first week of delivery, and the remaining 25 started using them in the second week. Satisfaction with and without denture adhesive was evaluated at the end of the first and the second week. Measurements were performed using a visual analog scale (0–100). The data were collected and statistically analyzed using Student's t test.

Results: Denture adhesive use was not found to impact the satisfaction of patients with new dentures ($p > 0.05$). Regardless of use of denture adhesives, a significant difference in patient satisfaction was observed when existing and new dentures were compared ($p < 0.01$). In patients who used adhesive on the second-week, a significant difference in satisfaction was observed between the first and second week ($p < 0.01$).

Conclusion: The use of denture adhesive was found to be insignificant with respect to patient acceptance of new dentures. However, use of denture adhesive when necessary in the first week was found to affect patient satisfaction.

Key Words: Denture, Complete; Satisfaction, Patient; Aged.

ARAŞTIRMA

TAM PROTEZLERDE KULLANILAN PROTEZ YAPIŞTIRICILARINA KARŞI HASTA MEMNUNİYETİ

ÖZ

Giriş: Bu çalışmanın amacı, yeni yapılmış protezlerini kullanan hastalarda protez yapıştırıcının hasta memnuniyeti üzerinde etkisini araştırmaktır.

Gereç ve Yöntem: Çalışmaya total protez kullanan elli tam dişsiz hasta dahil edilmiştir (26 kadın, 24 erkek, yaş ortalaması: 60.48 ± 9.53). Protez yapıştırıcısı 25 hasta tarafından protez tesliminin birinci haftasında kullanılırken, diğer 25 hasta tarafından da ikinci haftada kullanılmıştır. Protez yapıştırıcının kullanıldığı ve kullanılmadığı durumdaki hasta memnuniyetleri birinci ve ikinci hafta sonunda değerlendirilmiştir. Ölçümler 0–100 arasında skalaya sahip görsel eşdeğerlik ölçeği kullanılarak yapılmıştır.

Bulgular: Yeni protez kullanan hastalarda protez yapıştırıcısının hasta memnuniyeti üzerine herhangi bir etkisi gözlenmemiştir ($p > 0.05$). Protez yapıştırıcı kullanımından bağımsız olarak mevcut ve yeni protezlerin arasında hasta memnuniyeti açısından istatistiksel olarak anlamlı farklar elde edilmiştir ($p < 0.01$). Yapıştırıcıyı ikinci hafta kullanan hastalarda birinci ve ikinci haftalar arasında memnuniyet açısından istatistiksel olarak anlamlı fark görülmüştür ($p < 0.01$).

Sonuç: Protez yapıştırıcısı kullanımı ilk kez protez kullanan hastalarda kabullenebilirlikte etkili bulunmamıştır. Buna rağmen, gerektiğinde ilk haftada kullanmanın memnuniyete etkili olduğu görülmüştür.

Anahtar Sözcükler: Total Protez; Hasta Memnuniyeti; Yaşlı.

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INTRODUCTION

Application of denture adhesives to improve denture retention and stability date back to the late 18th century (1-3). However, in modern dentistry, they are commonly viewed as a compensation for unsatisfactory denture treatments. Yet, denture adhesives are essential in certain cases, such as for stabilization of the denture base during the determination of centric relation and vertical dimension; immediate retention of new dentures; retention of old dentures following preprosthetic surgical applications; and helping patients adapt to new partial or complete prostheses (1,4).

There are several mechanisms through which adhesives help retain dentures. They absorb water and fill the gap between the denture and the mucous membrane. They increase the surface tension between the denture base and supporting tissues. Some authors have also suggested that they increase cohesion (2). Denture adhesives are available as pads, powders, and pastes, and the decision to use which is based largely on the dentist's preference.

After receiving their first dentures, patients generally become curious about using denture adhesives. Dentists should have sufficient knowledge and experience to provide satisfactory information about the functions and correct use of these materials.

Although denture adhesives have several indications, these are not mentioned in most textbooks. The literature focuses on their effects on retention besides their indications. However, due to their disadvantages, academic prosthodontists argue against the use of adhesives for supporting conventional denture applications (5).

This study evaluates denture adhesives' contribution to the satisfaction of patients with new fabricated dentures.

MATERIALS AND METHOD

Fifty edentulous patients referred to Istanbul University, Faculty of Dentistry, Department of Prosthodontics, between January 2008 and May 2008, and they were included in the study on a voluntary basis. The patients were informed about the aims of the study, and informed consents were obtained.

Patient gender and age distributions are set forth in Table 1. Patients were randomly divided into two groups, with 25 patients assigned to each group. Prior to commencing the study, patients were asked to assess their existing dentures with respect to function (chewing-eating), phonation (speech), and esthetics (appearance), using a visual analog scale (VAS 0–100).

Table 1— Gender and Age Distribution of the Patients

Gender	n	Mean Age (Year)	Standard Deviation
Male	24	62.13	10.435
Female	26	58.96	8.535
Total	50	60.48	9.530

The dentures were fabricated using traditional impression and processing techniques. At the time of installation of the prostheses, 25 of the patients were provided with denture adhesive (Protefix, Queisser Pharma, Flensburg, Germany), enough for one week (three x 4 mL package). The patients who received the adhesive were instructed to apply it inside the upper and lower dentures. Adhesive application and cleaning procedure instruction was given in accordance with the manufacturer's recommendations. ("Clean the dentures of any residue and dab adhesive cream on the wet denture. If necessary, you may also apply a line of adhesive cream to the back of the upper plate. You should apply adhesive cream sparingly because any excess can impair the adhesion of your denture. Then fit the denture and hold it firmly in place for a few seconds. Wait 5 minutes before eating.")

After one week of use, function, phonation, and esthetic evaluations of all the patients were assessed using VAS 0–100. Following this, patients used their dentures without adhesive for one week and were asked to evaluate again at the end of the second week.

The non-adhesive patient group, were asked to evaluate their prostheses after one week, using the same VAS 0–100 protocol. In the second week, denture adhesive was provided and the patients were asked to reevaluate their prostheses at the end of the week. A questionnaire was provided comprising the following questions, designed to evaluate satisfaction with the new fabricated dentures with and without adhesive, and the existing dentures:

How do you score your present dentures in terms of chewing and eating soft and hard foods within a range from 0 to 100 (0 = "not satisfied, I can't eat and chew;" 100 = "very satisfied, I can eat and chew as much of anything")?

How do you score your present dentures in terms of proper pronunciation and speaking within a range from 0 to 100 (0 = "not satisfied, my pronunciation is bad and I can't spe-

ak," 100 = "very satisfied, my pronunciation is good and I can speak")?

How do you score your present dentures in terms of appearance and esthetics within a range from 0 to 100 (0 = "not satisfied, they look very bad and unesthetic," 100 = "very satisfied, they look good and as esthetic as they can be")?

In order to evaluate patients' denture adhesive using habits, all patients were contacted by phone at approximately 18 months and asked whether they were still using adhesives and, if not, the duration of use.

For statistical evaluation of the data, NCSS (Number Cruncher Statistical System) 2007 and PASS 2008 Statistical Software (Utah, USA) were utilized. Together with descriptive statistical methods (mean, standard deviation), Kolmogorov-Smirnov tests were used for the compatibility of the data with the normal distribution. A paired-sample *t* test was used for comparison of the parameters. Results were evaluated using the 95% confidence interval and significance was accepted at the $p < 0.05$ level.

RESULTS

This study included 24 men (48%) and 26 women (52%) aged 42 to 79, treated between January 2008 and May 2008. The mean age was 60.48 ± 9.53 years (men = 62.13 ± 10.43, women = 58.96 ± 8.53).

Data obtained from patients' evaluations of dentures with or without adhesives were compared, and no statistically significant difference was observed ($p > 0.05$). In this comparison, the period of use, which was either the first or the second week, was not taken into consideration (Table 2).

Regardless of use of denture adhesives, statistically significant differences in patient satisfaction were observed when the existing and the new fabricated dentures were compared by the patients ($p < 0.01$) (Table 3).

Table 2— Comparison of the Scores Obtained From Patients for Their Prostheses with and without Using Denture Adhesives

	With Denture Adhesive (n = 50)	Without Denture Adhesive (n = 50)	t	p
Score	**Mean ± sd**	**Mean ± sd**		
Function (chewing-eating)	81.80±19.34	77.30 ± 20.43	1.488	0.143
Phonation (speech)	86.00 ± 16.93	82.20 ± 15.32	1.670	0.101
Esthetics (appearance)	89.30 ± 13.25	86.60 ± 12.05	1.663	0.103

Paired-sample t test

Table 3— Comparison of the Scores for Existing Dentures and Those for the New Fabricated Dentures (with/without Denture Adhesive)

Score		Mean ± sd	t	p
Function (chewing-eating)	Existing Denture	48.58 ± 31.25		
	New Denture with Adhesive	81.80 ± 19.34	-6.936	**0.001***
Function (chewing-eating)	Existing Denture	48.58 ± 31.25		
	New Denture without Adhesive	77.30 ± 20.43	-7.352	**0.001***
Phonation (speech)	Existing Denture	56.00 ± 26.65		
	New Denture with Adhesive	86.00 ± 16.93	-8.024	**0.001***
Phonation (speech)	Existing Denture	56.00 ± 26.65		
	New Denture without Adhesive	82.20 ± 15.32	-7.830	**0.001***
Esthetics (appearance)	Existing Denture	53.00 ± 29.64		
	New Denture with Adhesive	89.30 ± 13.25	-8.572	**0.001***
Esthetics (appearance)	Existing denture	53.00 ± 29.64		
	New Denture without Adhesive	86.60 ± 12.05	-9.134	**0.001***

*Paired-sample t test * p<0.01*

Table 4— Comparison of the Scores of the Group That Used Denture Adhesive in the First Week and Quitted Using Adhesive in the Second Week

	With Denture Adhesive (n = 50)	Without Denture Adhesive (n = 50)	t	p
Score	**Mean ± sd**	**Mean ± sd**		
Function (chewing-eating)	78.00 ± 22.36	82.60 ± 19.42	-1.060	0.300
Phonation (speech)	84.40 ± 20.78	85.40 ± 18.14	-0.306	0.762
Esthetics (appearance)	87.00 ± 15.54	88.80 ± 13.64	-0.813	0.424

Paired-sample t test

Table 5— Comparison of the Scores of the Group That Used No Adhesive in the First Week and Started Using Adhesive in the Second Week

	With Denture Adhesive (n = 50)	Without Denture Adhesive (n = 50)	t	p
Score	**Mean ± sd**	**Mean ± sd**		
Function (chewing-eating)	85.60 ± 15.29	72.00 ± 20.41	3.989	**0.001***
Phonation (speech)	87.60 ± 12.17	79.00 ± 11.36	2.942	**0.007***
Esthetics (appearance)	91.60 ± 10.28	84.40 ± 10.03	3.524	**0.002***

*Paired-sample t test * p<0.01*

Two groups, each comprising 25 patients were evaluated. No statistically significant results were obtained between the first week and the second week in the group that used denture adhesives in the first week (Table 4). However, in the group that used denture adhesives in the second week statistically significant differences in satisfaction were observed when their first and second weeks were compared (Table 5).

At approximately 18 months, all patients stopped using denture adhesive. Only 4 patients (8%) reported that they used 1 tube of adhesive (2–4 weeks); these patients discontinued use after adaptation to the prostheses.

DISCUSSION

An assessment of the literature showed that studies on denture adhesives tended to focus on retention (6-13), chewing ability (14,15), and attitude toward usage (16,18). Other studies investigated new denture adhesives that provided greater retention, and other long-lasting and hygienic features (19,20).

In the present study, the existing and new fabricated dentures of 50 patients in 2 groups each containing 25 patients were studied. The first group that started using adhesives in the first week, and the second group that started using adhesives in the second week were compared and evaluated in terms of function, phonation, and esthetics.

The groups were evaluated separately each week. No differences were observed between the first and the second weeks of the first-week adhesive users; however, significant differences were observed between the first and second weeks of the second-week adhesive users.

Most of the relevant literature evaluates the efficiency of denture adhesives in increasing retention in dentures with improper adjustment; however, the contribution of adhesives to new and well adjusted dentures has not been investigated. Therefore, no research could be found to compare the results obtained from the present study. In some reviews it is mentioned that the use of small amounts of denture adhesives may help patients feel comfortable with a new fabricated denture; however, such use is regarded as unacceptable due to the risk of patient habituation (1).

Slaughter et al. argue against using denture adhesives in traditionally fabricated new dentures based on their study, applying Delphi technique (obtaining group decisions given in a panel discussion that is conducted by specialists) (5). However, the results of the present study contradict these authors' opinion. Expert opinions are accepted as extremely important criteria, however, it should be underlined that there are insufficient studies on indications of denture adhesives and there is a need for more clinical research to formulate an appropriate policy.

Conclusion

Within the limitations of this study, it is concluded that denture adhesives are not a significant factor in patient satisfaction with new fabricated dentures. It is appropriate to use denture adhesives, but only in the first week.

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