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THE LEVEL OF SATISFACTION OF COMPLETE DENTURE WEARERS – A STUDY OF BAQAI MEDICAL AND DENTAL UNIVERSITY KARACHI

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Abstract:

The purpose of this study was to compare the satisfaction of patients regarding retention, stability and accumulation of particles with a randomized, double-blind crossed method in users with complete dentures.

Seventeen edentulous individuals were randomized and received new upper and lower complete dentures. After a period of adaptation, they participated in some masticatory tests and clinical revisions, after use the protheses with and without the use of two dentureat 0, 7 and 14 days.

Satisfaction was measured immediately after each test through a survey using a VAS scale (0-10) and data were analysed with McNemar's test with Bonferroni correction. The results showed significant differences (p <.01) between the study groups completely comfortable and partially comfortable and not comfortable groups but no significant differences were found between the two stickers for any of the variables studied.

Complete denture comfort significantly improved the satisfaction of patients because a better retention, stability and less accumulation of particles of the food substitute between the denture and the mucosa is obtained compared with other group.

Key words: Complete dentures, patient satisfaction, denture comfort, and clinical trials.

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INTRODUCTION:

There are numerous alternatives of implant treatment for edentulous patients with good aesthetic and functional results, providing a higher quality of life, but still, in certain circumstances the indication of a conventional complete denture (CD) as in the case of elderly multi-medicated people with tumoral diseases, with xerostomia, patients with hormonal and neurotransmitter changes and disorders that affect muscle tension such as Parkinson disease, myasthenia gravis, muscular dystrophy, and buccolinguofacial dyskinesia. The use of adhesives for complete dentures (CDAs) is relatively widespread among patients with complete denture which often use them without proper prescription by the dentist, causing dissatisfaction, as a result of not following the instructions of indication and use properly. Numerous studies have shown that CDAs with proper prescription of the dentist help to improve the retention and stability of well-developed CDs improving the quality of life and general health of the EP and his satisfaction with the use of the CDAs (Mandali et al., 2010).

In this way the patient satisfaction becomes the most decisive factor in the success of CDs. Among the most common complaints we can cite the lack of retention or stability and accumulation of particles under the denture. The composition of the insoluble CDAs is a mixture of salts of polymers such as carboxymethyl cellulose (CMC) and polyvinyl ether Methyl Cellulose (PVMMA) whose action mechanism is achieved primarily by an increase in the adhesive and cohesive properties, increasing the viscosity between the CDs and oral mucosa, helping to reduce the movement of the prosthesis, achieving a better function and masticatory efficiency reflecting greater patient satisfaction (Mutalik, 2016).

Generally, dentists evaluate prosthesis using default criteria for the success based on the technique; unfortunately, these rules usually do not take into account individual needs and attitudes of patients and their expectations regarding CDs. The objective of this trial was to compare subjectively through a questionnaire, the feeling of retention, stability and accumulation of particles below the denture among patients with CDs. The null hypothesis was that the use of CDAs does not increase the patient satisfaction regarding the evaluation of the retention stability and accumulation of particles of the CDs (Jyothi et al., 2017).

MATERIAL AND METHODS

The study sample was selected among the elderly patients who attended the Baqai Medical and Dental University Karachi in demand for treatment between 2017 and 2018. The statistical sampling test used was determined by the formula provided by Torres-Sanchez et al. with a method error of 95% confidence.

All patients should be within the following criteria:

- To be of legal age,
- To be elderly patients
- Without active oral diseases,
- Users of upper and lower new conventional CDs placed two months before the study, which had never used CDAs who were not allergic to any of the components of the CDAs used,
- Without systemic compromise and
- Without physical or mental disability.

All prostheses were manufactured in the Prosthetics Unit of the Faculty of Dentistry at the Baqai Medical and Dental University always by the same dentist and lab technician meeting the criteria for Kapur et al. The final sample consisted of 17 patients (11 women and 6 men with an average age of 51.41 years (SD 4.6). The clinical trial was conducted following the ethical principles of medical investigation involving human subjects and all of the participants were given a detailed explanation about the purpose and process of the study.

Clinical Procedure

The upper and lower CDs were manufactured according to the conventional technique, (preliminary impressions, functional impressions with peripheral seal, transfers to semi- adjustable articulator, testing of teeth in wax, placement, occlusal adjustment and controls) in their production and placement the same clinician and laboratory technician were always involved.

In no case the trial was performed before the two months of placement of the dentures to ensure correct soft tissue health and proper adaptation to the prosthesis, but without having been over a year since its placement to avoid mismatches as a result of bone resorption processes of the residual alveolar ridges.

Kapur et. al criteria were used to evaluate each patient CDs. The elderly patients were randomized by order of arrival in the three groups that performed the tests Group 1: n = 6; Group 2: n = 6 and Group 3: n = 5. In each one of them

masticatory tests and clinical revisions were performed in different order, randomly with the three grouping variables: completely comfortable (CC), partially comfortable (PC) and not comfortable (NC).

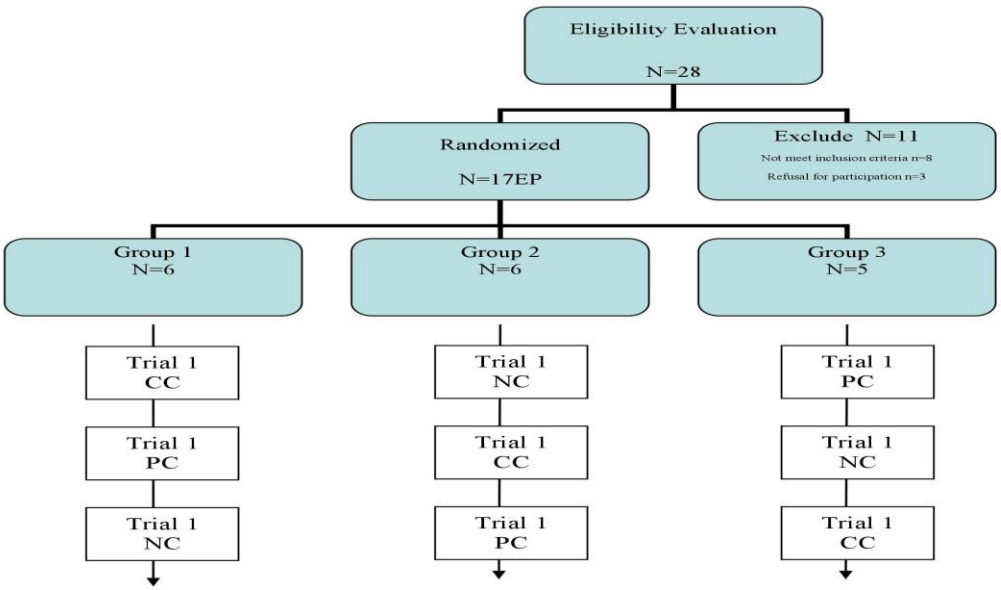
In this way the pattern of learning bias was eliminated in the first masticatory test. The CC and NC were placed in similar white boats without identifying mark for the two products, having an investigator to perform the masticatory tests and a different one to perform data collection. In this way the double blind method was being applied, by ignoring both the clinician and the patient who of the two adhesives was being used.

An irreversible hydrocolloid was used as a meal replacement for the masticatory tests featuring dimensional stability and the possibility of a proper mastication in the elderly patients in order to compare the results of the surveys of the masticatory tests. The tablets were made with the irreversible hydrocolloid using a plastic matrix of standardized size and shape (20 mm in diameter and 5 mm in width with a weigh of 2.3 grams).

The CDs were removed and washed with liquid soap with neutral pH and with a denture brush, 1 cm of the adhesive was applied in three areas: front and two back sides of the upper and lower CDs. The bands of the adhesive were measured with a milimetric ruler and excess removed with a scalpel.

Mastication was performed in a standardized manner until completing 20 masticatory strokes, every elderly patient received 50 ml of water to wash and remove particles of irreversible hydrocolloid. The elderly patients carried out the masticatory tests and the satisfaction surveys as follows: day 0 the first test and survey, on day 7 the second test and survey and on day 14 the third test and survey. In this way all the elderly patients performed the masticatory tests and corresponding questionnaires, rotating by three variables: CC, PC and NC, in different order according to each of the study subgroups. The questionnaire had the three questions asked to each patient:

- Lack of retention (if the patient subjectively felt displacement of the denture due to vertical forces).
- Lack of stability (if the patient subjectively felt lateral movement of the denture due to lateral forces).
- Accumulation of particles (If the patients felt the accumulation of particles of the substitute between the denture and mucosa).



For the objectification of the answers to each of the questions relating to retention, stability and accumulation of particles under the denture, each patient was presented with a VAS scale (0-10), considering as a positive response when the patient marked 7 points or above 7 points and negative when 3 points or below 3 points were marked. (Responses between 3 and 7 were not considered).

RESULTS:

The survey data and the subjective evaluation after masticatory tests by the elderly patients with respect to retention, stability and accumulation of particles for the three studied groups CC, PC and NC was presented in Table 1

		CC		PC		NC	
		Patients	%	Patients	%	Patients	%
Lack retention	Yes	12	70.6	1	5.9	1	5.9
	No	5	29.4	16	94.1	16	94.1
Lack stability	Yes	14	82.4	5	29.4	4	23.5
	No	3	17.6	12	70.6	13	76.5
Accumulation of particles	Yes	13	76.5	4	23.5	2	11.8
	No	4	23.5	13	76.5	15	88.2

The inferential analysis was planned to compare the variables Retention / Stability / Accumulation of particles among the three groups using the Cochran test which resulted statistically significant ($p < 0.01$). To establish

which particular groups appear among the above differences in each of the studied variables, pairwise comparisons were established by the McNemar test with Bonferroni correction. The result for each of the variables studied was the same, namely, there were significant differences ($p < 0.01$) between the study groups CC or PC and the group NC, but there were no significant differences between both groups of CC and PC together for any of the variables studied.

DISCUSSION:

The results of this clinical trial show that there is a significantly higher patient satisfaction when using the CDAs on their CDs. This is mainly because the CDAs through their composition with (CMC) and (PVM-MA) have an action mechanism that achieves an increase in adhesive and cohesive properties, increasing the viscosity between CDs and the oral mucosa. In this way the CDAs used contribute to the reduction of movement of the CDs achieving a better function and masticatory efficiency which reflects higher patient satisfaction. The results of this study are consistent with those of other authors who found that CDAs significantly reduced the movement of the maxillary and mandibular denture during mastication and increased comfort resembling dentate patients who do not use CDs. In addition, patients reported that the use of CDAs avoided the inconveniences caused by food particles that are introduced below during mastication, causing irritation and pain in the mucosa due to friction (Jyothi et al., 2017).

Most authors show a recognized secondary benefit of CDAs in patients with CD, which properly used have the ability to act as a barrier to help prevent the migration of food particles under themselves. Unfortunately this could not be measured in an objective way to show numerical results. In this clinical trial VAS scales have been used to quantify the variables. We decided to treat them as qualitative variables, though with a 4-point objective differentiation between them (Yes: above 7 points; No: below 3). In this way greater rigor is achieved, since it would have been easier to obtain statistically significant differences with quantitative variables, although they were clinically irrelevant (Jones, 2016).

The results of this study are consistent with those of Kawata et al. They find that the subjective feeling of patients is of a greater comfort by feeling less lateral movement and less displacement from their CDs during the masticatory tests and that this reflected less fatigue in their muscles by the end of each masticatory test, coinciding with studies where muscle fatigue due to overload decreases as the oral cavity has higher masticatory efficacy. Regarding the success of the CDs measured by surveys, the results of De Lucena et al. and Celebic et al. revealed that 39% of the volunteers were extremely dissatisfied with their dentures, contrary to the values reported by other studies (Elenchevski, 2018).

On the other hand, a surprising finding was the large number of very satisfied volunteers despite their CDs was quite old and mismatched. When the results of patient satisfaction and the functional evaluation of the dentures made by the clinician were correlated, no significant correlations between

the two assessments were observed. Similar findings have been previously reported by other authors, suggesting that, while important, technical manufacturing aspects of the CDs are not sufficient to predict the success of treatment from the standpoint of patients. Van Waas studied a group of patients using new CDs, finding that only 13% of those who had mentioned being satisfied with their prostheses coincided with the favourable assessment by the investigator (Celebic and Knezovic-Zlataric, 2004).

CONCLUSION:

According to the results obtained, with the logical limitations of this study and in response to the objectives, we can make the following conclusions: 1) The CDAs significantly improved the satisfaction of EP because a better retention stability and accumulation of food substitute between the denture and mucosa was obtained compared with not using CDAs. 2) No significant differences exist in the satisfaction of EP in terms of retention, stability and accumulation of particles of food substitute between the denture and the mucosa when using the two CDAs of the clinical trial.

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