Relationship of retention and stability along with OHIP-14sp in patients with implant overdentures.

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IMPLANT THERAPY OUTCOMES, PROSTHETIC ASPECTS

Abstract

Introduction: the aging of the population with a higher survival rate makes treatment of total edentulous in the population prevail. In the completely edentulous mandible, treatment with implant-retained overdenture is instituted in the first instance. The improvement in the quality of life with implant-retained overdentures compared to complete ones, has been evidenced by different studies with quality of life questionnaires in relation to dental health.

Principal objective: the aim of the study is to see if the quantum of retention and stability is related to an improvement in the quality of life regarding oral health using the questionnaire OHIP-14sp.

Materials and Methods: patients who come to their reviews of the Community of Madrid, with implant-retained overdentures, were studied. As variables there are established 5 groups. 1) Data pertinent to the clinical history. 2) Data on implants. 3) Data on the dental arch. 4) Data on retention and stability: occlusal force taken between incisors until the detachment of the prosthesis, measured with a disposable gnathometer with results from VAS within 0 to 10; and force of detachment of the prosthesis taken with a manual dynamometer Carpo® with a measurement range from 0 to 2.000 grams of force (19,6 N) with fulcrum from the middle labial recess of the prosthesis. Both were taken 3 times in the same way and arithmetic mean was established. And a fifth variable: quality of life questionnaire related to oral health, OHIP-14 sp validated by Montero et al. (2009).

Results: statistical analysis of the results was performed using a SPSS-22 software. Of our sample, from 33 patients, 21 were women and 12 men, within 63 to 88 years old, with a mean age of 76,19 years old. The most common retentive system was the Locator®, 50%, followed by the bar system with a 40%. An average of 1.464,14 grams of force (14,4 N) was obtained with the dynamometer and a mean total value of 3.66 points on the visual scale of the disposable gnathometer was recorded. We found a mean of 3.20 units higher with the gnathometer in **men versus women**; being this significant (0.05 in t- Student and 0.033 MW). The mean outcomes obtained with OHIP-14sp were 3,94 (scores can vary from 0 to 56, meaning better quality of life close to 0 using the ADD method). Better wellbeing was obtained the greater the retention obtained over 1200 grams of force (11,8 N), but no signification was found between the degree of retention and OHIP-14sp, (t-student 0.353> 0.05).

Conclusions: the quality of life related to the dental health on patients with implant-retained overdenture of this study is very good in general with a 3,94 OHIP-14sp score. There is no influence between the degree of stability (gnathometer measures) and the grade of retention (dynamometer outcomes), with oral health-related quality of life (OHIP-14sp), in our implant-retained overdentures studied patients.

Background and Aim

MOVEMENT OF COMPLETE DENTAL PROTHESIS

BIOMECHANICAL PROPERTIES OF THE COMPLETE CONVENTIONAL DENTAL PROSTHESIS

- RETENTION
- STABILITY
- SUPPORT

1982

IMPLANT-RETAINED OVERDENTURE

RETENTION INCREASES

MALE AND FEMALE SYSTEM

FORCES

We, the professionals, are aware of the improvement in such a considerable decrease in movement and patient satisfaction with overdentures

PRO (Patient Reported Outcomes); patients perceptions

PRO INSTRUMENT IS THE QUESTIONNAIRE

QUESTIONNAIRES CHARACTERISTICS

- *VALIDITY AND RELIABILITY
- *REPRODUCIBLES
- *VALIDATED IN EACH COUNTRY

Quality of life is the combination of living conditions and personal satisfaction weighted by values scales, aspirations and personal expectations; Felce and Perry .1995

Quality of life related to oral health has been studied mainly in older adults, and elderly, due to the increase in life expectancy. This sector of the population has a special vulnerability regarding oral health. In addition to aging, there are cognitive changes, in sensory perception, and in motor as well as social functions.

AIMS

Main goal:

* To determine the quality of life of adult patients of a sample with implant-retentive overdenture, through the OHIP-14sp questionnaire.

Secondary objectives:

1-Analyze the influence of the degree of stability of the Implant-retentive overdenture associated with quality of life of the subjects analyzed.

2-Analyze the influence of the degree of retention of the Implant-retentive overdenture associated with quality of life of the patients studied.

3-Establish which dimensions of OHIP-14sp improve when we increase retention and stability in implant-retained overdentures.

Methods and Materials

4.1. Population of study

Our target population is all those adults with overdentures that come to the university clinic of the UCM

Inclusion criteria	Exclusion criteria
Patients with implant-retained overdentures who agree to undergo study, older than 18 years	Patients with implant-retentive overdentures with some type of cognitive impairment and those who decline their participation

4.2. Sample: 33 patients

4.3. Type of study

We describe a clinical study of adults with overdentures with different retention systems in patients attending the University Clinic of the Complutense University of Madrid (UCM).

4.4. Data Collect

A specific medical history is designed for this study to which it is added the OHIP-14 questionnaire; Years from 2013 to 2016; Informed consent

3.-DYNAMOMETER VALUES (Retention) in grams of force and GNATHOMETER VALUES (Stability) in units of an VAS scale (0-10)

3.1. Dynamometer Values	1 st measure	2 nd measure	3 rd measure
3.2. Gnathometer Values			

The tip is placed with the rounding end in the medial notch of the overdenture and traction is exerted in the opposite direction to the insertion of the overdenture, until it is disassembled.

The dynamometer used in our study is the CARPO® brand, France. Indication is made in grams of force from 0 to a maximum of 2000 grams.

HOW TO PROCEED: 0 to 19,6 N

-In comparative studies in complete dentures with different adhesives such as Pradies et al in 2010; -or implants-retained overdentures Naert et al. in 2014 ;

Disposable Gnathometer (from Procter & Gamble® Co., Cincinnati, OH., USA)

There is a variation of 10 to 12 newtons of force at each interval, (shown by Polyzois et al.)

VAS System (Visual Analog Scale)
It consists of 10 visual units decimal scale

*Authors such as Pradies et al 2009; Özcan M. et al 2005; and Boat C et al 2008 all with VAS scale from 0 to 10. * Wang Y.B. and cols in 2010; use it for the same purpose with a VAS scale from 0 to 18.

Drawing and instructions taken from the article of Psillakis JJ. (2004).

- Hold the Gnathometer as shown
- Set the indicator at 0
- Position the Gnathometer in the patient's mouth with the upper and lower incisors on the small lower rubber section
- Then release the Gnathometer. Ask the patient to close the mouth slowly and evenly until the denture releases, i.e. the patient cannot bite any further - and note the indicator level on your protocol form.

Question s/Items (14)	Dimension or domain (7)	Never (0)	Hardly ever (1)	Occasionally (2)	Often (3)	Very often (4)
1. FUNCTIONAL LIMITATION						
Q.1.	Have you had trouble pronouncing any words because problems with your overdenture?					
Q.2.	Have you felt that your sense of taste has worsened because of problems with your...					
Q.3.	Have you had painful aching in your mouth because of ..					
Q.4.	Have you found it uncomfortable to eat any foods because of problems ...					
Q.5.	Have you felt self-conscious because of problems with your...					
Q.6.	Have you felt tense because of problems with your...					
Q.7.	Has your diet been unsatisfactory because of problems with ...					
Q.8.	Have you had to interrupt meals because of problems...					
2. PHYSICAL PAIN						
3. PSYCHOLOGICAL DISCOMFORT						
Q.9.	Have you found it difficult to relax because of problems					
Q.10.	Have you been a bit embarrassed because of					
4. PHYSICAL DISABILITY						
Q.11.	Have you been a bit irritable with other people because of problems...					
Q.12.	Have you been had difficulty doing your usual jobs because of problems...					
5. PSYCHOLOGICAL DISABILITY						
Q.13.	Have you felt that life in general was less satisfying because of problems					
Q.14.	Have you been totally unable to function because of problems with your overdenture?					

OHIP-14sp=Oral Health Impact Profile –spanish version
Perfil de Impacto en la salud Oral – 14 ítems o preguntas – versión española.

Characteristics of our procedure with the OHIP questionnaire:
*ADD or Additive method score was used.
* Completed through interview
*Response type: LIKERT
*OHIP-TOT: score varies from 0 to 56 points
* Each Domain varies from 0 to 8 points.
* The lower score is, the higher quality of life becomes.

OHIP origin:
*OHIP-49: 1994;Slade and Spencer et al.
*OHIP-14: 1997; Slade and Spencer et al.
*OHIP-14sp:2010; Montero et al.

For the statistical analysis the computer application SPSS-22 was used; (IBM Corp. Released 2013. IBM SPSS Statistics v 22.0 for Windows, Armonk, NY, USA).

1 st. We established in first place a descriptive statistical analysis
2º. Inferential statistical analysis.

Results

Variables	No OHIP change	OHIP improves	OHIP gets worse
(Results significant statistically)			
Grade of retention (dynamometer)/ (Average value dynamometer: 1,464 grams of force, SD: 621 grs.) 14,3 N; SD:6 N.	X	Inference at: 1200 grams; all domains except physical pain; only in mandibular SD: improvement domain Psychological disability	
How much stability (gnathometer) / (Average value gnathometer: 3.66 SD: 3.26, from 0 to 10 of the VAS scale).	X	Only studying mandibular SD: mastery improvement Psychological discomfort	
Gender: male (female)	X	Statistical Inference in question 13 better satisfaction with life in women due to overdentures	
Type of attachment Bars (locator®)	X	Statistical Inference of the Functional Limitation domain (1) with a result of 0 for Locator® system	
Mandibular / maxillary location	X		
Rest item	Always 0 points		
Type of alveolar ridge classification Atwood III. / IV: V, VI	X		
Type of Antagonist	X		
Age of participants	X	Quality of life is better for the younger ones without being significant.

Conclusions

1 * Quality of life related to oral health is quite acceptable in the subjects with implant-retentive overdenture, with an average of the OHIP-14sp total of 3.94 points.

2 * With the number of cases studied and the variables studied we can not conclude that increasing the stability of overdentures implant-retained improves the quality of life according to the OHIP-14sp.

3 * With the number of cases studied and the variables studied we can not conclude that the improvement of the retention of overdentures implant-retained improves the quality of life according to the OHIP-14sp.

4 * As for the domains of the OHIP-14sp: the greater the amount of retention in mandibular implant-retained overdentures, improves Psychological Disability domain. In addition, the greater degree of stability is in implant-retained mandibular overdentures improves the Psychological Discomfort domain.

5 * Given the indications obtained with a retention of more than 1200 grams of strength (11,7 newtons) of the overdentures of our study and evaluating jointly the maxilla and mandibular, a better quality of life is obtained in all domains except the domain of physical pain. Hence, the future lines we propose are:

1 ° Increase the number of cases to be studied.

2 ° Given its clinical interest to relate the specific retention system to the different domains of the questionnaire.

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