Oral Hygiene and Maintenance of Dental Implants

Lee H. Silverstein, DDS, MS, and Gregori M. Kurtzman, DDS

Ein zusammenfassender, frei erhältlicher, praktisch orientierter Artikel über die Nachsorge von Implantaten. Hier der Link:

http://www.dentistrytoday.net/ME2/dirmod.asp?sid=69B43E194DEC46FE9C901156B97A0F84&nm= Clinical+Articles&type=Publishing&mod=Publications%3A%3AArticle&mid=8F3A7027421841978F18BE895F87F791&tier=4&id=76E436A9DB86F4918B38EE95EFA87DAF5

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<th>Authors Full Name</th>
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The aim of the present study was to compare the cleansing properties of mechanical supportive care for dental implants with the use of an etching gel. Sixteen patients underwent a 5-month clinical trial with monthly recalls. These patients, wearing maxillary complete dentures and mandibular overdentures supported by a bar device on 4 implants, were treated in a split-mouth study design. Test and control therapy were randomly assigned to left and right sides of the mandible. At the test side, 35% phosphoric etching gel (pH 1) was applied in the peri-implant sulcus. After 1 minute, the sulcus was thoroughly rinsed with a water spray for approximately 15 seconds per implants. Control therapy consisted of supra- and subgingival debridement using carbon fiber curettes and a rubber cup. Plaque, calculus, probing pocket depth, and modified Gingival Index were determined before each treatment. Microbiologic evaluation was performed at baseline, 1 month later, and 5 months later, just before and immediately after each treatment. Per treatment and per assessment, the mean scores of all clinical parameters were calculated for each patient. The number of colony-forming units was used as the primary efficacy variable in the analysis of microbiologic data. At baseline, no differences between test and control sites were observed for any of the clinical parameters. The mean Gingival Index and the mean probing pocket depth were reduced over the 5-month period. The mean reduction in Gingival Index at the test sites proved to be significantly larger at the control sites (P = .03). Both treatment modalities resulted in an instant reduction of the number of colony-forming units, where the reduction by chemical cleaning was larger (P < .05). This short-term study employing a high recall frequency indicates that local application of 35% phosphoric acid gel can be as effective as conventional mechanical supportive therapy.
The qualitative effects of various types of hygiene instrumentation on commercially pure titanium and titanium alloy implant abutments: an in vitro and scanning electron microscope study.

STATEMENT OF PROBLEM: Implant survival depends on proper and timely oral hygiene maintenance, and a wide variety of oral prophylaxis procedures have been recommended and used on implant abutments. PURPOSE: This in vitro study compared the surface quality of both commercially pure titanium and titanium-alloy implant abutments, subjected to various hygiene methods and instruments with a standardized, clinically applicable scaling force. MATERIAL AND METHODS: Commercially pure titanium and titanium-alloy abutments were exposed to five oral hygiene methods; a gold-alloy-tipped scaler, a high-grade resin scaler, a graphite-reinforced scaler, an air-powder abrasive system, and a rubber cup with tin oxide slurry. A customized test device that simulated the scaling motion and allowed the application of a standard load at the tip of the scaler was used. Scanning electron photomicrographs (x200) of the pretreatment and treated surfaces were obtained and compared qualitatively. RESULTS AND CONCLUSIONS: No significant surface alteration was produced by the air abrasive system. All other hygiene methods either created significant surface alterations, left residual particles on the abutment surfaces, or both.

Peri-implant maintenance of immediate function implants: a pilot study comparing hyaluronic acid and chlorhexidine.

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INTRODUCTION: In implants, maintenance assumes an important role. The role of chlorhexidine (CHX) is well known in maintenance, while only limited evidence exists on the practical use of hyaluronic acid (HA). The objective of this study was to compare the health status of the peri-implant complex (hard and soft tissues surrounding the implant) during the healing period of immediate function implants, using HA or CHX gels in the patient’s maintenance protocol. STUDY POPULATION AND METHODOLOGY: Thirty complete edentulous patients, with four immediate function Brånemark System implants placed in the mandible (total of 120 implants), were randomly assigned to two groups (HA and CHX) using only these two chemicals in their daily implant self-care. Both groups were followed up for 6 months, with clinical observations on the 10th day, 2 months, 4 months and 6 months post-surgically. RESULTS: During the course of the study, HA and CHX produced good results.
in maintaining a healthy peri-implant complex in immediate function implants for complete rehaboritations in the edentulous mandible. Statistically significant differences were found in favour of the HA group in the modified bleeding index on the second observation (P = 0.003). The difference was more marked in the axial implants placed in the fifth sextant (P = 0.05). Correlation coefficient between plaque and bleeding index revealed a potentially better result for CHX at 6 months.

CONCLUSION: The findings point out the importance of a maintenance protocol in immediate function implants. Both chemicals are valid tools for implant maintenance. The authors suggest that it might be advantageous to administer HA in the first 2 months and CHX between 2 and 6 months.


Supportive therapy and the longevity of dental implants: a systematic review of the literature.

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Erratum in:

Abstract

OBJECTIVE: To review systematically whether supportive implant treatment during a follow-up of at least 10 years after functional loading is effective in prevention of biological complications and fixture loss. METHODS: A MEDLINE search was conducted for the period of 1965 to April 2006 of longitudinal clinical studies with follow-up periods after implant function of at least 10 years. Sixty-two studies were initially screened for inclusion and read in full text. Nine studies remained for the final assessment and 53 articles were thus excluded for the following reasons: (1) no information on implant maintenance was presented, (2) the number of patients/implants assessed at 10-year follow-up/final evaluation was not presented (3) fixture loss and marginal bone loss during function were not assessed at 10-year evaluation and (4) residual inflammation and/or probing pocket depth (PPD) not assessed at 10-year examination. RESULTS: Fifty-six percent of 62 initially screened studies did not assess clinical inflammation and PPD around implants at long-term evaluation of implants. This was the most common reason for exclusion of studies. In 28% of excluded studies, there was no information on implant maintenance during follow-up. A total of 749 fixtures were included and followed for more than 10 years of functional load. Five of the included studies gave no detailed information of the assessments or the treatment at follow-up visits during the 10 years. Only in two of the included cohorts were patients enrolled in an individualized supportive program on a 3-6-month recall interval. CONCLUSION: There are, to date, few available studies evaluating the long-term effect of supportive programs for implant patients. Based on the nine studies included, no evidence is available to suggest the frequency of recall intervals or to propose specific hygiene treatments. There is an urgent need for such studies to be initiated.
Interessantes Review, welches feststellt, dass keine evidenzbasierten Aussagen bezüglich Recall Intervall und Mundhygiene Instruktionen aufgrund der derzeitigen Studienlage möglich sind.


An oral hygiene brochure for your implant overdenture patients.

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Abstract

Although there may not be a direct association between oral hygiene and implant failure, oral hygiene must be maintained around implants in the edentulous mouth. Bacterial plaque on dentures can act as a reservoir for pathogens that cause respiratory disease. Unfortunately, many edentulous patients have poor oral hygiene. In this article, we describe the development of a brochure to educate patients wearing mandibular overdentures supported by 2 implants as a supplement to the dentist's verbal instructions. Dental literature and several specialists were consulted during preparation of the brochure, which contains photographs accompanying oral hygiene instructions. It was sent to 25 participants who were subsequently called and questioned regarding its content and their oral hygiene habits. The 24 respondents found the brochure useful; most reported that they would keep the brochure for future reference and that they learned something new about how to maintain their implants properly. No one found the brochure too long or unclear. Most participants read the brochure entirely, rather than skimming it. The brochure is available to all clinicians who wish to incorporate this tool into their implant overdenture therapeutic approach.

Die Autoren von der McGill Universität stellen die positive Resonanz von Patienten auf die Ausgabe einer Mundhygiene Broschüre fest, da Sie teilweise die gegebenen Instruktionen vergessen würden.

Dies ist der link zu der besprochenen Broschüre:


In der Broschüre werden Hygienetechniken erklärt und anhand von Bildern demonstriert.


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Abstract
OBJECTIVES: To review the literature on non-surgical treatment of peri-implant mucositis and peri-implantitis. MATERIAL AND METHODS: A search of PubMed and The Cochrane Library of the Cochrane Collaboration (CENTRAL) as well as a hand search of articles were conducted. Publications and articles accepted for publication up to November 2007 were included. RESULTS: Out of 437 studies retrieved a total of 24 studies were selected for the review. Thus the available evidence for non-surgical treatment of peri-implant mucositis and peri-implantitis is scarce. CONCLUSIONS: It was observed that mechanical non-surgical therapy could be effective in the treatment of peri-implant mucositis lesions. Furthermore, the adjunctive use of antimicrobial mouth rinses enhanced the outcome of mechanical therapy of such mucositis lesions. In peri-implantitis lesions non-surgical therapy was not found to be effective. Adjunctive chlorhexidine application had only limited effects on clinical and microbiological parameters. However, adjunctive local or systemic antibiotics were shown to reduce bleeding on probing and probing depths. Minor beneficial effects of laser therapy on peri-implantitis have been shown; this approach needs to be further evaluated. There is a need for randomized-controlled studies evaluating treatment models of non-surgical therapy of peri-implant mucositis and peri-implantitis.

Ein Review, welches die Wirksamkeit von Mundspüllösungen bei Perimukositiden in Verbindung zu mechanischer Reinigung hervorhebt


Mechanical and repeated antimicrobial therapy using a local drug delivery system in the treatment of peri-implantitis: a randomized clinical trial.

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Abstract

BACKGROUND: Peri-implantitis is an inflammatory process caused by microorganisms affecting the tissues around an osseointegrated implant in function, resulting in a loss of supporting bone. Limited data exist regarding the treatment of peri-implantitis. The aim of this study was to assess the clinical and microbiologic outcome of repeated local administration of minocycline microspheres, 1 mg, in cases of peri-implantitis. METHODS: Thirty-two subjects with at least one implant with a probing depth > or =4 mm combined with bleeding and/or exudate on probing and the presence of putative pathogenic bacteria were included in the study. At baseline, subjects were randomly assigned to receive local minocycline microspheres (17 subjects and 57 implants) or chlorhexidine gel (15 subjects and 38 implants) following debridement. Treatments were performed on three occasions: baseline and days 30 and 90. Follow-up examinations were conducted at 10 days and at 1, 3, 6, 9, and 12 months. RESULTS: The use of minocycline resulted in significant improvements in probing depths compared to chlorhexidine at days 30, 90, and 180 (P = 0.5, P = 0.01, and P = 0.04, respectively). For the deepest sites of the minocycline-treated implants, the mean probing depth reduction was 0.6 mm at 12 months. Regarding bleeding on probing, significant differences between groups, based on all four sites at the implants, were found at days 30, 90, 180, 270, and 360. Both treatments resulted in a marked reduction in the indicator bacteria. CONCLUSIONS: The use of a repeated local antibiotic as an adjunct to the mechanical treatment of peri-implantitis lesions
demonstrated improvements in probing depths that were significantly different from controls and were sustained for 6 months. The adjunctive use of minocycline microspheres is beneficial in the treatment of peri-implant lesions, but the treatment may have to be repeated.


Clinical response to 2 different therapeutic regimens to treat peri-implant mucositis.

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**Abstract**

BACKGROUND: Maintenance of implants is imperative, since implants, like teeth, are susceptible to bacterial plaque accumulation and calculus formation, and thus at risk of developing peri-implant mucositis or peri-implantitis. METHODS: This study determined the clinical effects of chlorhexidine treatment on peri-implant mucositis at 1 and 3 months as determined by the modified plaque index, the modified sulcus bleeding index, clinical attachment level, and probing depth. Through DNA probes, the effect of chlorhexidine on the microbial flora of mucositic lesions was also evaluated. The population consisted of 16 adult male and female subjects (ages 34 to 76). After the baseline examination, the subjects received a dental prophylaxis and were randomly assigned to the test or control group. Subjects in the test group received antiseptic therapy (Treatment 1), which included mechanical cleansing and oral hygiene instructions supplemented by the local irrigation with chlorhexidine 0.12%, using a plastic syringe, and the topical application of a 0.12% chlorhexidine gel. The subjects in the control group received only mechanical cleansing and oral hygiene instructions (Treatment 2). RESULTS: Both modalities of treatment were effective in reducing peri-implant mucositis and probing depths, and improving attachment levels. The trends suggested that mechanical cleansing alone may be sufficient to treat and reduce peri-implant mucositis at 1 and 3 months after treatment. The addition of chlorhexidine to mechanical debridement did not enhance the results as compared to mechanical debridement alone. CONCLUSIONS: Mechanical debridement as well as mechanical debridement supplemented with chlorhexidine can be beneficial to patients with peri-implant mucositis. Both treatments resulted in a reduction of plaque, inflammation, and probing depth, as well as a gain in clinical attachment level, and are effective in suppressing or eradicating the pathogenic bacteria often associated with peri-implant inflammation.

**Peri-implantitis in partially edentulous patients: association with inadequate plaque control**

Giovanni Serino, Christer Ström

**Abstract**
Objective: The aim of the present study was to describe some clinical periodontal features of partially edentulous patients referred for the treatment of peri-implantitis.

Material and methods: The 23 subjects involved in this study were selected from consecutive patients referred to the department of Periodontology So¨ dra A¨ lvsborgs Hospital, Bora° s, Sweden, for treatment of peri-implantitis during 2006. The patients had clinical signs of peri-implantitis around one or more dental implants (i.e. 6mm pockets, bleeding on pockets and/or pus and radiographic images of bone loss to 3 threads of the implants) and remaining teeth in the same and/or opposite jaw. The following clinical variables were recorded: Plaque Index (PI), Gingival Bleeding Index (GBI) Probing Pocket Depth (PPD), Access/capability to oral hygiene at implant site (yes/no), Function Time. The patients were categorized in the following sub-groups: Periodontitis/No periodontitis, Bone loss/No bone loss at teeth, Smoker/Non-smokers.

Results: Out of the 23 patients, the majority (13) had minimal bone loss at teeth and no current periodontitis; 5 had bone loss at teeth exceeding 1/3 of the length of the root but not current periodontitis and only 5 had current periodontitis. Six patients were smokers (i.e. smoking more than 10 cig/day). The site level analysis showed that only 17 (6%) of the 281 teeth present had 1 pocket of 6mm, compared to 58 (53%) of the total 109 implants (28 ITIs and 81 Bra°nemarks); 74% of the implants had no accessibility to proper oral hygiene. High proportion of implants with diagnosis of peri-implantitis were associated with no accessibility/capability for appropriate oral hygiene measures, while accessibility/capability was rarely associated with peri-implantitis. Indeed 48% of the implants presenting peri-implantitis were those with no accessibility/capability for proper oral hygiene (65% positive predict value) with respect to 4% of the implants with accessibility/capability (82% negative predict value).

Conclusion: The results of the study indicate that local factors such as accessibility for oral hygiene at the implant sites seems to be related to the presence or absence of periimplantitis. Peri-implantitis was a frequent finding in subjects having signs of minimal loss of supporting bone around the remaining natural dentition and no signs of presence of periodontitis (i.e. presence of periodontal pockets of 6mm at natural teeth). Only 6 of the examined subjects were smokers. In view of these results we should like to stress the importance of giving proper oral hygiene instructions to the patients who are rehabilitated with dental implant and of proper prosthetic constructions that allow accessibility for oral hygiene around implants.

→ In diesem Artikel wird generell nur beschrieben, dass adäquate Mundhygiene Instruktionen gegeben werden müssen und die Prothetik, diese auch zulassen müssen. Andernfalls drohe die Periimplantitis als Folge.

Adjunctive local antibiotic therapy in the treatment of peri-implantitis II: clinical and radiographic outcomes

Giovanni E. Salvi, G. Rutger Persson, Lisa J. A. Heitz-Mayfield, Marc Frei, Niklaus P. Lang

Abstract:

Aim: To monitor over 12 months clinical and radiographic changes occurring after adjunctive local delivery of minocycline microspheres for the treatment of peri-implantitis.
Material and methods: In 25 partially edentulous subjects, 31 implants diagnosed with peri-implantitis were treated. Three weeks after oral hygiene instruction, mechanical debridement and local antiseptic cleansing using 0.2% chlorhexidine gel, baseline (Day 0) parameters were recorded. Minocycline microspheres (Arestins) were locally delivered to each implant site with bone loss and a probing pocket depth (PPD) 5mm. Rescue therapy with Arestins was allowed at Days 180 and 270 at any site exhibiting an increase in PPD 2mm from the previous visit. The following clinical parameters were recorded at four sites/implant at Day 0, 10, 30, 60, 90, 180, 270 and 360: PPD, clinical attachment level (CAL), bleeding on probing (BOP) and plaque index (PlI).

Results: Six implants in six subjects were either rescued or exited because of persisting active peri-implantitis. Successful implants showed a statistically significant reduction in both PPD and percentage of sites with BOP between baseline and Day 360 (Po0.05). At mesial implant sites, the mean PPD reduction amounted to 1.6mm (95% CI: 0.9–2.2mm, Po0.001) and was accompanied by a statistically significant reduction of the BOP value (Po0.001). Binary regression analysis showed that the clinical parameters and smoking history could not discriminate between successfully treated and rescued or exited implants at any observation time point.

Conclusion: Non-surgical mechanical treatment of peri-implantitis lesions with adjunctive local delivery of microencapsulated minocycline led to positive effects on clinical parameters up to 12 months.

⇒ In dieser Studie zeigten sich positive Ergebnisse bei der Verwendung von lokal angewendetem Minocyklin (Arestin) an von Periimplantitis betroffenen Implantaten