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Oxidative stress and periodontal disease in diabetic patients: a 3-month pilot study

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Abstract

Aim: Oxidative stress is involved in both Periodontal Disease (PD) and Diabetes Mellitus (DM). The present study aimed to evaluate the oxidative balance in diabetic

patients diagnosed with PD before and after non-surgical periodontal treatment.

Materials and methods: Sixty patients were divided into three groups all receiving non-surgical periodontal treatment plus either chlorhexidine,

ozone-therapy or antioxidant mouth-rinse. Probing depth (PPD), Percentage Plaque Index (%PI) and Percentage Bleeding on Probing (%BoP) were

recorded. Free-radicals (dROMs), plasmatic antioxidants (PAT), salivary antioxidants (SAT) and glycated hemoglobin (HbA1c) were measured.

Results: Mean PPD at baseline was 3.14 mm. Mean PPD three months after was 2.05 mm. The overall %PI at baseline was 55% and %BOP 76%. Three months after

treatment %PI was 34% and %BoP was 64%. The longitudinal analysis did not show differences between groups. Mean dROMs at baseline was 353 U. Carr (*oxidative*

stress) and decreased after three months reaching 295 U. Carr (*normal*). SAT was 2083 U. Carr at baseline (*inflammation*) and decreased to 1337 U. Carr (*ideal*). The

longitudinal analysis did not show differences between groups. Mean HbA1c at baseline was 6.92% and decreased significantly to 6.63% three months after treatment.

Conclusion: Based on the results of the present study, oxidative stress should be further investigated as a potential modulator of the clinical course of both DM and PD.

Key words: *periodontal disease, oxidative stress, salivary antioxidant capacity*

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Morphological and chemical characteristics of different titanium surfaces treated by bicarbonate and glycine powder air abrasive systems.

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Author information

Abstract

OBJECTIVES:

This in vitro study investigated possible morphological and chemical changes induced by glycine or sodium bicarbonate powder air polishing on machined and acid-etched titanium surfaces.

MATERIALS AND METHODS:

The glycine powder (granulometry <65 µm) and sodium bicarbonate powder (granulometry <150 µm) were applied on 2 machined healing abutments and on 2 acid-etched healing abutments. The samples were characterized by scanning electron microscopy coupled with energy dispersive x-ray spectroscopy. The analyses were performed at different steps: (1) as received, right after opening the abutment packaging; (2) after 20 minutes air exposure; (3) after aging in artificial saliva; (4) after glycine or sodium bicarbonate powder air polishing for 5 seconds; (5) after repetition of steps 3 and 4 with longer time of polishing (20 seconds).

CONCLUSIONS:

Air polishing using glycine and sodium bicarbonate powder seemed to be safe for professional oral hygiene of titanium dental implants, although acid-etched abutments and abutments treated with bicarbonate harbored more salts. This might indicate a greater plaque accumulation in a clinical situation. However, this result has to be investigated in vivo to understand its clinical relevance.

Effectiveness of tips for delicate micro-ultrasonic root planing comparing to tips for traditional ultrasonic root planing.

Effectiveness of tips for delicate micro-ultrasonic root planing comparing to tips for traditional ultrasonic root planing.

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Author information

Abstract

AIM:

The present study wants to evaluate the effectiveness in the improvement of several periodontal indices, such as probing pocket depth, bleeding on probing and plaque index, and the patient subjective preference to the treatment of root planing with tips for delicate -micro ultrasonic therapy comparing to traditional ones.

METHODS:

Thirty patients were selected for our randomized split mouth study; in each patient two quadrants (test) were treated with tips for delicate micro-ultrasonic root planing, and two quadrants (control) with tips for traditional ultrasonic root planing. Probing pocket depth, bleeding on probing and plaque index were collected at baseline, after six weeks and after six months. Patients were asked to assess the subjective preference of the type of treatment with Visual Analogue Scale (Vas) especially designed and immediately administered after the treatment.

RESULTS:

Probing pocket depth and plaque index had a parallel improvement in both groups, while the bleeding on probing improved significantly in test group. The majority of patients (23 to 30, 76,6%) has expressed preference with VAS for the treatment with new tips.

CONCLUSIONS:

The new tips created for periodontal maintaining can be really advantageous in terms of reduction of plaque and bleeding indexes; the main point in favor of these tips is the reduction of the discomfort for the patient. Finally this approach tends to be less time consuming than a manual instrumentation method.

KEYWORDS:

cementum; periodontal disease; root surfaces; ultrasonic instrumentation