

A comparative study with an Anti Discoloration System in periodontal patients with orthodontic treatment.

Chlorhexidine with an
Anti Discoloration System

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SUMMARY

Object of the study:

The object of this study is the evaluation of a chlorhexidine- and ADS-based toothpaste used by ortho-periodontal patients treated with chemotherapy either with CHX alone or CHX and ADS.

The study was carried out in double blind.

Materials and methods:

45 patients undergoing non-surgical periodontal therapy were chosen.

The following periodontal indexes were used: plaque (PI), gingival (GBI) and staining (GMSI).

All patients (considered as controls) used the Curasept 0.12% toothpaste during chemotherapy, using Bottle A (0.20%CHX). After a 14-day hiatus all patients (considered as test group) were again subjected to the same research, only this time using Bottle B (CHX and ADS), with a 21-day follow up.

Results:

no significantly different data were registered in the two research trials.

Conclusions:

the Chlorhexidine toothpaste with ADS showed considerable efficacy in inhibiting staining, plaque and inflammation formation in patients treated with 0.20% Chlorhexidine alone. Moreover, this toothpaste evidenced enhanced inhibitory results in terms of the periodontal indexes considered, in patients treated with Chlorhexidine and ADS.

INTRODUCTION

A poorly planned orthodontic treatment in periodontal patients can certainly contribute to the further destruction of the periodontal tissues.

In particular, the combination of inflammation and orthodontic treatment can lead to a much quicker destruction than what would happen in the presence of inflammation alone.

(1) However, if the treatment is carried out correctly, it is possible to achieve extensive dental movements in adults with reduced, but healthy, peridontium, without further periodontal deterioration (2).

The key element in the orthodontic treatment of adult patients suffering from a periodontal pathology is the elimination or at least reduction of plaque accumulation and gingival inflammation.

This implies great emphasis on oral hygiene education, on braces construction and regular check-ups during the whole treatment.

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In order to oppose the natural tendency of braces to favour plaque accumulation on dental surfaces, it would be best to try and adopt simple braces and mechanisms, avoiding hooks, elastic bands and excess trimmings at the basis of the brackets. A recent study using SEM showed the accumulation of mucous bacterial plaque on the bracket-tooth interface (3).

During the treatment period, professional hygiene procedures should be carried out on a quarterly basis, or after regular check-ups at 6- or 12-month intervals, according to the situation.

If efforts to maintain a good oral hygiene are unsuccessful, the orthodontic treatment should be interrupted.

Orthodontic therapy requires long term co-operation between patient, orthodontist and dental hygienist, and can and must be preceded by a phase of deep care of the oral cavity, which the patient must undergo voluntarily: the carrying out of conservative, extractive, endodontic or surgical and/or non surgical periodontal therapy treatments is the essential pre-requisite for an orthodontic therapy that can reliably promise some measure of success.

(4) It is essential for the patient to be adequately motivated and perfectly aware of the goals to be reached, of the efforts necessary to get there and of the essential role of his or her active participation.

Patients are rarely able to eliminate plaque, so as to allow the

maintenance of satisfying oral hygiene standards for long periods of time.

This is why for some time now efforts have been dedicated to the creation of chemical or pharmacological means, in the form of mouthwashes and toothpastes, that can be of help in controlling supragingival plaque.

Chlorhexidine turned out to be the most interesting solution, and it certainly engendered considerable hope of finally achieving chemical control of plaque.

(5) Therefore, the yellow-brown staining of teeth is the most common side effect of chlorhexidine.

Recent studies have introduced an innovative formula, that preserves whiteness: the Anti Discoloration System (ADS).

It is called a system, because there are two active substances that synergistically interfere with the two mechanisms of pigmentation.

A recent study demonstrated the effectiveness of chlorhexidine + ADS (Curasept) versus 0,20% chlorhexidine alone in inhibiting plaque, gingival inflammation and extrinsic pigmentation.(6)

Materials and methods:

Following these results, obtained in our dental hygiene and orthognathic laboratories at the "Federico II" University in Naples, it was decided to try and evaluate the effectiveness of a toothpaste with ADS in patients undergoing chemotherapy with a 0.20% chlorhexidine-based mouthwash vs therapy with a 0.20% chlorhexidine - and ADS - based mouthwash (CURASEPT) in the formation of extrinsic pigmentation, bacterial plaque accumulation and gingival inflammation.

The study was double blinded and the research was carried out according to the principles of the Declaration of Helsinki on 40 voluntary subjects aged between 24 and 53, 18 females and 22 males, on the basis of the following criteria:

Inclusion Criteria:

- Presence of 24 teeth in the oral cavity;
- Presence of a periodontal pathology;
- Presence of Probing Pocket Depth (PPD) < 6mm at an interproximal level.

Exclusion criteria:

- Presence of systemic pathologies;
- Known allergy to chlorhexidine;
- Antibiotic therapy administered at least three months before the beginning of the study;
- Instructions for home oral hygiene.

Patients underwent periodontal examination, when the following measurements were made at four sites (M, V, D, L) for all teeth:

- PI: plaque index (Silness & Loe 1964) (7);
- GBI: Gingival Bleeding Index (Van der Weijdent 1994).

(8) GMSI: Gingival Modification of the Stain Index (Lobene 1968).

(9) In this research the defined areas were the interproximal, vestibular and lingual ones.

Before the beginning of the study, all patients were subjected to non-surgical, mechanical periodontal therapy consisting in two scaling sessions (supra- and subgingival calculus and plaque removal) using ultrasound ablaters (Piezon, EMS), and two root planing sessions, using Gracey curettes n° 7/8, n°11/12 and n°13/14.

At the end of the treatment, dental surfaces were polished using prophylaxis paste (Have cleanic), with a nylon brush mounted on a micro engine handpiece.

Each subject received 200 ml two mouthwash bottles (Bottle A) and a graduated beaker; the subjects were asked to rinse out their mouths for one minute twice a day (in the morning and in the evening) with 10 ml undiluted product, for 15 days. Moreover, the subjects received also one "Curasept" toothgel tube and one "Curasept" medium toothbrush.

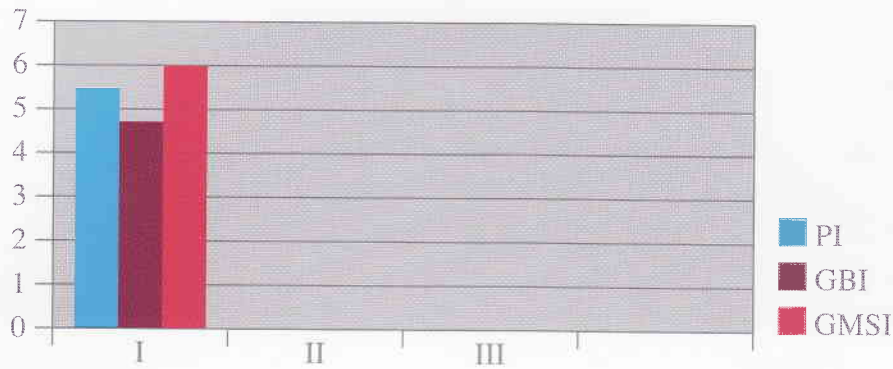
The research entailed a 15-day follow up for all patients (considered as control group).

RESULTS

After 15 days, all patients were subjected to the measurement of the abovementioned indexes.

Finally, at the end of the follow-up, the following mean indexes were calculated:

- mean plaque index: $5.56\% \pm 0.05$;
- mean gingival index: $4.76\% \pm 0.12$;
- staining index : $5.98\% \pm 1.83$.

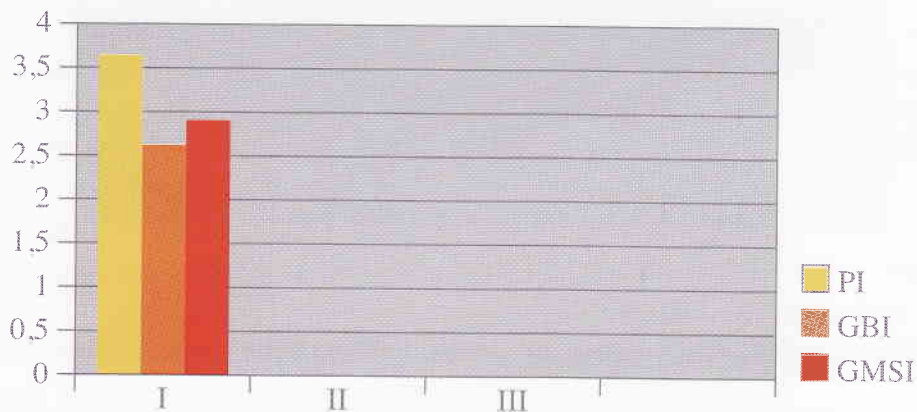


After a 14-day hiatus, patients were once again subjected to a professional mechanical hygiene treatment, in order to bring periodontal indexes to zero.

They were given the second mouthwash bottle (Bottle B) together with the "Curasept" toothpaste and toothbrush. At the end of the 15 days of follow-up, further periodontal indexes were measured, and the mean index for the subject was calculated:

- mean plaque index: $3.67\% \pm 0.07$;
- mean gingival index: $2.60\% \pm 0.04$;
- staining index: $2.89\% \pm 0.06$.

At the end of the clinical trial, results were illustrated by the following histogram.



DISCUSSION AND CONCLUSIONS

The Control Group that had been using 0.20 CHX and an ADS-containing toothpaste showed excellent results in terms of extrinsic stain formation and plaque and gingival inflammation indexes that were slightly higher than those of the Test Group.

Also in the Test Group, data, as derived from the histogram,

were statistically significant both in terms of reduction of the plaque and gingival inflammation indexes and of extrinsic stain formation.

These results were obtained thanks to the use of the complete CURASEPT product line containing ADS.

CLINICAL CASES

Fig 1 - Control Group Patient after CHX + ADS toothpaste



Fig . 2 - Control Group Patient after CHX + ADS toothpaste



Fig 3 - Test Group Patient after Curasept + ADS toothpaste



Fig. 4 - Test Group Patient after Curasept + ADS toothpaste



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