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# Full-mouth disinfection versus one-stage full-mouth mechanical debridement in the management of Adult Periodontitis - Clinical results

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## INTRODUCTION

- The novel approach of full-mouth disinfection suggested by Quirynen and co-workers[1] included a full-mouth mechanical debridement within 24 hours along with the use of Chlorhexidine (CHX).
- This approach reduces the chance of reinfection of treated sites by bacteria from untreated sites, as may occur in conventional quadrant-wise periodontal therapy. Additional benefits were noted when compared to quadrant-wise mechanical treatment.[1]
- A clinical study to evaluate the effects of full-mouth disinfection compared to a one-stage mechanical debridement of all teeth would help to elucidate the relative role of adjunctive CHX when combined with one-stage mechanical debridement.

## AIM

To determine whether full-mouth disinfection has any additional clinical benefits over a one-stage mechanical debridement of all teeth without adjunctive Chlorhexidine.

## MATERIALS AND METHODS

### Study Design

Randomised, single-blinded, controlled, parallel clinical study

### Subjects

32 systemically healthy, non-smoking subjects aged 35-60 years old (mean 46.3 ± 7.5 yrs)

### Experimental protocol

- Random allocation into a test group (n=16) and a control group (n=16).
- The control group received a mechanical debridement in one visit which included scaling to remove detectable calculus and root planing of pocket sites of all remaining teeth with no adjunctive CHX use
- The test group underwent full-mouth disinfection (modified version of the original protocol by Quirynen *et al.*1995).This included:
- Oral hygiene instructions
- Brushing of the tongue with 1% CHX gel (Corsodyl®) for 1 minute
- Full-mouth subgingival instrumentation with 0.2% CHX mouth-wash (Corsodyl®) as irrigant in the ultrasonic scaler (diluted at 1:1 with water)
- Rinsing with 0.2% CHX mouthwash for one minute
- Continued home use of CHX mouthwash and gel for one month


### Clinical parameters

At baseline and month 1, 3 and 6 following treatment by an examiner who was blinded to the treatment.

- Plaque (PI%) - Present / Absent
- Bleeding on probing (BOP%)# - Present / Absent
- Probing Pocket Depth (PPD)#
- Probing Attachment Level (PAL)#

# - Florida Probe®

### Statistical analysis

Comparisons within groups and between groups were performed at subject level by t-tests and ANOVA for repeated measures using StatView® Version 4.53 (SAS Institute, Cary, N.C.,U.S.A.)

## RESULTS

- At baseline, no significant difference was noted between test and control groups. Both groups showed significant improvements in all clinical parameters at post-treatment evaluations compared to the baseline (Figure 1). The test group showed greater reductions in PI%, BOP% and full-mouth mean probing depths (PD) after 1 month.

At three and six months there were no statistically significant differences between the two groups regarding the full-mouth probing depths and probing attachment level changes (Table 1).

- When the sites with an initial probing depth ≥ 4.6 mm were considered, no significant difference was noted between groups for the pocket probing depth (PPD) and attachment level changes (pPAL) (Figure 2).

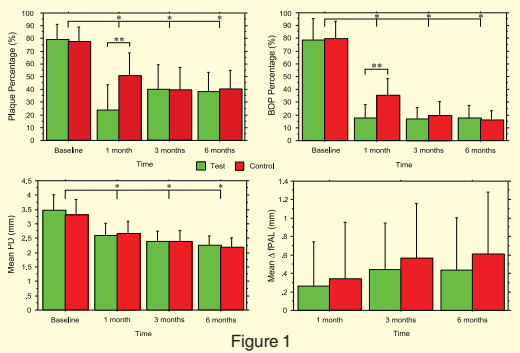


Figure 1

- No difference between groups was noted when the data was separated according to tooth type or initial pocket type.
- In the deep pockets, there were probing depth reductions of 3.9 mm and 3.2 mm in test and control groups respectively while the reductions in moderate pockets were 2.7 mm and 2.3 mm.

Table 1: Clinical parameters in test and control groups

| | Baseline | | 1 month | | 3 months | | 6 months | |
|---|---|---|---|---|---|---|---|---|
| | Test | Control | Test | Control | Test | Control | Test | Control |
| PI% | 79.8 (12) | 76.9 (11) | 24.8 (19) | 50.6 (17) | 40.6 (19) | 39 (18) | 37.8 (2) | 40.2 (2) |
| BOP% | 77.5 (16) | 79.3 (13) | 19 (11) | 34.7 (13) | 17.3 (9) | 19.4 (11) | 17.3 (9) | 15.8 (7) |
| PD (mm) | 3.45 (0.5) | 3.29 (0.5) | 2.58 (0.4) | 2.64 (0.4) | 2.37 (0.3) | 2.37 (0.4) | 2.22 (0.3) | 2.15 (0.3) |
| ΔPD (mm) | - | - | 0.85 (0.3) | 0.65 (0.2) | 1.06 (0.4) | 0.92 (0.4) | 1.23 (0.5) | 1.14 (0.4) |
| PPD (mm) | 5.81 (0.5) | 5.76 (0.4) | 3.69 (0.6) | 3.85 (0.8) | 3.36 (0.5) | 3.52 (0.7) | 3.1 (0.6) | 3.2 (0.8) |
| ΔPPD(mm) | - | - | 2.12 (0.6) | 1.91 (0.7) | 2.45 (0.4) | 2.24 (0.6) | 2.71 (0.5) | 2.52 (0.7) |
| ΔPAL (mm) | - | - | 0.26 (0.5) | 0.34 (0.6) | 0.44 (0.5) | 0.56 (0.6) | 0.43 (0.6) | 0.61 (0.7) |
| ΔpPAL (mm) | - | - | 0.37 (0.8) | 0.3 (0.9) | 0.62 (0.7) | 0.66 (0.9) | 0.63 (0.9) | 0.76 (0.9) |

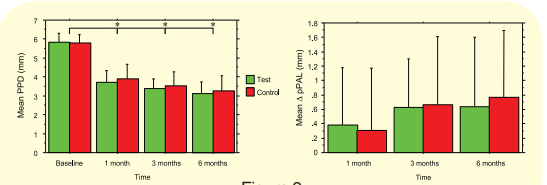


Figure 2

## DISCUSSION

- In the present study, both groups experienced significant clinical improvements.This implies that the main effect of full-mouth disinfection may be from the one-stage mechanical debridement.
- Improvement in plaque levels and bleeding on probing levels at one month were the only additional benefits observed in the full-mouth disinfection group. The use of CHX during this one month following debridement may explain the better response in the test group in terms of PI and BOP.
- At six months, the groups had similar probing depth reductions and probing attachment levels indicating that the CHX had little or no effect in the treatment protocol. The reinfection from other intra-oral niches may not be that significant.
- Results of the present study agree with a recent study by Quirynen *et al.* 2000.[2] The authors also failed to find any significant benefit from the use of CHX in combination with the one-stage mechanical debridement.

## CONCLUSION

Full-mouth disinfection may yield similar clinical effects as a one stage mechanical debridement in adult periodontitis patients upto six months.

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## References

1.Quirynen *et al.* (1995) *Journal of Dental Research* **74**(8), 1459-1467.
2.Quirynen *et al.* (2000) *Journal of Clinical Periodontology* ***27****, 578-589.*