<table>
<thead>
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<th><strong>Title</strong></th>
<th>Full-mouth disinfection versus one-stage mechanical debridement in the management of adult periodontitis - microbiological morphotype monitoring</th>
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<tr>
<td><strong>Author(s)</strong></td>
<td>Corbet, EF; Koshy, G; Leung, WK; Jin, LJ</td>
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**INTRODUCTION**

- Full-mouth disinfection suggested by Quirynen and co-workers included a full-mouth mechanical debridement within 24 hours along with the use of topically and locally delivered Chlorhexidine (CHX).
- This approach aims to eliminate/reduce periodontopathogens colonising other intra-oral niches in addition to those in periodontal pockets. Additional benefits were noted when compared to quadrant-wise mechanical treatment.1

**MATERIALS AND METHODS**

**Study Design**

- Randomised, single-blinded, controlled, parallel clinical study
- 32 systemically healthy, non-smoking subjects aged 35-60 years old (mean 46.3 ± 7.5 yrs).
- Random allocation into test (n=16) and control groups (n=16).
- The control group received mechanical debridement in one visit and transported to the laboratory for processing.
- At baseline, one month, three months and six months, a blinded examiner recorded Plaque, Bleeding on probing, Probing depths and Probing attachment levels.

**AIM**

To determine whether full-mouth disinfection has any additional microbiological benefits, as determined by microbiological morphotype monitoring, over a one-stage mechanical debridement of all teeth without adjunctive CHX.

**Clinical parameters**

- At baseline, one month, three months and six months, a blinded examiner recorded Plaque, Bleeding on probing, Probing depths and Probing attachment levels.
- Relative proportions of each microbiological form were determined under a light microscope. At a magnification of X1000, single cells were classified according to the morphology as coccus, straight rod, curved rod, fusiform, filament or spirochaete (Listgarten & Hellden 1978).2

**Statistical analysis**

Comparisons within 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.) for differential counts of smears, spirochaetes and curved rods which were grouped together for evaluation. The mean proportions of spirochaetes and curved rods and their reduction following treatment were compared in both groups. The change in the proportion of cocci was also noted.

**DISCUSSION**

- In the present study, both test and control groups had significant microbiological improvements following treatment. There was a significant decrease in pathogenic bacterial load after one stage mechanical debridement regardless of the use of CHX.
- Differential counts of plaque smears were used to monitor the changes in the microbial load due to the treatment, as this method is simple, easy, inexpensive and gives an overview of the microbial flora in terms of morphotypes present in the subgingival plaque.
- The silver stain is a simple, inexpensive and rapid method for differential counting of subgingival plaque flora. There is no limitation of time in counting silver stained samples, a permanent mount can be obtained and no special microscope is required.
- A shift from pathogenic morphotypes to beneficial species was noted. Both treatments reduced the microbial load indicating that CHX in the treatment protocol had very little or no effect. In a similar study, Quirynen et al. (2000)3 also failed to show any significant differences in the microbiological parameters when comparing full-mouth disinfection with a full-mouth scaling and root planing.

**CONCLUSION**

Full-mouth disinfection confers no additional microbiological benefits over a one-stage mechanical debridement in adult periodontitis patients.

**Acknowledgements**

Many thanks to Dr D.H.Lee, Ms F. Kwok, Ms S. Yeung and Ms May Wong for their help in the study.

**References**


**RESULTS**

For differential counts of smears, spirochaetes and curved rods were grouped together for evaluation. The mean proportions of spirochaetes and curved rods and their reduction following treatment were compared in both groups. The change in the proportion of cocci was also noted.

Mean proportion of cocci (Cocci%) was a concurrent rise in the mean proportion of cocci in both groups. The rise was statistically significant when compared to baseline (paired t-test, p<0.001)(Figure 2).

<table>
<thead>
<tr>
<th>Test</th>
<th>Control</th>
<th>Test</th>
<th>Control</th>
<th>Test</th>
<th>Control</th>
<th>Test</th>
<th>Control</th>
<th>Test</th>
<th>Control</th>
</tr>
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<tr>
<td>Baseline</td>
<td>19.3</td>
<td>19.1</td>
<td>79</td>
<td>71.3</td>
<td>88</td>
<td>85.4</td>
<td>80.5</td>
<td>80.1</td>
<td>81.5</td>
</tr>
<tr>
<td>1 month</td>
<td>43.7</td>
<td>38.5</td>
<td>51.2</td>
<td>52.4</td>
<td>43</td>
<td>45.4</td>
<td>40.7</td>
<td>41.9</td>
<td>40.8</td>
</tr>
<tr>
<td>3 months</td>
<td>58.9</td>
<td>52.2</td>
<td>67.9</td>
<td>66.3</td>
<td>60.8</td>
<td>61</td>
<td>60.2</td>
<td>61.0</td>
<td>60.3</td>
</tr>
<tr>
<td>6 months</td>
<td>73.9</td>
<td>70.4</td>
<td>80.8</td>
<td>80.4</td>
<td>82.0</td>
<td>82.2</td>
<td>81.4</td>
<td>81.5</td>
<td>81.6</td>
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- Microbiological monitoring:
  - At baseline, one month, three months and six months, subgingival plaque samples were collected from the deepest pockets in each quadrant and pooled for each subject.
  - The site was isolated with sterile cotton rolls and supragingival plaque was removed gently using sterile cotton pellets. Subgingival plaque samples were collected by means of one medium sized sterile paper point inserted into the depth of the pocket and kept in place for 10 seconds.
  - The samples were transferred into a sterile screw capped vial containing 0.5 ml of sterilised phosphate buffered solution (PBS) and transported to the laboratory for processing.
  - All samples were vortexed for 1 minute and a drop of suspension from the vortexed solution was smeared onto a clean microscopic slide, air dried and silver stained (Coffey et al. 1995)².

- Silver stained plaque sample:
  - The silver stain is a simple, inexpensive and rapid method for differential counting of subgingival plaque flora. There is no limitation of time in counting silver stained samples, a permanent mount can be obtained and no special microscope is required.

- Statistical analysis:

  - There were no statistically significant differences between the groups regarding the proportions of spirochaetes and cocci at any time point of the study (Table 1).

- DISCUSSION:

  - In the present study, both test and control groups had significant microbiological improvements following treatment. There was a significant decrease in pathogenic bacterial load after one stage mechanical debridement regardless of the use of CHX.

  - Differential counts of plaque smears were used to monitor the changes in the microbial load due to the treatment, as this method is simple, easy, inexpensive and gives an overview of the microbial flora in terms of morphotypes present in the subgingival plaque.

  - The silver stain is a simple, inexpensive and rapid method for differential counting of subgingival plaque flora. There is no limitation of time in counting silver stained samples, a permanent mount can be obtained and no special microscope is required.

  - A shift from pathogenic morphotypes to beneficial species was noted. Both treatments reduced the microbial load indicating that CHX in the treatment protocol had very little or no effect. In a similar study, Quirynen et al. (2000)³ also failed to show any significant differences in the microbiological parameters when comparing full-mouth disinfection with a full-mouth scaling and root planing.

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**References**