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Results of Limited Initial Periodontal Therapy in Smokers and Nonsmokers  
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The goal of this investigation was to compare the response of a single episode of subgingival scaling and root planing in smokers (S) and nonsmokers (NS) participating in a phase III clinical study over a 9 month period. Eighty-seven adult patients [54 (NS) and 33 (S)] with moderate to advanced periodontitis were treated with one hour full mouth subgingival scaling and root planing, with no maintenance recalls during the 9 month study. Clinical parameters assessed at target sites included probing depth (PD), probing attachment level (PAL), bleeding on probing (BOP), gingival index (GI) and plaque index (PI). Data was collected at baseline (BS), 3, 6 and 9 months (3 mo, 6 mo, 9 mo). Baseline PD for NS was  $5.46 \pm .46$  mm and for S  $5.70 \pm .66$  mm. Data analysis (*t* - test) revealed both NS and S had a statistically significant decrease ( $p < 0.05$ ) in PD at three months which was maintained throughout the study. At 9 mo NS maintained a mean decrease in PD of .60 mm and S a mean decrease of .65 mm. Both S and NS displayed a significant gain ( $p < 0.05$ ) in PAL after initial therapy when compared to BS readings. At 9 mo the mean gain in PAL for NS was .47 mm and .59 mm for S. PI scores remained consistent for S and NS for the duration of the study. The GI at BS was significantly ( $p < 0.05$ ) lower in S ( $1.32 \pm .45$ ) than NS ( $1.45 \pm .40$ ). By 9 mo only the NS GI decreased significantly compared to BS ( $1.26 \pm .37$ ). BOP was a prerequisite for target sites at BS. At 9 mo both S ( $.67 \pm .39$ ) and NS ( $.78 \pm .30$ ) had a significant decrease in BOP compared to BS. At 9 mo there were no significant differences between S and NS comparing PD, PAL, PI, BOP and GI. The data have shown that S and NS responded similarly after nine months to the limited amount of initial therapy provided. This study was supported by Perio Products, Ltd.

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12 month effects of scaling and root planing on clinical and microbiological parameters.  
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The purpose of the present investigation was to examine the effect of SRP on clinical and microbiological parameters in 61 periodontitis subjects (mean age  $47 \pm 11$  years). Subjects were monitored clinically and microbiologically prior to and 3, 6, 9 and 12 months post SRP. Clinical assessments of plaque, redness, suppuration, BOP, pocket depth (PD) and attachment level (AL) were made at 6 sites per tooth. AL measurements were repeated at each visit and differences in means between visits used to assess change. Subgingival plaque samples were taken from the mesial aspect of each tooth in all subjects at each visit. The presence and levels of 40 subgingival taxa were determined in 5,995 plaque samples using checkerboard DNA-DNA hybridization. Each subject received full mouth SRP under local anaesthesia after initial monitoring and maintenance scaling at subsequent visits. Clinical data were averaged within subjects and then averaged across subjects for each visit. % of sites colonized by each species was computed for each subject at each visit. Differences in clinical parameters and prevalence of bacterial species pre and post-therapy were sought using the Quade test. Mean PD (mm  $\pm$  SEM) and [N] at 0, 3, 6, 9 and 12 months were  $5.23 \pm 0.06$  [61];  $3.00 \pm 0.05$  [51];  $2.94 \pm 0.05$  [40];  $2.89 \pm 0.05$  [26]. Mean AL (mm) was  $2.87 \pm 0.14$ ;  $2.76 \pm 0.15$ ;  $2.69 \pm 0.16$  and  $2.80 \pm 0.18$ . In sites with PD  $> 6$  mm at baseline, there was a mean PD reduction of 1.59 mm and AL gain of 0.86 mm at 12 months. BOP and suppuration decreased over time, while plaque and gingival redness did not change significantly. Mean prevalences (ISEM) of *P. gingivalis* declined post therapy from 26.13% to 13.2, 10.2, 13.2 and 18.1% at subsequent visits. Values for *B. forsythia* were 43.4, 27.3, 24.3, 26.4, 29.6% and *T. denticola* 32.13 to 23.2, 21.3, 26.14, 28.6%. *V. parvula*, *A. viscosus*, *S. oralis* and *S. sanguis* showed a continued increase post SRP. Prevalence of *P. intermedia*, *P. nigrescens*, *S. intermedius* and *A. actinomycetemcomitans* were minimally affected by SRP. Clinical effects of SRP were maintained for 12 months. Prevalence of *B. forsythia*, *T. denticola* and *P. gingivalis* were reduced by SRP but slowly increased over time. Supported in part by NIH grant DE-04881.

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Effects of Chlorhexidine (CHX) combined with or without debridement on gingivitis.  
E.F. Corbet\*, J.O.W. Tam, K.Y. Zee, M.C.M. Wong, E.C.M. Lo, A.W. Mombelli and N.P. Lang (Universities of Hong Kong and Berne, Switzerland)

Following earlier demonstration of a therapeutic effect of CHX rinses on untreated gingivitis in subjects with abundant calculus, any additional effect of debridement was to be evaluated. 60 Chinese labourers (mean age 23.4 years) were recruited from a factory in Guangdong province and assigned to one of three groups, matched according to baseline Gingival Index (GI) scores. Group A was assigned to twice daily supervised mouthrinses for 6 days per week using 0.12% CHX. After 3 months a 30-minute debridement/prophylaxis procedure was performed using ultrasonic scalers, following which the subjects continued to use CHX under supervision for another 3 months. Group B rinsed twice daily with a placebo solution for the initial 3 months. After debridement at 3 months Group B was assigned to same CHX mouthrinse regimen as Group A for 3 months. The control, Group C, rinsed twice daily with a placebo solution for 6 months, however after 3 months Group C also received debridement. No attempt was made to alter the subjects existing mechanical plaque control practices. At baseline, at 3 months, prior to debridement, and at 6 months the GI was assessed. While the 3 month therapeutic effects of CHX, were reported previously, this report deals with the GI following the debridement procedure. In Group A a reduction in the mean GI from 1.4 at baseline to 1.0 at 3 months was followed by an additional significant (1-way ANOVA) reduction to 0.6 at 6 months. In Group B the initial increase in mean GI during the placebo rinse period from 1.5 to 1.6 was followed by a significant decrease after debridement and CHX rinsing period to 0.9. In Group C the debridement procedure did not result in a significant reduction (mean GI 1.6 to 1.5). In combination with the therapeutic effect of CHX rinses on gingivitis a time-limited debridement procedure revealed a significant clinical benefit.

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Repopulation of Periodontal Pockets Following Four Treatment Modalities in Humans. J. SHILOAH\*, M.R. PATTERS, J.W. DEAN, P. BLAND, and G. TOLEDO (Dept. of Periodontology, Univ. of Tennessee, College of Dentistry).

The present report analyzed the effects of repopulation of treated pockets by highly pathogenic bacterial species 1 year following randomized therapy in ten patients with adult periodontitis. All patients had at least one tooth in each quadrant that had an inflamed pocket of probing depth  $\geq 5$  mm with probing attachment loss, and harbored at least one of the following three major periodontal pathogens: *Actinobacillus actinomycetemcomitans*, *Porphyromonas gingivalis*, and *Bacteroides forsythia*. The number of target organisms per site was determined pre-operatively, at 1 week and 1, 3, 6 and 12 months post-operatively utilizing DNA probes. The following clinical parameters were measured and recorded pre-operatively and at 1, 3, 6 and 12 months post-treatment: gingival fluid flow, gingival index, plaque index (PI), probing depth, probing attachment level, gingival recession, and bleeding on probing (BOP). One quadrant in each patient was randomly assigned to each one of the following four treatment groups: 1) scaling and root planing, 2) pocket reduction through osseous surgery and apically-positioned flap, 3) modified Widman flap, and 4) modified Widman flap and topical application of saturated citric acid at pH 1 for 3 min. All four treatments were rendered in one appointment using local anesthesia. No post-operative antibiotics were used, but the subjects rinsed with 0.12% chlorhexidine for the first 3 months postoperatively and received a prophylaxis every 3 months. This investigation revealed: 1) 30.0% of the sites were infected by at least one species at both 6 and 12 months postoperatively. 2) These infected sites lost significantly more mean clinical attachment at 12 months ( $1.5 \pm 0.5$  mm compared to a loss of  $0.2 \pm 0.3$  mm for uninfected sites,  $p = 0.017$ ). 3) The infected sites had a significantly greater BOP ( $67 \pm 14\%$  vs.  $25 \pm 8\%$  for uninfected sites at 12 months,  $p = 0.012$ ). 4) The choice of treatment modality did not affect the reinfection rate observed. These results suggest that repopulation by microbial pathogens negatively affects the one-year outcome of periodontal surgical and non-surgical therapy. This study was supported by The University of Tennessee, College of Dentistry, Alumni Endowment Fund.

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EVALUATION OF LONG TERM PERIODONTAL MAINTENANCE THERAPY (PMT) - Alves, Mario E.A.F., Aller, Tracey & Alves, M.C. UIC - COD, CHICAGO

165 charts of COD-maintenance compliant patients (105 women / 60 men) from the general file were used to evaluate PMT. 46 non-compliant patients were selected as control (26 women / 20 men). The criteria for this study were: be 60 years old or more at the time of the evaluation, completed periodontal treatment 10 years ago or more, be a COD patient during this time, receiving maintenance at least once a year, have 8 or more teeth, no periodontal surgery after first treatment, and be healthy. All patients received 10 years ago initial preparation (PI) and, when necessary, surgical therapy (from curettage to periodontal flap with osteotomy). This study compared: 1. Average of Teeth per Patient - present (ATP) (initial-22.4, current-18.8); 2. ATP with 4 mm or > pockets (initial-1.8, current-5.1); 3. ATP which had root caries during this period-4.1; 4. ATP lost during this period-3.6. 46 patients, who received the same periodontal treatment 10 years ago and did not have PMT, were used as control: 1. ATP present (initial-21.8, current-14.7); 2. ATP with 4 mm or > pockets (initial-2.1, current-4.7); 3. ATP which had root caries during this period-6.8; 4. ATP lost during this period-7.1. Conclusions: PMT reduces the average of dental loss in elderly; PMT reduces the average of root caries per tooth per patient; PMT reduces the average number of pockets of 4 mm or > per tooth per patient.

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Longterm results of periodontal supportive therapy in HIV-seropositive patients.  
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The aim of the present study was to investigate the longterm results of periodontal supportive therapy in a group of HIV-seropositive patients. Baseline medical history and the screening of the oral mucosal tissues of 14 male and 4 female patients (mean age of 29.3 years, range 25.3 to 39.8) revealed the following clinical manifestations: Kaposi's sarcoma (1 patient), hairy leukoplakia (5), oral candidiasis (5), Hepatitis A (1) and B (1), aphthous ulcerations (3), Herpes simplex (1), 50% were cigarette smokers (20-60/day). Periodontal classification was based on the most severe diagnosis of at least 4 teeth: conventional gingivitis (5 patients), mild periodontitis (1), HIV-gingivitis (8) and HIV-periodontitis (4). Plaque index (PI) and gingival index (GI) were assessed on four sites, probing pocket depth (PPD) and attachment level (AL) at six sites per tooth. Periodontal therapy and maintenance care consisted of supra- and subgingival removal of plaque and calculus and instruction of oral hygiene. During mechanical removal of debris, pockets were irrigated with a 10% iodine solution. Chlorhexidine as an adjunctive agent was prescribed to 11 patients. Based on individual patient's needs, the mechanical and chemical therapy was repeated. The mean maintenance period, which included visits every three months, was 22.69 months ( $\pm 9.36$ , range 10.98 to 37.43). During this period, a total of 51 supportive therapies (mean 3.64, range 1 to 7) were performed. 8 teeth in 4 patients had to be extracted due to caries and endodontic reasons. The mean PI ( $1.08 \pm 0.78$ ) remained at the same level ( $1.10 \pm 0.49$ ,  $p = 0.73$ , Wilcoxon sign rank test,  $p < 0.05$ ), the mean GI was reduced from 1.60 to 0.49 ( $1.42 \pm 0.40$  ( $p = 0.18$ ), the mean PPD from 2.90 to 2.2 ( $2.76 \pm 0.22$  ( $p = 0.15$ )) and the mean AL ( $3.14 \pm 0.53$ ) remained unchanged ( $3.14 \pm 0.43$ ;  $p = 0.83$ ). None of the differences were statistically significant. However, the reduction of the PI was positively correlated with the reduction of the PD (0.63, Pearson correlation coefficient) and the change of AL (0.67). There was also a positive correlation between the reduction of the GI and the reduction of PD (0.63) and the change of AL (0.70). It is concluded that further attachment loss can be controlled in HIV-seropositive patients, however, oral hygiene and compliance were the key factors. Swiss AIDS Research Foundation # 97012, Clinical Research Foundation (CRF), University of Berne.

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Comparative effects of 2 commercial mouthrinses on plaque regrowth. J MORAN\*, M. ADDY, R. NEWCOMBE (Universities of Bristol and Wales U.K.)

The potential value of mouthrinses in helping to reduce plaque formation is now well accepted. Surprisingly, very few studies have directly compared the efficacy of different commercially available mouthrinses. In this observer blind 4 day plaque regrowth crossover study the efficacy of a triclosan mouthrinse (PLAX) was compared to that of an essential oils mouthrinse (LISTERINE-Coolmint) and two respective placebo rinses. Starting with zero plaque at the commencement of each trial period, 32 volunteers used the allocated rinses as the only means of oral hygiene over 4 days, and on the 5th day returned for measurement of plaque score and area. Analysis of variance and subsequent construction of 95% confidence intervals showed that both active rinses significantly reduced plaque compared to the placebo rinses ( $p < 0.0001$ ). The essential oils rinse produced a plaque reduction of 52% for plaque area and 17% for plaque index compared to its placebo. The triclosan rinse produced a 45% reduction for plaque area and 12% for plaque index compared to its placebo. Comparisons between the two active rinses found that the essential oils rinse significantly reduced plaque compared to the triclosan rinse ( $p = 0.0024$ ) for plaque index but not for plaque area. These findings would suggest that in the longer term, the essential oils rinse would be expected to be more effective than the triclosan rinse at reducing plaque formation.

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