

Darby IB, Hodge PJ, Riggio MP, Kinane DF. Clinical and microbiological effect of scaling and root planing in smoker and non-smoker chronic and aggressive periodontitis patients. J Clin Periodontol 2005;32:200-6. (52 Refs)

Purpose: To compare the effects of scaling and root planing (SRP) on clinical and microbiological parameters at selected sites in smoker and non-smoker chronic (CP) and generalized aggressive periodontitis (GAgP) patients.

Materials and Methods: 28 CP and 17 GAgP patients were included in the study and their cigarette consumption was determined by verbal questioning. In each patient, 4 sites with pocket depths of 5mm or greater were selected. At each site the modified gingival index (MGI), plaque index (PII), bleeding on probing (PD), suppuration (Supp), probing depth (PD) and relative attachment level (RAL) were recorded. After the clinical measurements were recorded, a subgingival plaque sample was taken. Each patient underwent scaling and root planing and reviewed 8 weeks later and re-sampled. For PCG analysis, the primers for *A. actinomycetemcomitans*, *Porphyromonas gingivalis*, *Tannerella forsythensis* and *Treponema denticola* were used. The data were analyzed for differences between smoker and non-smoker CP and GAgP groups before and after treatment.

Findings and Conclusions: CP non-smokers had significantly greater reduction in BOP (49%) and PD (1.7 (+/- 1.4)mm) than smokers (12.5%, 1.0 (+/-1.3)mm)). Non-smokers also had greater improvements in MGI, PII, Supp and RAL but these differences were not significant. The microbial analysis shows similar changes in Pg percentage for both groups and a significantly greater reduction in non-smokers for Pi. There was an increase in Tf in smokers and a decrease in non-smokers. There was no change in Aa for smokers and only a slight change for non-smokers. Post-treatment data showed smokers had significantly deeper pockets (4.9 (+/- 1.4)mm) and greater RAL (13.8 (+/- 2.1)mm) than non-smokers (4.2 (+/- 1.6)mm, 12.7 (+/- 2.3)mm). The microbial analysis showed a significant increased prevalence of Tf in smokers (65.6% compared with 25%). Pg, Pi and Tf were also more frequently detected but not significantly.

The change in PD was the only statistically significantly different clinical parameter between GAgP smokers (1.3 (+/- 1.0)mm) and non-smokers (2.4 (+/- 1.2)mm). Non-smokers had greater reductions in MGI, BOP, Supp and RAL. There was significantly greater reduction for Pi in non-smokers and a significant decrease in Pg and Tf in smokers. Post-SRP data demonstrated GAgP smokers showed significantly higher PD after treatment (5.4 (+/- 1.1)mm and 4.3 (+/- 1.1)mm). This group also showed significantly lower MGI. The microbiological analysis showed lower Pg and higher Pi in smokers. Pi and Aa were eliminated in non-smokers and the difference between Aa was only significant. Tf was detected more frequently in non-smokers and Td in smokers, but not significantly.

The reduced improvement in PD following therapy in smokers compared with non-smokers may reflect the systemic effects of smoking on both the host response and the healing process. The inferior reduction in the microflora and greater post-therapy prevalence of periodontal pathogens in smokers may reflect a poorer clearance of these organisms which may be because of a complex interplay of smoking on microprobes and local and systemic host response and healing processes. These detrimental consequences for smokers appear consistent in both aggressive and CP.

Starvropoulos A, Mardas N, Herrero F, Karring T. Smoking affects the outcome of guided tissue regeneration with bioresorbable membranes: a retrospective analysis of intrabony defects. J Clin Periodontol 2004;945-50.

Purpose: To identify factor that may influence treatment outcome of GTR treatment with bioresorbable membranes in intrabony defects.

Materials and Methods: 32 adults with 47 interproximal intrabony defects, mean age 41yrs. Intrabony defect criteria: PPD \geq 7mm without furcation, no systemic antibiotics treatment within the past 6 months, and the site had no surgical treatment within the past yr. The intrabony defects were treated using polylactic acid/citric acid ester copolymer bioresorbable barrier membrane (Guidor). Baseline (day of surgery) and 1 yr post op clinical parameters were the following: (1) probing pocket depth, PPD, (2) gingival recession (REC), (3) probing attachment level, PAL=(PPD+REC), (4) presence/absence of plaque (PI), (5) BOP, (6) intrabony component(IC) {1 wall, 2 walls, 3 walls}. Smoking and membrane exposure data also recorded.

Findings and Conclusions:

	PPD	PAL
Baseline	8.6 \pm 1.1mm	9.8 \pm 1.6mm
1 yr post op	3.7 \pm 1.1mm	6.0 \pm 1.7mm

Baseline	Non-smokers	smokers
PPD	8.9 \pm 1.2mm	8.1 \pm 1.0mm
PAL	10.3 \pm 1.2mm	9.4 \pm 1.7mm
1 yr post op		
PPD	3.4 \pm 1.1mm	3.6 \pm 1.0mm
PPD reduction	5.5 \pm 0.7mm	4.5 \pm 0.7mm
PAL	6.0 \pm 1.6mm	6.2 \pm 1.7mm
PAL gain	4.3 \pm 1.3mm	3.2 \pm 1.4mm

Statistically significant clinical improvement of GTR treatment were observed 1 yr post op. Infrabony configuration and membrane exposure did not seem to influence the results, but a negative effect of smoking was observed. Smokers gained about 1mm less in PAL than non-smokers and have 7x fewer chances to gain 4mm in PAL as compare to non-smokers. PPD reduction was less pronounced in smokers than non-smokers resulting in deeper residual PPD. The precise mechanism of smoking affecting the GTR treatment is not yet understood. It appears that smoking may interfere with reparatory/regenerative process in periodontal wound healing. Smoking significantly impairs the healing outcome of GTR treatment of infrabony defect with bioresorbable membranes. Patients should be informed on the potential consequences of smoking.