Profile Changes of Putative Periodontal Pathogens after Non-surgical Periodontal Treatment

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BACKGROUND:
- Bacteria are shown to be the etiologic agents of periodontal disease (Halffaire and Socransky 1994).
- A number of microbial species like A. actinomyctemcomitans, B. forsythus and P. gingivalis are implicated as the putative pathogens associated with adult periodontitis (Consensus report, AAP, 1996).
- Scaling and root planing is consistently shown to be effective - using a custom-made soft acrylic occlusal stent as a reference guide.

OBJECTIVES:
- To describe the profile of the 8 putative periodontal pathogens after non-surgical periodontal therapy.
- To describe the changes of clinical parameters before and at 3 months after non-surgical periodontal treatment.
- To correlate the qualitative changes of the periodontal pathogens, if any, to the changes of the clinical parameters observed.

MATERIALS AND METHODS: Subjects:
- 4 male and 10 female patients (mean age 43.7) with moderate to severe periodontitis.
- The weighed kappa values for repeated PPD and PAL measurement were 0.78 and 0.81 respectively and reached a reproducibility of 95% within 1mm deviation.
- Calibration: The persistence of the complex to other similar studies.
- The presence of the complex at a site is associated with deeper baseline probing pocket depth.
- The presence of the complex at 1-month is associated with deeper residual PPD, less PPD reduction and less gain in PAL at 3-month.

RESULTS: Clinical parameters: Table 1 shows the changes in clinical parameters 3 months after non-surgical periodontal therapy.

Microbial parameters:
- At subject level, Figure 1 shows the changes in detection frequency of the 8 putative pathogens at baseline and 1-month after therapy.
- At site level, Figure 2 shows the changes in detection frequency of the 8 putative pathogens at baseline and 1-month after therapy.

Microbial association: Significant association (p<0.001 Fisher’s Exact Test) was found in 3 pairs of the pathogens - namely T.d./P.g., T.d./C.r. and P.g./C.r. which yield odds ratios of 30.7, 43.7 and 38.5 respectively. The pattern of association could be illustrated in Figure 3 showing the possible co-occurrence of these 3 species.

CONCLUSIONS: The presence of the microbial complex (C.r./P.g./T.d.) was significantly associated with deeper sample site PPD at baseline, 6.8mm vs. 5.4mm when not all three were present.

Comparing sites with persistence of the complex to those at which the complex had been disrupted at 1 month after treatment, deeper residual PPD (4.1mm vs. 2.5mm), less PPD reduction (3.1mm vs. 4.2mm) and less PAL gain (1.6mm vs. 2.3mm) were found at the 3-month examination. (Figure 4)

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