Title | Periodontopathogens and GCF levels of granulocyte elastase and IL-8 in EOP patients
--- | ---
Author(s) | Jin, LJ; Leung, WK; Corbet, EF; Ma, XX; Samaranayake, LP
Citation | The 78th General Session and Exhibition of the International Association for Dental Research, Washington DC., 15-19 March 2000. In Journal of Dental Research, 2000, v. 79 Sp Iss, p. 483, abstract no. 2717
Issued Date | 2000
URL | http://hdl.handle.net/10722/53663
Rights | This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.
2713 Prevalence of A. actinomycetemcomitans before and after wearing fixed orthodontic appliances. U. VAN DEER ZELDEN*, W.L. BURGER, A. VAN WINKELHOEf (Dept. of Periodontology & Oral Microbiology, ACTA, Amsterdam, The Netherlands)

It has been suggested in the literature that subjects wearing fixed orthodontic appliances show a higher prevalence of A. actinomycetemcomitans than controls (Palladini et al., 1996). The purpose of the present study was to investigate whether orthodontic therapy significantly increases the prevalence of A. actinomycetemcomitans patients compared to fixed orthodontic appliances. The study population comprised 25 subjects who were scheduled to receive orthodontic bands at either 2 or 4 first molar teeth. At each site in each subject, plaque and sulcular fluid were collected before and after wearing the bands for up to 6 months. Tile plaque, P. gingivalis, and T. denticola were assessed, and the mean of the six sites per subject was used for the statistical analysis. A. actinomycetemcomitans was present in all subjects at the start of the study, and it was not significantly affected by the treatment. The prevalence of A. actinomycetemcomitans was not significantly affected by the presence of fixed orthodontic appliances.


Microbial biofilm patients are increasingly important in adult periodontal disease (PD) definition. The purpose of this research was to expand measurements to include deoxyribonucleic acid (DNA) extraction of subgingival plaque in adult PD using large-specific takes of fluorochrome probes with Gram stain (GS) extension software (for 3-D analysis, Y., and 3-D spatial arrangement). The Conventional Laser Scanning Microscopy (CLSM) (Zeiss-S10), and two laser sources: Argon (488 nm) and HeNe (488/543/633 nm). The LIVE/DEAD BacLight Bacteria Viability Kit was used to assay staining fluorochrome samples from 9 (n=9) and 16 patients (n=16). PD and healthy periodontal sites were examined. The 3-D staining procedure rapidly distinguished 6 features including size, shape, fluorescence intensity (visible/nom)


The objective of this study was to evaluate the relationship between various periodontal pathogens and clinical parameters in a group of Japanese adolescents. The study population consisted of 100 adolescents aged 15-19 years. The clinical parameters measured included pocket depth, probing attachment level, and clinical attachment loss. The periodontal pathogens measured included A. actinomycetemcomitans, P. gingivalis, T. denticola, and F. nucleatum. The results showed that A. actinomycetemcomitans was significantly associated with clinical attachment loss and probing attachment level. P. gingivalis was also significantly associated with clinical attachment loss. T. denticola was not significantly associated with any of the clinical parameters measured.

2716 Quantitative PCR using SYBR Green® compared to nested fluororescent probes. B. DACÉ, A. FRABBÉ, R. CLÉMENTON, E. CLÉMENTON, E. CHEMOUBER (Inserm, Compiègne, F., France)

The objective of this study was to evaluate the performance of a new DNA detection method, based on SYBR Green® technology, compared to a nested fluorescent probe method. The SYBR Green® method was more sensitive than the nested fluorescent probe method, with a detection limit of 10 copies of target DNA. The SYBR Green® method was also more specific, with a false positive rate of 0%. The SYBR Green® method was more precise, with a coefficient of variation of 5%. The SYBR Green® method was more reproducible, with a standard deviation of 1%.

2717 Periodontopathogens and GCF Levels of Granulocyte Elastase and IL-1β in EOP patients. J. H. JIN, C. H. PARK, E. P. KIM, N. P. KIM, S. KIM, H. H. KANG, S. D. KIM (Faculty of Dentistry, The University of Hong Kong, Hong Kong)

This study aimed to determine the presence of subgingival periodontal pathogens and their relations with the levels of granulocyte elastase activity (E) and IL-1β in gingival crevicular fluid (GCF) in early-onset periodontitis (EOP) patients. Bleeding on probing and probing depth were measured using a Florida Probe. GCF and subgingival plaque samples were collected from various clinical sites in 10 young Chinese adults, aged 19.4 ± 4.7 years, with untreated EOP. EOP was assessed periodontally healthy subjects were used as controls. Coherence ELISA was analyzed with a sensitive sublethal (P<0.05) and the mean of the ELISA (E<1000, RA 40%) was calculated. GCF levels were measured by ELISA. Specific-enzyme DNA probes were used to detect the presence of selected pathogens. IL-1β levels were measured by ELISA. The GCF and IL-1β levels were significantly higher in EOP patients than in healthy controls. IL-1β levels were strongly associated with the presence of A. actinomycetemcomitans (E<0.05) and P. gingivalis (E<0.05). The IL-1β levels were higher in patients with a higher number of sites with A. actinomycetemcomitans (E<0.05) and P. gingivalis (E<0.05). The IL-1β levels were significantly lower in patients with a higher number of sites with A. actinomycetemcomitans (E<0.05) and P. gingivalis (E<0.05).

2718 Effect of Scaling & Root Planing on IL-1β and ICTP Levels. R. J. ORINGER, K. A. SHAMARRI, W. A. ALDREDGE, J. V. JACOBO, R. M. EBER, H. L. WANG, V. G. GIANNISOLI (UNC at Sunny Brook, Sunny Brook, NY, University of Michigan, Ann Arbor, MI)

Biochemical markers have been useful in evaluating the effectiveness of periodontal therapy. The purpose of this study was to evaluate the effect of scaling and root planing (SRP) on GCF levels of IL-1β and ICTP. Eighteen periodontitis subjects were monitored at 6 sites per subject at baseline (prior to SRP), 1, 3, and 6 months. Four shallow (PD ≤ 4 mm) and 4 deep (PD ≥ 5 mm) sites were monitored for both marker levels and clinical parameters. GCF was collected for 30 seconds on paper strips and levels of IL-1β and ICTP were determined using ELISA and RIA techniques, respectively. Clinical measurements included probing depth (PD), clinical attachment level (CAL), and percentage of sites with bleeding on probing (BOP). Deep periodontitis subjects had (PD ≤ 5 mm) higher IL-1β and ICTP levels compared to shallow sites at all time intervals. Both IL-1β and ICTP levels increased significantly at the shallow sites (PD ≤ 5 mm) compared to the deep sites (PD > 5 mm). Both IL-1β and ICTP levels decreased significantly at the deep sites (PD > 5 mm) compared to the shallow sites (PD ≤ 5 mm).


The aim of this study was to determine the relationship between gingival crevicular fluid (GCF) IgG, IgA and IgM, as well as A. actinomycetemcomitans and clinical parameters in adult periodontal disease. The study population consisted of 40 subjects with severe periodontal disease. The clinical parameters measured included pocket depth and attachment level. The concentration of IgG, IgA and IgM was measured at baseline and at 2, 4, and 6 weeks after scaling and root planing (SRP). The concentration of A. actinomycetemcomitans was also measured at baseline and at 2, 4, and 6 weeks after SRP. The results showed that the concentration of IgG, IgA and IgM was significantly higher at baseline compared to 2, 4, and 6 weeks after SRP. The concentration of A. actinomycetemcomitans was also significantly lower at baseline compared to 2, 4, and 6 weeks after SRP.

2720 Levels of Elevated vCAM-1 in the GCF of Patients with periodontal disease. E. HANNING*, L. R. AUBUCKLEY*, D. P. O'NEILL* (Dept. of Pharmacology, University Dental Hospital, University College Cork, Ireland)

Vascular cell adhesion molecule-1 (VCAM-1) is a cell-surface protein involved in the adhesive interactions between cells. It is upregulated following activation during inflammatory responses, mediating both cell migration and activation. It has been suggested that this molecule may act as a site-specific marker of periodontal disease activity. The aim of this study was to determine the levels of soluble VCAM-1 (svCAM-1) in gingival crevicular fluid (GCF) of clinically healthy subjects and subjects with adult periodontal disease. GCF was collected from a healthy group, a periodontal disease group and a group with periodontal disease and a healthy site in two subjects without periodontitis. The volume of GCF was measured and the concentration of svCAM-1 was determined for each sample using an enzyme-linked immunosorbent assay (ELISA). The results were statistically significant differences between the concentrations of svCAM-1 in gingival crevicular fluid and periodontitis sites compared with healthy sites (p<0.05). svCAM-1 was significantly higher in GCF samples compared with healthy sites. These results show that there are elevated levels of svCAM-1 in the healthy, gingivitis and periodontitis sites of the disease group compared to the healthy site.

2721 Microbial biofilms are increasingly important in adult periodontal disease (PD) definition. The purpose of this research was to expand measurements to include DNA extraction of subgingival plaque in adult PD using large-specific takes of fluorochrome probes with Gram stain (GS) extension software (for 3-D analysis, Y., and 3-D spatial arrangement). The Conventional Laser Scanning Microscopy (CLSM) (Zeiss-S10), and two laser sources: Argon (488 nm) and HeNe (488/543/633 nm). The LIVE/DEAD BacLight Bacteria Viability Kit was used to assay staining fluorochrome samples.