

# 1759 *IL-1 $\beta$* , *TNF- $\alpha$* and *IL-10* mRNA Expression in Advanced Chronic Periodontitis

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Cytokines play key roles in periodontal pathogenesis and altered cytokine profiles may exist in uncontrolled periodontitis lesions. **Objectives:** This study was to investigate the mRNA expression profiles of three selected pro- and anti-inflammatory cytokines in chronic periodontitis. **Methods:** The participants were 13 subjects with advanced chronic periodontitis, mean age of  $51.8 \pm 3.6$  years. They received intensive non-surgical periodontal treatment but showed unresolved periodontitis lesions. Biopsies were collected from the sites with remaining deep pockets and adjacent non-pocket sites in a same patient during periodontal surgery. The tissue samples were evaluated for IL-1 $\beta$ , TNF- $\alpha$  and IL-10 mRNA expressions by Quantikine<sup>®</sup> mRNA quantitation kits. ANOVA and Chi-square test were used for statistical analysis. **Results:** The detection frequency for the three-target cytokine mRNA expressions at pocket (probing depth 6-10mm) and non-pocket (probing depth 2-3mm) sites was as follows - pocket/non-pocket: 100%/100% for IL-1 $\beta$ , 84.6%/85.7% for TNF- $\alpha$  and 92.3%/100% for IL-10. TNF- $\alpha$  expression was higher at pocket sites ( $322.0 \pm 74.4$  amol/mL) than at non-pocket sites ( $184.6 \pm 43.5$  amol/mL) ( $p < 0.05$ ), while no significant difference was found in the expressions of IL-10 and IL-1 $\beta$  between pocket and no-pocket sites. In the total expression levels of the three-target cytokines, higher relative proportion of TNF- $\alpha$  expression was found at pocket sites ( $39.7 \pm 7.2\%$ ) than at non-pocket sites ( $26.8 \pm 8.9\%$ ). The relative ratio of TNF- $\alpha$  and IL-1 $\beta$  expressions was also higher in pocket sites ( $3.7 \pm 0.5$ ) than in non-pocket sites ( $2.4 \pm 0.9$ ). A positive correlation existed in IL-10 mRNA expression between the pocket and non-pocket sites ( $r = 0.77$ ,  $p < 0.05$ ). No significant correlation was found among the three-target cytokine expressions. **Conclusions:** This study showed that both pro- and anti-inflammatory cytokines were expressed in pocket and non-pocket sites in unresolved chronic periodontitis. However, TNF- $\alpha$  mRNA expressions appeared to be upregulated in pocket sites which might reflect host-mediated periodontal destruction. Supported by the Hong Kong Research Grant Council (RGC, HKU 7310/00M & 7287/97M). [ljjin@hkusua.hku.hk](mailto:ljjin@hkusua.hku.hk)

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