

Level of IGF-I and IGFBP-3 in Gingival Crevicular Fluid and Plasma in Patients with Aggressive Periodontitis

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Abstract : Purpose: Insulin-like growth factor-I (IGF-I) promotes B-cell development, immunoglobulin formation, and interleukin-6 (IL-6) production, then regulate the immune response and inflammation. As IGF-I and their receptor also exist in the periodontal tissue, they may affect the immune response caused by periodontal pathogens in aggressive periodontitis (AgP) patients. The function of IGF is regulated by IGF binding proteins (IGFBPs), and IGFBP-3 is known to most abundant in plasma. The aim of the present study was to assess the concentration of IGF-I and IGFBP-3 in plasma and gingival crevicular fluid (GCF) in AgP patients and to find out their association. Methods: Nine patients with AgP (test group) and nine healthy subjects (control group) were included in this study. None of the subjects had a history of systemic disease, smoking or steroids medication. GCF samples were collected by microcapillary pipettes and plasma samples were obtained by venipuncture. Probing pocket depth (PD), clinical attachment level (CAL) and bleeding on probing (BOP) were recorded. Samples were assayed for IGF-I and IGFBP-3 levels using ELISA. Results: Mean IGF-I level in GCF was higher in the test group than control. Mean IGF-I level in plasma and IGFBP-3 level in GCF and plasma in control group were higher than that of the test group. However, there was no statistical significance ($p > 0.05$). The mean level of IGF-I and IGFBP-3 in GCF was lower than those in plasma. Mean IGF-I level in plasma showed a negative correlation with PD and CAL ($p < 0.05$) in both groups. The levels of IGF-I and IGFBP-3 in GCF seemed to be negatively correlated with BOP in the test group ($p < 0.05$). Conclusions: The difference in the level of IGF-I and IGFBP-3 between AgP and healthy subjects was not significant. Further studies that explain the mechanism of the protective role of IGF-I with more samples are needed.

Keywords : aggressive periodontitis, pathogenesis, insulin-like growth factor, insulin-like growth factor binding protein

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