R-1. The Comparison of IL-6, Elastase and α1-PI Expressions in Human Chronic Periodontitis with Type 2 Diabetes Mellitus

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Background

Diabetes mellitus is one of the main contributing factors for periodontal disease and also untreated advanced periodontal disease can deteriorate the metabolic control of diabetes. IL-6 is recognized factors for progression of gingivitis to periodontitis. Elastase activity in GCF analyte has been used as an indicator to predict gingival attachment loss on humans with periodontal disease. The elstase inhibitor, α1-PI, has been implicated in the modulation of periodontal inflammation and destruction. In inflammatory response, the roles and interactions of IL-6, elstase and α1-PI are not clear. The purposes of this study were to compare and quantify the expression of IL-6, elstase and α1-PI in the gingival tissues of patients with type 2 diabetes mellitus and healthy adults with chronic periodontitis.

Material and methods

Gingival tissue samples were obtained during periodontal surgery or tooth extraction. Each gingival sample was devided into three groups. Group 1 (n=8) is clinically healthy gingiva from systemically healthy patients. Group 2 (n=8) is inflammed gingiva from patients with chronic periodontitis. Group 3 (n=8) is inflammed gingiva from patients with chronic periodontitis associated with type 2 diabetes. Tissue samples were prepared and analyzed by Western blotting. The quantification of IL-6, elastase and α1-PI were performed using a densitometer and statistically analyzed by one-way ANOVA followed by Tukey test.

Results & Conclusion

The expression levels of IL-6 & elastase showed increasing tendency in group 2 and 3, and It was highest in group 3. The expression of α1-PI showed increasing tendency in group 3 compared to group 1. The α1-PI/elastase ratio was decreased

in group 2 and 3 compared to group 1, especially most decreased in group 3. As IL-6 levels were increasing, elastase showed increasing tendency in group 3, and although IL-6 and elastase levels were increasing, α1-PI level in group 3 showed slightly increasing pattern comparing to group 1.

This study demonstrated that the expression levels of IL-6 and elastase had increasing tendency in inflammed tissue and DM. The α1-PI/elastase ratio was decreased in DM. It can be assumed that IL-6 and elastase may be partly involved in the progression of periodontal inflammation associated to type 2 DM.