IL-10 gene promoter polymorphisms in Korean patients with generalized aggressive periodontitis

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Objective
Genetic polymorphisms associated with aggressive periodontitis have previously been reported. Interleukin 10 is an immunoregulatory cytokine that plays a role in periodontitis. Individual capacity for IL-10 production appears to be under genetic influence. The aim of present investigation was to explore possible genetic association of IL-10 gene promoter polymorphisms with generalized aggressive periodontitis.

Materials and Methods
1. Subject population
The study population consisted of 37 generalized aggressive periodontitis patients (20 male, 17 female) and 27 control subjects (9 male, 18 female), all subjects were non-smokers.
2. DNA extraction and Polymorphism analysis
Genomic DNA was obtained from buccal swab. The IL-10 promoter -597, -824, -1082 positions were genotyped by amplifying the polymorphic region using polymerase chain reaction (PCR), followed by restriction enzyme digestion and gel electrophoresis. IL-10-597 C (allele 1) to A (allele 2) and IL-10-824 C (allele 1) to T (allele 2) and IL-10-1082 G(allele 1) to A (allele 2) polymorphism were examined.
3. Statistical analysis
Distributions of genotype and allele 2 frequencies and carriage rates were calculated on patients and control groups by direct counting. The Chi-square test was used to compare the difference between patients and controls.

Results
1. In patients, the distribution of genotype C/C, C/A and A/A at IL-10-597 were 13.5%, 37.8% and 48.7%, respectively and the distribution of genotype at IL-10-824 was the same as that of IL-10-597 and the distribution of genotype G/G, G/A and A/A at IL-10-1082 were 2.7%, 16.2% and 81.4%. No statistical differences were found between patients and controls.
2. Allele 2 carriage rates at three position of IL-10 promoter region were higher tendency in controls than patients.
3. Allele 2 frequencies at IL-10-597 and -824 positions were higher in female group than male group and were significantly higher (p<0.05).

Conclusion
No significant differences were observed in the investigated genotype, Allele frequency between patients and controls although allele 2 frequencies at three position of IL-10 gene were high proportion in control. In conclusion, IL-10 gene promoter polymorphisms in Korean are not associated with generalized aggressive periodontitis.