

Age-related associations of gene polymorphisms in individuals with periodontitis

Introduction:

Periodontitis is a complex inflammatory disease associated with a dysbiotic biofilm and marked by progressive destruction of the periodontium. Understanding genetical mechanisms and gene polymorphisms with its functions in oral diseases such as periodontitis could be beneficial in preventing tooth loss and for future generations and therapeutic strategies. Recent advances in geroscience have shown that various biomarker signatures of biological aging are longitudinally associated with declined physical function, morbidity, and mortality due to major age-related diseases, including periodontitis.

The aim:

Our study's objective was to investigate the associations between single-gene nucleotide polymorphisms (*rs3818292*, *rs3758391*, and *rs7895833*) in periodontitis patients according by age.

Methods:

This study included 151 patients with generalised periodontitis and 381 individuals serving as controls. Blood was extracted for DNA using DNA administration kits. The genotyping was conducted using rPCR. Using IBM SPSS Statistics, results were calculated.

Results:

The analysis revealed that the polymorphism *rs3818292* AA genotype was less common in the periodontitis group than in the control group (78.1% vs. 89.4%, $p = 0.001$), whereas the AG genotype was more common in patients over 60 years of age than in the control group (20.5% vs. 10.6%, $p = 0.003$). The periodontitis group had a higher frequency of the G allele than the control group (11.6% vs. 5.2%, $p = 0.001$). The genotype AA of polymorphism *rs7895833* was less common in the periodontitis group than in the control group (64.2% versus 76.1%, $p = 0.006$), whereas the genotype AG was more common in the periodontitis group than in the control group (33.8% versus 22.1%, $p = 0.001$). In the periodontitis group, the G allele was more prevalent than in the control group ($p = 0.008$).

Conclusion:

The genotypes and allele distributions of *rs3818292* and *rs7895833* differed significantly between the group of patients with periodontitis and the control group of patients older than 60 years.