GENE POLYMORPHISMS AND RELATED CELL MARKERS
IN PERIODONTITIS LESIONS

Akademisk avhandling

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av

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Avhandlingen baseras på följande delarbeten:


Abstract

Gene polymorphisms and related cell markers in periodontitis lesions

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Inflammatory and immune reactions to microbial plaque are the predominant features of periodontitis. Epidemiological studies revealed that differences in periodontitis among individuals could not be explained by differences in oral hygiene alone and that not everybody is equally susceptible. Periodontitis is considered to be a multifactorial disease where the interaction of multiple genetic and environmental components results into disease expression. The objectives of the present series of studies were (i) to investigate the association of gene polymorphisms related to some immune regulation components (IL10, TNFA, IL4RA, CD14) with severe chronic periodontitis (studies I-II), (ii) to study the local expression of some immune regulation components in relation to gene polymorphisms in subjects with chronic periodontitis (study III), (iii) to study the correlation between inflammatory cells and functional markers in gingival lesions obtained from subjects with severe chronic periodontitis (study IV), and (iv) to study the reaction of B-1a cells to de novo plaque formation in subjects who were treated for severe chronic periodontitis (study V).

It was demonstrated that the proportion of subjects that exhibited the −1087 IL10 GG genotype was significantly larger in the group with severe periodontitis than in the group of healthy controls (study I), that the proportion of subjects that exhibited the −159 CD14 TT genotype was significantly smaller in the group of subjects with severe periodontitis than in the periodontally healthy group (study II) and that the proportion of IL-10 positive cells in the peripheral area of periodontitis lesions was significantly larger in subjects with the −1087 IL10 GG genotype than in subjects with AG or AA genotypes (study III). It was also observed that B cells (B-1a cells and B-2 cells) occurred in larger proportions than T cells, plasma cells, and neutrophils in periodontitis lesions and a significant correlation was found between percentages of B-1a cells and plasma cells and between densities of B-lymphocytes and plasma cells (study IV). Further, biopsies retrieved after 3 weeks of plaque accumulation contained larger proportions of B-1a cells than biopsies representing healthy sites (study V).

Key words: Allele, B-lymphocyte, cell-surface molecule, cytokine, gene expression, genotype, gingivitis, host response, inflammation, periodontal disease

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