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EDITORIAL

Periodontitis and its genetic origins

La periodontitis y su genética

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Completion of the Human Genome Project yielded as one among many results, knowledge on the complete sequence of 3,200 nucleotides contained in the human genome. This project established an important point: human beings share 99.9% of this sequence, and only 0.1% varies among individuals. This small variation confers individual phenotypic characteristics, but also predisposes us to developing certain conditions, and, to a certain extent, defines the response we might show to certain type of treatments. These variations, basically are changes in one single base (SNP-single nucleotide polymorphism); they are located, in average, in one out of every 1,000 nucleotides. Different SNP combinations give rise to genomic individuality, and therefore, to susceptibility or resistance to developing certain diseases. From a genetic standpoint, periodontitis is one of the most studied dental conditions. Periodontitis is an irreversible chronic condition, which can begin as gingivitis, then proceed to gingival retraction and bone loss. Many factors intervene in its etiology. In its onset, bacteria as well as environmental and host factors play a key role. Among host factors we can count genetic factors. These have become evident when studying different individual responses to periodontal infection. Recent studies have suggested the participation of different polymorphisms located within the genes, which are codifying elements for relevant molecules in the inflammatory process. Among these, the following gene studies stand out: interleukin 1, α tumor necrosis factor, interleukin 10, interleukin 4 and interleukin 8 among others. Nevertheless, most of these studies have been conducted in Caucasian and/or Asian populations. Considering the genetic characteristics of Mexican population, these studies cannot be extrapolated to our population. It is therefore necessary to undertake relevant studies, so as to be able to define genetic susceptibility markers which participate in the development of periodontitis in Mexican subjects. Studies on the role of genetic polymorphisms in the development of disease will allow us to identify individuals at greater risk of developing the condition, even before symptoms appear, and thus avoid or delay the onset or sequels of the disease. In such a way, individuals at risk of experiencing more severe manifestations of the disease will be singled out, and better treatment strategies will be designed, in such a way that treatment could even be tailor-made for each individual according to his genetic characteristics.

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