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Gingival crevicular fluid levels of cathelicidin and alpha-defensins in smokers and non-smokers with chronic periodontitis

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Antimicrobial peptides are components of the innate immune response with a strong antibacterial activity against various microorganisms, including periodontal pathogens. The aim of the present study was to compare the total levels of cathelicidin (LL-37) and alpha-defensins (HNP 1-3) in the gingival crevicular fluid of smokers and non-smokers patients and correlate with MMP-8, IL-1β and IL-10. 40 patients with chronic periodontitis, 20 smokers and 20 non-smokers were included. Gingival Crevicular Fluid samples from healthy (n=5) and diseased (n=5) sites were collected with absorbent paper strips. The LL-37 and HNP 1-3 quantification was done by sandwich ELISA and cytokines quantification by Multiplex assay. In smokers and non-smokers groups, diseased sites showed higher levels of LL-37 in comparison with healthy sites (p=0.0167 and 0.048, respectively) and lower levels were found for HNP 1-3 in the same groups (p=0.016 and 0.121, respectively). In smokers and non-smokers, diseased and healthy sites showed a positive correlation between LL-37 and MMP-8 (p=0.0012; 0.032; p<0.0001; p=0.0006, respectively) and IL-1β (p=0.0004; 0.089; p<0.0001; p<0.0001, respectively), but showed a negative correlation between LL-37 and IL-10 (p=0.324; 0.552; 0.018; 0.942, respectively). However, these two groups showed a negative correlation, in diseased and healthy sites, between HNP 1-3 and MMP-8 (p=0.074; 0.0036; 0.369; 0.738, respectively) and IL-1β (p=0.0010; 0.0071; 0.248), except non-smokers healthy sites that showed a positive correlation with IL-1β (p=0.714), and showed a positive correlation with IL-10 (p<0.0001; p=0.015; p=0.0036; p<0.0001, respectively). Based on the results obtained, we conclude that levels of LL-37 are higher and HNP 1-3 lower in sites with active periodontal diseases. LL-37 and HNP 1-3 stimulate the release of inflammatory mediators in different ways in periodontal disease, while smoking habit did not show any significant difference.

Biography

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