



SPAZIO RICERCA - PREMIO "G. CARDAROPOLI"

Investigating the low-grade chronic inflammation among different stages and grades of untreated periodontitis using a multidimensional score

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As the role of low-grade chronic inflammation (LGI) is strictly connected within the binomial periodontitis-systemic disease, many studies have investigated LGI in subjects affected by periodontitis. Case-definition of LGI is not yet consistently defined and a number of plasmatic or cellular biomarkers have been proposed as reliable measure of LGI.

The aim of the study was to assess the sub-clinical level of inflammation among different stages of periodontitis, through the use of a multidimensional score named INFLA-Score.

Cross-sectional study. Study population was made up of subjects affected by periodontitis and not previously treated. Periodontitis was staged and graded according to World Workshop and routine blood tests were obtained. A composite score (INFLA Score) based on the use of C-reactive protein, leukocyte and platelet counts, and granulocyte to lymphocyte ratio, was used to quantify LGI. INFLA score was recoded 0 to 32. Participants taking anti-inflammatory drugs or antibiotics or immunosuppressive, or with haematological disease, or with acute inflammation or infections, were excluded. T-Test, One Way Anova- Bonferroni, Pearson's Coefficient and multivariate linear regression model were used ($p < 0,05$), controlling results for age, sex and smoke.

Thirty-four subjects were enrolled (18 M and 16 F; 51.8 ± 11.8 yr). Higher levels of inflammation were observed in advanced stages of periodontitis (stage 3 to 4) and in Grade C periodontitis. Statistically significant increase was found among stages and among grades, for INFLA-Score ($p < 0.000$), with a strong positive linear trend confirmed by Pearson's Coefficient, respectively 0.86 and 0.88. According to multivariate linear regression model INFLA-Score was correlated with both stage (β 0.156; p 0.014) and grade (β 0.149; p 0.016) of periodontitis.

Results were in keeping with international literature. INFLA-score appeared to better reflect the severity and the risk of progression of periodontitis, than other biomarkers alone. In fact, the use of the multidimensional INFLA-score to assess LGI, permitted to study all possible synergic effects of both plasmatic and cellular biomarkers. In this way it was possible to summarise the variability of the inflammation. The main limitation of the study were the small population size and the absence of post-treatment blood analysis. Higher subclinical levels of inflammation, measured through a multidimensional score, were found in advanced stages and rapidly progressive periodontitis. The treatment of periodontitis, associated with lifestyle changes, could improve the control of systemic inflammation reducing the risk of exacerbation of cardio-cerebrovascular, neurodegenerative and chronic inflammatory disorders.

Key-words: Periomedicine; Low grade inflammation; INFLA-Score