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Evaluation of Serum Ferritin level and Complete Blood Count in patients with different severities of periodontal diseases

A Thesis

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Abstract

Background: Anemia of chronic disease is anemia occurring in inflammatory conditions, chronic infections or neoplastic disorders and not due to bone marrow deficiencies or other diseases, and occurring despite presence of adequate iron and vitamins stores. Periodontal disease is considered to be an inflammatory disorder that is related to the accumulation of oral microbial biofilm and the host response to this accumulation. There is a possible pathogenic relation between anemia of chronic disease and periodontal diseases.

Aims of study: Determine the hematological parameters (complete blood count (CBC) and serum ferritin level) and the clinical periodontal parameters (plaque index, gingival index, bleeding on probing, probing pocket depth and clinical attachment level) and assess the correlations between hematological parameters with the clinical periodontal parameters at the study groups that consist of gingivitis group, chronic periodontitis group with different severities which subdivided into: - (mild, moderate and severe) and subjects with clinically healthy periodontium as control group.

Materials and Methods: 150 male subjects with an age range between (35-50) years old were included in this study. They were divided into groups as follow: 30 patients with gingivitis, 90 patients with chronic periodontitis (CP) which subdivided into (Mild, Moderate and Severe: 30 patients at each subgroup) and control group comprised 30 subjects had clinically healthy periodontium. Clinical periodontal parameters were recorded, 5 ml of blood samples were collected and CBC were evaluated by automated blood analyzer which include: (Red blood cells (RBCs) count, hemoglobin (Hb), hematocrit (Hct), Mean Cell Volume (MCV), Mean Corpuscular Hemoglobin (MCH), Mean Corpuscular Hemoglobin Concentration (MCHC) and white blood cells (WBCs) count, lymphocytes, monocytes, neutrophils, basophils and eosinophils) as well as,

serum were separated and kept in deep freeze for subsequent biochemical analysis of serum ferritin by Enzyme linked Immune Sorbent Assay (ELISA) test.

Results: Comparisons among groups and subgroups revealed highly significant difference in MCHC, significant differences in Hct, WBCs count, neutrophils and lymphocytes while, they were non-significant differences in monocytes, basophils, eosinophils, RBCs, Hb, MCH, MCV and serum ferritin. Mean values of RBCs count showed reduction in mild and severe CP but increase in gingivitis and moderate CP. Mean values of CBC and serum ferritin almost increase with the severity of periodontal disease except MCHC and MCH decrease. The correlations between the clinical periodontal parameters with blood parameters were almost non-significant but, with Hct and Hb were mostly significant negative correlations.

Conclusion: It was concluded that periodontal diseases, influenced various hematologic parameters through inflammatory and immune response which could contribute to the development of anemia of chronic disease.