

**Republic of Iraq
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And Scientific Research
University of Baghdad
College of Dentistry
Periodontics Department**



Detection of Granulocyte Chemotactic Protein 2 in Serum of Periodontitis Patients

A Thesis

Submitted to the council of College of Dentistry / University of Baghdad in partial fulfillment for the requirement for the award of the degree of Master of Science in Periodontics

By
Saja Gheni Hussein
B.D.S.

Supervised by
Dr. Basima GH. Ali
B.D.S., M.Sc.Periodontics

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Abstract

Background

Chronic periodontitis has been defined as" an infectious inflammatory disease within supporting tissues of the teeth, progressive attachment loss and bone loss". Aggressive periodontitis is rare which in most cases manifest themselves clinically during youth. It affects people who appear healthy that tend to have familial aggregation and characterized by rapid rate of disease progression . Proinflammatory chemokines organized inflammatory responses. Granulocyte chemotactic protein 2 is involved in neutrophils gathering and movement.

Aims of the study

Detection of serum Granulocyte Chemotactic Protein 2 and correlate to periodontal condition in patients with Chronic periodontitis, Aggressive periodontitis and Clinically Healthy Control subjects .Measure neutrophils count in the studied groups.

Subjects and methods

Eighty four males and females were enrolled in this study. They were divided into three groups (18) patients with Aggressive periodontitis with age range (20-45) years , (33) chronic periodontitis patients and (33) Clinically Healthy control with an age range (30-50) years. Clinical periodontal parameters were recorded for each subject including Plaque index, Gingival index, Bleeding on probing, Probing pocket depth and Clinical attachment level. Serum Samples were collected by using Serum separating tubes, the concentration of granulocyte chemotactic protein 2 in serum was quantified by a high-sensitivity enzyme linked immunosorbent assay. Blood neutrophil count was detected for five subjects from each group using light microscope.

Results

Total eighty four participants were included in the present study with mean age (37±8) years ; males (53.6%) were more than females (46.4%).

Aggressive periodontitis patients were associated with younger ages and chronic periodontitis were associated with older ages with highly significant among groups. The concentration of granulocyte chemotactic protein 2 was higher in Aggressive periodontitis (919.14±217.3) than chronic periodontitis (571.9±172.6) and healthy control (419.5±249.9).

ANOVA analysis revealed highly significant differences in granulocyte chemotactic protein 2 means among aggressive, chronic and controls in both males and females. Neutrophils count in aggressive periodontitis (3876.0± 454.18) was higher than chronic (3724.0 ±410.95) and controls (2926.0 ±374.005). No significant difference in neutrophils count between aggressive and chronic periodontitis, while significant differences when compared them with control.

Conclusion

The concentration of granulocyte Chemotactic Protein 2 increased with the increase in severity of periodontitis that's mean it was higher in Aggressive form of periodontitis than chronic periodontitis and both Aggressive and chronic revealed a higher concentration of granulocyte chemotactic protein 2 than Controls . Higher neutrophils count in aggressive periodontitis than chronic and controls . As higher granulocyte chemotactic protein 2 that chemoattract more neutrophils recruitment to the site of inflammation.