

**Evaluation of Serum and Salivary Adipokines
(Leptin and Resistin) Levels in Periodontal Health
and Disease**

(A Comparative study)

A Thesis

Submitted to the council of the College of Dentistry at University of
Baghdad in partial Fulfillment of the Requirements for the Degree of
Master of Science in Periodontics

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M.Sc., Ph.D.

2013, A.D

1434, A.H

Abstract

Background: With the start of the current century, increased the interest in the role of the adipose tissue derived substances that named adipokines in the inflammatory diseases of the human being including the inflammatory periodontal disease, but scientific evidences were not clearly demonstrate the association between these adipokines and periodontal pathologies .

Aims of the study: To determine the periodontal health status (gingival index, plaque index, bleeding on probing, probing pocket depth and clinical attachment level) in three groups (clinically healthy gingiva, gingivitis group and chronic periodontitis group), to evaluate the salivary and serum level of leptin and resistin in chronic periodontitis patients, gingivitis patients and individuals with clinically healthy gingiva and to determine the correlation between salivary and serum level of the biochemical markers (leptin and resistin) with clinical parameters (gingival index, plaque index, bleeding on probing, probing pocket depth and clinical attachment level).

Methods: Forty two subjects male only with normal body mass index were selected for the study with an age ranged (30-39 years) to eliminate age as a confounder. Subjects were divided into three groups of 14 subjects in each group based on clinical periodontal parameters; clinically healthy gingiva (group I), gingivitis group (group II) and chronic priodontitis patients group (group III), from whom saliva and serum samples were collected for estimating the levels of leptin and resistin using Enzyme-Linked Immuno Sorbent Assay (ELISA).

Results: The current study revealed that the serum level of leptin and resistin were significantly higher in chronic periodontitis patient (9.81 *ng/ml*, 6.55 *ng/ml*) respectively as compared to gingivitis and healthy control groups (leptin; 8.10 *ng/ml*, 5.61 *ng/ml*, resistin; 5.85 *ng/ml*, 5.45 *ng/ml*) respectively. On the other hand the level of leptin in saliva of patients with chronic

periodontitis(0.17 *ng/ml*) was significantly lower than that of its salivary levels in gingivitis and healthy control groups (0.21 *ng/ml*, 0.29 *ng/ml*) respectively. Whereas, salivary resistin levels was significantly higher in chronic periodontitis patient(14.45 *ng/ml*) when compared to the gingivitis group (11.59 *ng/ml*) and the health control group (6.43 *ng/ml*).

Concerning the correlation of serum and salivary analysis concentration with clinical periodontal parameters, that serum levels of the biochemical markers (leptin and resistin) were having a significant positive correlation with each of the gingival index, the bleeding on probing and the probing pocket depth in the three studied groups. Interestingly the local leptin levels in saliva were negatively correlated with the plaque index, the gingival index, the bleeding on probing and the probing pocket depth at $p < 0.01$ and $p < 0.05$ in the studied population. while the local level of resistin in saliva have a significant positive correlation with the plaque index and the gingival index in the healthy controls and gingivitis groups.

Conclusion: Concomitant raise in serum leptin, serum resistin and salivary resistin, while sensible reduction of salivary leptin with conversion from periodontal health state to periodontal disease state. These finding may draw a suggestion on the role of leptin and resistin with in the relation between periodontal disease and the systemic health since the increase in their level were associated with a various systemic pathologies.