

# Estimation of Soluble CD14 Level in Saliva of Patients with Different Periodontal Conditions & Its Correlation with Periodontal Health Status

A Thesis

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# Abstract

**Background:** Cluster of differentiation 14 (CD14) is a serum/cell surface glycoprotein; and it is a pattern recognition receptor. CD14 expressed on the surface of various cells (including peripheral blood monocytes, tissue macrophages, neutrophils, as well as gingival fibroblasts), or it found soluble in saliva and other body fluids. It has been proposed that soluble CD14 (sCD14) may play a protective role by controlling Gram negative bacterial infections through its capacity to bind lipopolysaccharide.

**Aim of the Study:** This study was conducted to assess the level of soluble CD14 in saliva of patients with different periodontal diseases and healthy subjects and determine its correlation with clinical periodontal parameters.

**Materials And Methods:** A total of 80 subjects, age ranged (25-50) years old, divided into three main groups, group I consisted of 45 chronic periodontitis patients with different severities which sub-grouped into (Mild=15, Moderate=15 and Severe=15), group II consisted of 20 gingivitis patients, lastly group III comprised 15 apparently- healthy volunteers. Unstimulated whole saliva samples were collected to determine levels of soluble CD14 in saliva by enzyme-linked immune-sorbent assay (ELISA). Clinical periodontal parameters were recorded at four sites per tooth including plaque index, gingival index, bleeding on probing, probing pocket depth and clinical attachment level.

**Results:** A highly significant difference ( $P < 0.01$ ) was found for salivary sCD14 levels among periodontitis subgroups (the severe subgroup present the higher median), also it was greater than those detected for gingivitis and healthy controls with a highly significant difference ( $P < 0.01$ ). Furthermore, Spearman's correlation analysis showed statistically highly significant strong correlations ( $P < 0.05$ ) between salivary sCD14 levels and each of (probing pocket depth, clinical attachment level). And non-significant correlation between salivary sCD14 level with plaque, gingival & bleeding on probing indices.

**Conclusion:** The findings of the present study reemphasize the importance of whole saliva as sampling method in terms of immunological purposes in periodontal disease and suggest that the elevated sCD14 concentration may be one of the host-response components associated with the clinical manifestations of periodontal disease. Salivary sCD14 level may reflect the extent of the disease and so it may predict future disease progression.