

**Oral manifestations, Oral health status and
Saliva composition changes in a sample of
Iraqi Systemic Lupus Erythematosus patients**

A Thesis

Submitted to the Council of the College of Dentistry,
University Of Baghdad
In Partial Fulfillment of the Requirements for the
Degree of Master of Science
In Oral Medicine

By

Noor Saad Mohammed Ali

B.D.S. (2006)

Supervised by

Professor Dr. Taghreed Fadhil Zaidan

B.D.S., M.Sc., Ph.D. (Oral medicine)

April, 2012 A.D

Jumadal'ula, 1433 H.D

Abstract

Background:-

Systemic lupus erythematosus is a systemic disease (or autoimmune connective tissue disease) that can affect any part of the body. As occurs in other autoimmune diseases, the immune system attacks the body's cells and tissue, resulting in inflammation and tissue damage. It is a type III hypersensitivity reaction caused by antibody-immune complex formation.

This disease most often harms the heart, joints, skin, lungs, blood vessels, liver, kidneys and nervous system; the course of the disease is unpredictable, with periods of illness (called flares) alternating with remissions. The disease occurs nine times more often in women than in men, especially in women in child-bearing ages (15 to 35 years).

Systemic lupus erythematosus is treatable using immunosuppressant medications mainly with cyclophosphamide, corticosteroids and other immunosuppressants; but there is currently no cure. This disease can be fatal, although with recent medical advances, fatalities are becoming increasingly rare.

Patients with systemic lupus erythematosus frequently have sicca symptoms, which may be related to concomitant occurrence of Sjögren's syndrome.

Aims of the study:-

To determine the prevalence of oral manifestations and temporomandibular joint disorders in systemic lupus erythematosus patients, evaluate the oral health status in those patients by using (Decayed, Missed, and Filled Teeth index) and the gingival health status by using Gingival index and Clinical Pocket Depth, investigate the changes of the whole saliva composition through measuring the concentrations of (calcium, sodium, potassium, inorganic phosphorus, chloride and total protein) and comparing the results with clinically healthy individuals and to find a correlation between saliva flow rate, pH, saliva composition changes and the incidence of dental caries in those patients.

Subjects, Materials and Methods:-

One hundred and two individuals were enrolled in this study; Fifty two were systemic lupus erythematosus patients group, they were fifty females and two males; and fifty female healthy individuals (control group) matching the patients in age.

The assessment of dental status was made according to the (Decayed, Missed, and Filled Teeth index); the gingival inflammation was assessed using the criteria of gingival index; clinical pocket depth was measured with periodontal probe type William; whole unstimulated saliva samples have been collected from each subject for biochemical analysis.

Salivary samples were collected by spitting method. Saliva pH was measured immediately by digital pH meter; salivary flow rate was measured by collection of saliva through 10 minutes, the volume of saliva is recorded in order to give the salivary flow rate in ml/min; after centrifugation the supernatant of saliva was aspirated for biochemical analysis.

Results:-

It has been shown that the number of systemic lupus erythematosus patients with active disease in this study was significantly higher than the number of systemic lupus erythematosus patients with inactive (remission) disease according to Systemic Lupus Erythematosus Disease Activity Index.

Oral ulceration was the most prominent orofacial manifestations of Systemic lupus erythematosus patients followed by Tempromandibular joint disorders and facial skin rash then oral vesicles & bullai, oral lichen planus and finally oral petechia & purpura.

The results showed that salivary flow rate was significantly lower in systemic lupus erythematosus patients than in the control subjects ($p < 0.001$); Salivary pH was significantly lower in Systemic lupus erythematosus patients than in the control subjects ($p = 0.001$).

Oral hygiene index (Decayed, Missed, and Filled Teeth index, Gingival index, Clinical Pocket Depth) were significantly higher in those patients than in the control subjects ($p < 0.001$).

The results also showed that salivary elements concentrations which include (calcium, sodium, chloride and total protein) were significantly higher in systemic lupus erythematosus patients than in the control subjects ($p < 0.001$); While concerning (potassium and inorganic phosphorus) they were significantly lower in those patients than in the control subjects ($p < 0.001$).

Highly significant positive linear correlation has been found between age of systemic lupus erythematosus patients and Decayed, Missed, and Filled Teeth index; and between age and Clinical Pocket Depth, also highly significant negative linear correlation has been found between salivary flow rate and salivary calcium in systemic lupus erythematosus patients.

There was highly significant positive linear correlation between Decayed, Missed, and Filled Teeth index and salivary calcium; also between this index and salivary chloride in those patients.

Conclusions:-

The salivary changes observed in systemic lupus erythematosus patients reflect impaired ductal salt re-absorption; the results of this study suggest that changes in salivary flow rate, pH and salivary composition as well as increase dental caries experience in those patients may serve as potential markers of the extent of auto immune mediated salivary gland dysfunction which is similar to Sjögren's syndrome.