

**Caries experience in relation to salivary
physicochemical and immunological
changes among asthmatic patients in
Mosul city / Iraq**

A Thesis

Submitted to the College of Dentistry

University of Baghdad

in Partial Fulfillment of the Requirement

for the Degree of Master of Science in

Preventive Dentistry

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Abstract

Background: Asthma is one of the serious systemic diseases that may cause permanent changes in the airways, and may affect the oral health of asthmatic patients.

Aims of the study: This study was conducted to investigate the dental caries and dental plaque among a group of asthmatic patients in relation to salivary variables include: salivary flow rate, S-IgA and selected salivary inorganic elements (calcium, phosphate, sodium and potassium ions).

Materials and Methods: The sample included a study group of 30 male patients with an age range (20-24) years having asthma under Ventolin inhaler and a control group of 30 healthy looking subjects matching in age and gender. Diagnosis of dental caries according to the criteria of WHO (1997) and plaque index of Silness and Loe (1964). Stimulated salivary samples were collected and then salivary flow rate, S-IgA and salivary elements concentrations (Ca, PO₄, Na and K) were determined.

Results: Results showed that the mean value of dental caries (DMFS) was higher among study group than the control group with statistically no significant difference. The mean value of plaque index (PI I) was found to be higher among study group compared to control group with statistically significant difference. Lower salivary flow rate was found among study group compared to the control group with no statistically significant difference, also Ca, PO₄, Na and K ions concentrations were lower among asthmatic patients, with no statistically significant difference, except for Ca and K ions the differences were statistically significant. S-IgA in the study group was higher than the control group and the difference was not significant. In the study group, weak negative non significant correlations between DMFS and (flow rate, PO₄, Na and K ions) and weak positive non significant correlations with Ca, while for S-IgA there was a weak positive significant correlations. In the

control group, weak positive non significant correlations were found between DMFS and (Ca and S-IgA), and weak negative non significant correlations with (flow rate, PO₄, Na and K ions).

For PI index a weak negative non significant correlations were observed with (flow rate, Ca, Na, K and S-IgA), and weak positive non significant correlations was observed with PO₄ in study group and weak negative non significant correlations were observed with (flow rate, PO₄, Na, K and S-IgA) and a statistically, significant weak positive correlation was present with Ca in control group.

Result of multiple linear regression showed that independent salivary variables (flow rate, Ca, PO₄, Na, K, and S-IgA) had an impact on dependent variables DMFS by 24%, while for PI I it was 8.2%.

The mean and standard deviation of duration of drug intake (Ventolin inhaler) was (13.933± 5.854) months. Significant weak negative correlation were observed between the duration of drug intake and (Ca, Na and K ions), and significant weak positive correlation was observed with PO₄, while non significant weak positive correlations were observed with (S-IgA, PI I and DMFS) and non significant weak negative correlations was observed with flow rate.

Conclusions: Individuals with asthma have a higher caries occurrence, worse oral cleanliness and lower salivary elements compared to the control group, so a special preventive programs need to be designed for those patients.