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College of Dentistry**



Assessment The Influence of Xeroxstmia On Some Salivary Parameters and Dental Caries In Hypertensive Patients

A Thesis

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By

Fawzi Hussein Abdul Ameer

B.D.S.

Supervised by

Prof. Dr. Maha Adel Mahmood

Ph.D (Oral Microbiology)

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Abstract

Dry mouth or xerostomia, is a common symptom that could be caused by various conditions, such as hypertension, dehydration, diabetes, diseases involving salivary glands, such as Sjögren's syndrome, side effects of many drugs, like antidepressants, and radiation therapy of the head and neck. The complaint of xerostomia may or may not be accompanied by a decrease in salivary gland function. Xerostomic individuals complain of problems with speaking, eating, swallowing, and using dentures. The decrease in saliva will predispose individuals to several oral infections, like candidiasis, increase the risk of dental caries, and periodontitis.

The current study was done to show the differences in xerostomia score index (XI), caries severity and caries experience between the xerostomic and non-xerostomic study groups, in addition to measure some salivary parameters such as flow rate, viable count of *Streptococcus mutans* and *Candida albicans* and also the levels of some salivary biological factors like Immunoglobulin IgA, α -amylase and osteopontin in both study groups and show the correlations between the studied parameters.

This study was carried out at Al-Sadar hospital, Maysan province and the dental specialized center in Baghdad during the period April to August 2018. A total of 100 unstimulated salivary samples were collected from 70 hypertensive women suffering from xerostomia symptoms represented a patient group of this study compared with a 30 healthy control women. All with ages range between 50-65 years. The caries severity was determined for both study groups according to (Organization, 2013).The collection of unstimulated saliva was done according to (Navazesh, 1993). The colony forming unit of *Streptococcus mutans* and *Candida albicans* were calculated after cultivation on Mitis Salivarius Bacitracin Agar media and Sabourauds dextrose agar respectively, whereas the levels of secretory immunoglobulin (sIgA), α -amylase and osteopontin were

determined by specific ELISA kits. The statistical analysis depend on using mean to compare the results of both studied groups and correlation coefficient (r) to study the correlation between the different studied parameters.

The result of xerostomia index score (XI) in the present study showed a high significant differences ($p < 0.001$) between the xerostomic hypertensive patients (25.41) and non-xerostomic normotensive individuals (14.7).

The results showed no effect for xerostomia on caries severity in hypertensive patients since the mean number of decayed teeth was higher in control group than patient group. On contrast, highly significant differences ($p < 0.01$) in the caries experience (DS, MS, FS) were recorded among the xerostomic hypertensive group when compared with the control group (healthy women). The flow rate results of unstimulated saliva showed also a highly significant differences ($p < 0.01$) between both xerostomic group and control group as the mean value was lower mean \pm SD (0.1 ± 0.03) () for patient group than that of control group mean \pm SD (0.35 ± 0.1).

This study shows no significant differences ($p > 0.05$) in viable count (cfu/ml) of *Streptococcus mutans* between both study groups. On contrarory, a higher colony counts (cfu/ml) of *Candida albicans* mean \pm SD s (2.47 ± 1.07) was shown in xerostomic group as compared with control group mean \pm SD (1.86 ± 1.06) with observed significant differences ($p < 0.01$).

Furthermore, the mean values of IgA, α -amylase and osteoprotogerin show no significant differences between both study groups.

No significant correlation was detected between the xerostomia score in patient group and each of the salivary flow rate, viable count of *Streptococcus mutans*, viable count of *Candida albicans*, and biomarkers under investigation (sIgA, α -amylase and osteoprotogerin).

Xerostomia index showed a significant positive correlation ($p < 0.01$) with DMFS and α -amylase in control group.

No significant correlation was revealed between each of severity grades (D1, D2, D3, D4) and caries experience with flow rates in both study groups ($p>0.05$). In control group, a significant positive correlation ($p<0.05$) between DMFS and viable count of *Streptococcus mutans* was noted while a significant negative relationship has been detected between *Candida albicans* and DMFS in patient group.

The patient group reveals a negative relationship between the flow rate and the prevalence of *S.mutans* with a high significant differences ($p<0.01$).

The result of the present work show significant negative correlations ($p<0.01$) between IgA value with caries grades D1, D3, D4 at first time and with DMFS at second time in patient group.

A significant positive correlation ($p<0.05$) was observed between decay/missing filling surfaces (DMFS) and each of α -amylase and osteoprotogerin in control group.

According to *S. mutans* count, non-significant correlation was shown with all biomarkers under investigation except for α -amylase which show a significant negative correlation ($p<0.01$) in patient group.

The xerostomia index score (XI) and flow rate were higher in the xerostomic hypertensive women when compared with non-xerostomic normotensive individuals with no effect for xerostomia on caries severity in hypertensive patients was reported. Furthermore, No observable differences was detected in count of *Streptococcus mutans* between both study groups. On contrarory, a higher colony counts (cfu/ml) of *Candida albicans* was shown in xerostomic group as compared with control group. No significant correlation was detected between the xerostomia score in patient group and each of the salivary flow rates, viable count of *Streptococcus mutans*, viable count of *Candida albicans*, and biomarkers under investigation (sIgA, α -amylase and osteoprotogerin).