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Dental caries experience in relation to selected salivary elements and antioxidants

A Thesis
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Abstract

Background:

Dental caries is a most common social and intractable infectious disease in human. Due to its significant communal impact and high prevalence, it is considered a major public health problem globally. Salivary elements and antioxidants had many effects on caries experience.

Aim of study: This study was conducted to assess dental caries experience (DMFS) by age and gender and their relation to salivary (zinc, copper, total protein and super oxide dismutase) among a group of adults.

Materials and methods:

After examination of eighty persons aged 19-22 years of both gender, caries experiences was documented according to DMFS index. Under standardized condition, stimulated salivary samples were collected and chemically analyzed to detect salivary elements (zinc, copper) and selected salivary antioxidants (total protein, superoxide dismutase). Concentrations of zinc and copper were measured by using atomic absorption spectrophotometry, while concentrations of total protein and superoxide dismutase were measured by spectrophotometric analysis.

Results

Total males had a slightly higher mean value of DMFS and DS fraction than that of the total females with statistically non-significant differences at $p > 0.05$ regarding DMFS, while significant difference was found regarding DS fraction. Frist age group (19-20) had a lower mean value of DMFS than that of the second age group (21-22), while it had a higher mean value of DS fraction with statistically non-significant.

Salivary elements levels (zinc and copper) and total protein were found higher among caries active group than caries free group with non- significant differences, while superoxide dismutase level was lower among caries active group than caries free group with non- significant differences. Total males reported

nearly the same mean value of salivary zinc and copper concentrations as in the total females with statistically non-significant differences at p> 0.05. Total females had a higher mean value of salivary total protein concentration than that the total males, while total males demonstrated a higher mean values of salivary SOD than that of females with statistically non-significant differences. Non-significant positive weak correlation between DMFS index and salivary zinc, copper and total protein. On the other hand, there is non- significant negative weak correlation between DMFS index and salivary SOD. A significant positive strong correlation found between DS and salivary total protein, while non-significant positive weak correlation between DS fraction of DMFS and salivary zinc and copper. Only a non- significant negative weak correlation was found between DS fraction of DMFS and salivary SOD, while with other variable it was found positive correlation.

Conclusion:

The salivary SOD is most important factors in prevention of dental caries. Therefore, changes in salivary composition play an important role in development and progression of caries.