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Selected Salivary Antioxidants and Lipid Peroxidation Biomarker in Relation to Oral Health Condition among a group of Obese Students Iraqi Women (A Comparative Study)

A thesis

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Abstract

Background: Obesity is a serious health problem, with increasing prevalence among adult and children. It is a medical condition in which excess adipose tissue accumulated to the extent that it may have a detrimental impact on general health as well as on oral health condition.

Aims of study: This study was conducted to estimate the level of selected salivary antioxidants (total protein, uric acid), lipid peroxidation biomarker/ malondialdehyde and salivary flow rate in relation to oral health status (dental caries, dental plaque and gingival health condition) among a group of obese women in comparison with normal weight women.

Subjects, materials and methods: The total sample for this study consisted of eighty women aged 20-22 years at College of Islamic Sciences/Baghdad University. The total sample was divided into two groups: the study group which consisted of forty obese women (BMI≥30 kg/m^2) and the control group which consisted of forty normal weight women (BMI 18.5-24.9 Kg/m^2). Weight status was measured using Body Mass Index (BMI) specific for adult (WHO, 2006). Unstimulated salivary samples were collected under standardized conditions. Plaque index of Silness and Loe (1964) was used for assessment of dental plaque; gingival index of Loe and Silness (1963) was used to assess gingival health status; and Manji et al (1989) was used for the diagnosis and recording of dental caries. Salivary flow rate was measured then salivary samples were analyzed to determine the concentration of salivary antioxidants (total protein, uric acid) and lipid peroxidation biomarker (Malondialdehyde, MDA).

Results: Results found that the plaque index value was lower among the obese (1.04±0.22) than that among the normal weight women (1.17±0.17) with statistically highly significant difference ($p<0.01$). The gingival index value among the obese women (0.73±0.16) was lower than the gingival index value among the normal weight women (0.79±0.23), however, the difference not

reached to significance. The level of (DMFS) among the obese women (8.03±3.03) was highly significantly lower than that among the normal weight women (10.80±3.93). The flow rate of saliva among the obese women (0.38±0.04) was found to be highly significantly higher than that among the normal weight women (0.34±0.05) and found to be correlated inversely with (plaque index, gingival index and dental caries DMFS) among both the study and the control groups. On the other hand, the level of salivary total protein was lower among the obese women (503.14±37.54 mg/dl) than that among the normal weight women (556.19±32.14mg/dl) with statistically highly significant difference ($p<0.01$), while the level of salivary uric acid and malondialdehyde were higher among the obese women (4.26±0.90 mg/dl, 0.23±0.03 µmol/dl respectively) than that among the normal weight women (3.66±0.67 mg/dl, 0.13±0.04 µmol/dl respectively) with statistically highly significant difference ($p<0.01$). Furthermore, salivary total protein showed a no significant correlation in a positive direction with (plaque index, gingival index and dental caries DMFS) while salivary uric acid correlated no significantly in negative direction with (plaque index, gingival index and dental caries DMFS). Concerning malondialdehyde (MDA), it was correlated not significantly in a negative direction with plaque index and dental caries DMFS and not significant in positive direction with gingival index.

Conclusion: It was concluded that salivary flow rate and salivary antioxidant (uric acid) were found to be higher among obese women that could play a role in protection of oral tissue from oral diseases in addition to the oral cleanliness effect.