Oral Health Condition and Salivary Constituents (Zinc, Copper, Calcium, Iron and Total protein) among the selected Overweight Primary School Children

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Abstract

Background:

The overweight and obesity have serious health consequences including the health of oral cavity.

Aims of the study:

The aims of the present study were to assess the oral health condition including dental caries, gingival health condition and some salivary constituents in addition to flow rate among the overweight children and compare them with the normal weighted children of the same age and gender.

Materials and Methods:

The total sample composed of 478 children aged 6-11years, 239 normal weighted and 239 overweight children. The assessment of nutritional status was performed using Body Mass Index specific for age and gender. The diagnosis and recording of dental caries was according to Manji et al (1989). Plaque index of Silness and Loe (1964) was used for plaque assessment, gingival index of Loe and Silness (1963) was used for gingival health condition. Ramfjord index teeth (1959) were applied to assess oral cleanliness and gingival condition.

Salivary sample were collected under standardized condition and then analyzed for estimation essential elements (zinc, copper, and calcium) by using flame atomic absorption spectrophotomerty (AAS) while the iron and total protein level by using spectrophotometric analysis.

Results:

The results showed that 10.04% of the total sample was caries free among the overweight children which is higher than that percentage among the normal weighted children (1.26%). The caries experience

among the overweight was (9.49±7.54)highly significant lower than that among the normal weighted children (12.55±8.27) concerning the primary dentition, while for the permanents dentition, the DMFs among the overweight children (1.27±.05) was significantly lower than that among the normal weighted children (1.72±.01).

The plaque index was reported to be 1.49±0.44 among the overweight children which was not significantly higher than (1.46±0.49) among the normal weighted children, while the gingival index was 0.92±0.39 among the overweight which is not significantly higher than that among the normal weighted children (0.91 ±0.51).

The salivary flow rate among the overweight children (1.00 ± 0.17) was found to be significantly higher than that among the normal weighted children (0.85±0.43) and found to be correlated directly with dmfs while the opposite result was found concerning DMFs among the overweight children, however the result were failed to reach the significancy, as well as the correlation among the normal weighted children were not significant but it was directly correlated with both DMFs and dmfs.

The data analysis of the present study found that the level of salivary copper, zinc, calcium, and total protein were higher among the overweight children than the normal weighted children, but the differences were not reach the significancy, while the salivary iron level was lower among the overweight than that among the normal weighted children, however the significancy was failed to be present.

Among the overweight children, zinc, copper, calcium, iron, and total protein were found to be inversely correlated with DMFs and dmfs and significancy concerning iron with dmfs and calcium with DMFs while among the normal weighted children the copper, calcium and iron were positively correlated with DMFs and dmfs, while zinc and total protein

were inversely correlated with dental caries experiences and the significant correlation was found between total protein and DMFs.

Among the overweight children iron, copper and total protein were inversely correlated with GI while zinc and calcium were positively correlated with GI, on the other hand, among the normal weighted children, zinc, copper and calcium were inversely correlated with the mean of gingival index while iron and total protein were positively correlated with GI, however all the correlations were not significant.

Conclusion:

The weight status affect oral health condition as the caries experience was found to be lower among the overweight children. Many salivary elements that were found to be higher among overweight children could protect oral tissue from diseased condition.