The effect of non-surgical periodontal therapy on metabolic control in children

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Introduction: The most prevalent periodontal disease among children is gingivitis, and it usually becomes more severe in adolescence. A number of intervention studies suggested that resolution of periodontal inflammation can improve metabolic control in patients diagnosed with diabetes mellitus.

Aim: to assess the effect of non-surgical periodontal therapy on glycemic control of children diagnosed with diabetes mellitus.

Method: Twenty-eight children diagnosed with diabetes mellitus were recruited with established diagnosis diabetes for at least 1 year. Informed consent and child assent form were obtained from children and parents prior to enrolment. The dental examination for the participants was performed on the same week directly following their annual medical assessment. All patients had their glycosylated hemoglobin (HbA1c%) test one week prior to their annual medical and dental visit and 3 months following non-surgical periodontal therapy. All patients received a comprehensive periodontal examination The periodontal assessment included clinical attachment loss, bleeding on probing, plaque score, plaque index and gingival index. All patients were referred for non-surgical periodontal therapy, which included oral hygiene instruction and motivation followed by supra-gingival and subgingival scaling using ultrasonic and hand instruments.

Statistical Analysis: Data were entered and analyzed using the Statistical Package for Social Science software (SPSS, Chicago, USA), version 18. Statistical analysis of clinical findings was performed to detect differences between the two groups in term of periodontal findings and HbA1c%. Binary logistic regression analysis was performed in order to examine which factors were significant in multivariate analysis after adjusting for confounding between effects. The regression model used the dependent variable 'Improved glycemic control', and the independent variables entered in the model were plaque index, gingival index, bleeding %, plaque Statistical significance was set at $p < 0.05$.

Result: A total of 28 children. The mean age of the participants was 13.3±1.92 years. The study participants were divided into two groups; Compliant group (received dental scaling) and non-complaints group (received oral hygiene instructions only). No statistical difference was found between compliant and non-compliant group in age, gender distribution, oral hygiene practice and the level of diabetes control. There was a significant difference between compliant and non-compliant group in term of improvement of HBa1c before and after periodontal therapy. Mean gingival index was the only significant variable associated with improved glycemic control level.

Conclusion: this study has demonstrated that non-surgical mechanical periodontal therapy can improve HbA1c% control. The result of this study confirmed that children with diabetes mellitus who are compliant to dental care and have routine professional scaling may have better metabolic control compared to diabetic children who are erratic with dental care.

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