

Evaluation of the relationship between type 2 diabetes and periodontal disease

To the Editor

I read with interest the article by Awartani¹ on the evaluation of the relationship between type 2 diabetes and periodontal disease. Diabetes mellitus (DM) usually increases the risk of periodontal diseases and biologically plausible mechanisms have been demonstrated in abundance.² Though Awartani demonstrated various periodontal lesions in the studied patients aged 35-70 years with type 2 DM, these lesions generally resemble that observed in children with type 1 DM. The number of children with type 1 DM is continuously increasing worldwide and they are known to have many oral disorders. Various studies have demonstrated that diabetic children statistically have more plaque, gingival inflammation, calculus, attachment loss, and periodontal destruction compared to healthy controls.³⁻⁶ Diabetes mellitus increases the liability to periodontal infection, which ultimately has an adverse effect on glycemic control and incidence of diabetic complications.⁷ In addition, accelerated periodontal destruction in diabetic children was found to be related to the level of metabolic control. Good metabolic control might be important in addressing periodontal complications in diabetic children, similarly to what is well-established for other systemic complications of this disease.^{8,9} Therefore, it is prudent for dentists to be familiar with different oral lesions caused by DM and oral checking must be part of routine follow-up of diabetic patients. Effective programs designed to promote periodontal diseases prevention and treatment should be provided to all diabetic patients regardless of their age and type and duration of DM.

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Reply from the Author

In reply to the comments addressed by Dr. Al-Mendalawi, I would like to add the following important points, interrelationship between diabetes and periodontal disease has been studied with interest, due to the increase of number of individuals suffering from DM,¹⁰⁻¹² which leads to oral manifestations and complications. Diabetes has been associated with numerous complications one of them is more prone to

infection and slower in healing after surgery; therefore, adjunctive prophylaxis may be necessary if surgical periodontal treatment is considered. Whatever modality of periodontal treatment is chosen, the age of patient, amount of plaque, calculus, and level of diabetic control needs to be taken into consideration. The well-controlled DM patient with periodontal disease is often an acceptable candidate for complete periodontal therapy; however, the presence of medical complications associated with DM should be carefully evaluated.¹³

A meta-analysis published in 2006¹⁴ has reviewed 32 different articles published between January 1970 and October 2003, this paper demonstrated that diabetics have significantly worse oral hygiene as measured by the average of plaque index (P1I). However, diabetics have similar extent of oral hygiene, gingival, and periodontal disease as measured by percentages of surfaces or sites with specific scores of P1I. Studies give controversial results regarding oral hygiene practices; therefore, different results are achieved through measuring different parameters. In addition, a patients age and geographic area might also have some influence on the results.

In 2005, Siudikiene, et al¹⁵ compared plaque indices between children with type 1 DM to non-diabetic children. They did not find a statistically significant difference in the mean values of the simplified oral hygiene index between the 2 groups, however, the mean calculus index was significantly higher and the mean plaque index was significantly lower in a diabetic child, as compared with a non-diabetic ($p < 0.05$). There was no difference in toothbrushing habits between the study subjects. They concluded that children with type 1 DM were more prone to calculus accumulation, which seemed to be a predisposing factor, or as a secondary factor in development of gingivitis in these individuals. In general, DM patients should be encouraged to maintain meticulous health, oral hygiene, and receive supportive periodontal therapy between intervals to sustain a high level of periodontal health.

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Ethical Consent

All manuscripts reporting the results of experimental investigations involving human subjects should include a statement confirming that informed consent was obtained from each subject or subject's guardian, after receiving approval of the experimental protocol by a local human ethics committee, or institutional review board. When reporting experiments on animals, authors should indicate whether the institutional and national guide for the care and use of laboratory animals was followed.