CORRELATION BETWEEN PERIODONTAL DISEASE AND DIABETES

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Abstract: *This paper has sought the relationship diabetes-periodontal disease from worrying reports of the World Health Organization concerning the continuous increase in the incidence of diabetes in recent years. Diabetes is a risk factor for severe periodontitis. There is a bidirectional relationship between diabetes and periodontal disease.The treatment of periodontitis in diabetic patients favors a reduction in mediators responsible for the destruction of periodontal tissue. Periodontal disease is characterized by low grade chronic inflammation that may remain silent in diabetics causing damage that is not locally limited but may extend systemically.*

Cuvinte cheie: *boală parodontală, diabet*

Rezumat: *Articolul de faţă a urmărit relaţia diabet-boală parodontală pornind de la rapoartele îngrijorătoare ale Organizaţiei Mondiale a Sănătăţii privind creşterea continuă a incidenţei diabetului zaharat în ultimii ani. Diabetul este un factor de risc pentru parodontopatii severe. Există o relaţie bidirecţională între diabet şi boala parodontală. Tratamentul parodontopatiilor la pacienţii cu diabet zaharat favorizează o reducere a mediatorilor responsabili pentru distrugerea ţesuturilor parodontale. Boala parodontală este caracterizată printr-un grad scăzut de inflamare cronică care poate rămâne mută la diabetici cauzând pagube care nu sunt limitate la nivel local, dar se poate extinde sistemic.*

INTRODUCTION

Periodontitis is often referred to as the sixth complication of diabetes(1).Dentists must be aware of the signs and symptoms of diabetes, and understand the importance of maintaining periodontal health for anyone with diabetes.

Diabetes mellitus is a metabolic disorder characterized by hyperglycemia due to defective secretion or activity of insulin(2). A conclusive diagnosis of diabetes is assessing the level of glycosylated hemoglobin.

Long-term complications may occur in both type 1 and type 2 diabetes(2,3). Diabetes may lead to coronary heart disease, strokes, retinopathy, nephropathy and neuropathy. Untreated or poorly controlled diabetes was associated with an increased suscetibilitate in oral infections, especially periodontal disease.The incidence of periodontitis increases at postpubertali subjects and increases with advancing age, being worse in patients with systemic complications of diabetes. It has been established a correlation between the presence of diabetes and chronic marginal periodontitis, especially in diabetics treated improperly.

Oral complications of diabetes are(4,5):

- Xerostomia;
- susceptibility of oral tissues to trauma;
- accumulation of plaque
- risk of caries and susceptibility to periodontal disease
- opportunistic infections
- risk of developing periodontal abscesses when periodontitis is present
- delayed healing

Factors contributing to the development of periodontal disease in diabetes:

Microcirculatorie dysfunction of gum in diabetes

Microangiopathic gum changes were first described by Ray. It considered characteristic the thickening and degeneration of hialinic capillaries, arterioles, swelling of endothelial cells and vascular obliteration (6).

The changing of erythrocyte function

Due to erythrocyte shape change the flow changes, the viscosity of intracellular hemoglobin glycosylation or membrane proteins also changes. The cause of aggregation of red blood cells is modification of plasma proteins. Glycosylation is the binding protein with glucose.

In conclusion, microcirculatorii disturbances were caused by pathophysiological changes, morphological and physiological damages of the small vessels is a consequence of diabetic hyperglycaemia.

The function change of polymorphonuclear leukocytes

Periodontal disease severity is correlated with the alteration of chemotaxiei. Diabetic patients with severe periodontitis had the chemotactic function of polymorphonuclear leukocytes depressiond compared with that found in non-diabetic patients with periodontal disease. It is also found a local change, so the activity of polymorphonuclear leukocytes from the gingivo-cervical fluid collected from diabetics was lower than in blood or other tissues regardless of diabetes status(7).

As for the effect of diabetes on periodontal health numerous studies have found a positive relationship between poor glycemic control in persons with type 2 DM and increased periodontitis. One five-year longitudinal study found increased attachment loss in diabetic adolescents, whereas non-diabetic subjects had stable attachment levels.(8) A cross-sectional study of over 1400 subjects found diabetics to have 2.3 times increased risk for attachment loss(9). Taylor(10) recently

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published a qualitative systematic review examining the evidence for an adverse relationship between DM and periodontal disease. Of the 48 studies on children and adolescents with type 1 diabetes, all but one found an increased prevalence of periodontal disease compared to non-diabetic children. The level of diabetic control was a significant factor. Subjects with diabetes who were able to maintain consistent glycemic levels had no greater risk than did healthy subjects. Does not appear to be any correlation between the prevalence or severity of periodontal disease and the duration of diabetes.

First studies attempted to determine if the presence of periodontal disease influences the control of diabetes(11,12)and reported that periodontal therapy may improve metabolic control of diabetes. Upon closer examination of the research, it was shown that mechanical periodontal treatment alone improves periodontal health, but had an effect of the level of glycosylated hemoglobin. The magnitude and duration of the improvement may not be clinically significant.

There is weak evidence from clinical trials that diabetics require more thorough and aggressive periodontal therapy than do non-diabetics with periodontal disease. Once the periodontal disease is under control, and the patient with diabetes remains on a maintenance program for plaque control at three-month intervals, the periodontal health will remain stable. Periodontal health may deteriorate more rapidly in poorly controlled diabetics than in other patients, and may not respond as well to traditional therapy. Knowledge of patients' metabolic control is important for determining prognosis and recall intervals. For patients who do not respond well to initial therapy, it may be appropriate to select an antibiotic based on the results of microbial testing(13). While properly controlled diabetics can undergo all dental treatments without special precautions, the dentist must also be aware of the signs and symptoms of an acute hypoglycemic attack .They are: dizziness, anxiety, pallor, tachycardia, sweating , weakness, hunger. It is advisable to have some form of rapidly absorbed glucose, on hand when treating patients with diabetes. To avoid an episode of hyperglycemia must consider the following:

- Schedule the patient at their time of highest insulin activity.
- The patient must be advised not to change their insulin regimen or diet prior to their treatment.
- Have a blood glucose monitor in the office or ask patient to bring theirs

CONCLUSIONS

Prevention and control of periodontal disease must be considered an integral part of diabetes control. The principles of treatment of periodontitis in diabetic patients are the same as those for non-diabetic patients and are consistent with our approach to all high-risk patients who already have periodontal disease. Major efforts should be directed at preventing periodontitis in patients who are at risk of diabetes. Diabetic patients with poor metabolic control should be seen more frequently, especially if periodontal disease is already present. Patients with wellcontrolled diabetes, who have good oral hygiene and who are on a regular periodontal maintenance schedule, have the same risk of severe periodontitis as nondiabetic patients.

Table 1 Periodontal maintenance for patients with well controlled diabetes(14-17)

Diabetes well controlled	Periodontal maintenance	Frequency
Healthy periodontium; no or minimal localized gingivitis	Record probing depths and bleeding score; deplaque	Annually
Healthy periodontium, Generalized gingivitis	Record probing depths and bleeding score; deplaque	Annually
	Deplaque	Every 6 months
Chronic, moderate periodontal disease	Refer management to periodontist if possible	
	If referral not possible, monitor	Every 3 months
	Record probing depths and bleeding score; deplaque	Annually
	Check probing depths and bleeding score; deplaque	At each visit

Table 2 periodontal maintenance for patients with poorly controlled diabetes (14-17)

Diabetes poorly controlled	Periodontal maintenance	Frequency
Healthy periodontium; no or minimal localized gingivitis	Record probing depths and bleeding score; deplaque	Every 6 months
	deplaque	
Healthy periodontium, generalized gingivitis	Record probing depths and bleeding score; deplaque	Annually
	deplaque	Every 4-6 months
Chronic, mild to moderate periodontal disease	Refer if possible	
	If referral not possible, monitor	Every 3 months
	Record probing depths and bleeding score; deplaque	Annually
	Check probing depths and bleeding score; deplaque	At each visit
Advanced or aggressive periodontal disease	Refer if possible	
	If referral not possible, monitor	Every 3 months
	Record probing depths and bleeding score; deplaque	Annually
	Check probing depths and bleeding score; deplaque	At each visit

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