EVALUATION OF ORODENTAL PATHOLOGY IN PATIENTS WITH DIABETES MELLITUS

Adriana Pirte*, Ligia Vaida*, Ioana Scrobota*, Alina Venter *,

*University of Oradea, Faculty of Medicine and Pharmacy Oradea, Romania, e-mail: pirteadriana@gmail.com

Abstract

This paper seeks to highlight the orodental pathology in patients with diabetes mellitus. The presence of numerous carious lesions was associated with xerostomia (dry mouth) or elevated blood glucose levels in gingival sulcus fluid, but also with poor oral hygiene in some patients. We noticed that in the case of patients with diabetes mellitus which is well contained and where there is good oral hygiene, there are no severe dental and periodontal dental complications, their dental and periodontal status being similar to that of non-diabetic patients. Orodental complications in patients with diabetes can be prevented by performing proper oral hygiene, complying with the hygienic-dietary regime and medication, as well as making of regular dental check-ups.

Key words: diabetes mellitus, orodental pathology, patients, periodontal disease

INTRODUCTION

Diabetes has become a major problem faced by the individual, medicine and society as a whole. This is because it is a chronic, frequent, long-lasting and devastating disease if not well cared for. In the United States diabetes mellitus is the third cause of death while in Romania the diagnosed diabetics represent approximately 5% of the entire population. In this context it is mandatory that a dentist be familiar with the specific signs and symptoms of this disease and performs an adequate treatment of orodental diseases. Moreover an effective oral hygiene approach is vital for the patient with diabetes. Early diagnosis and treatment significantly reduce the severity of diabetes complications and improve quality of life of a patient. (Carranza F.A. et al, 1984) .Periodontal disease is ranked by some authors as the sixth complication of diabetes mellitus, while the association of these two diseases is well known and extensively studied (Dumitriu TH, 1997, Mullally BH et al 2000).

MATERIAL AND METHODS

In order to achieve the clinic research, we selected 52 patients with diabetes facing periodontal and dental diseases. The study was conducted over a period of 8 months. Patients included in the study were aged 24-75 and

divided according to diabetes types i.e.: a) Type 1 diabetes mellitus (insulin-dependent); b) Type 2 diabetes mellitus (non-insulin dependent).

RESULTS AND DISSCUSIONS

Of the total 52 patients examined, seven had type 1 diabetes mellitus (i.e. 13.46% of the total patients); the remaining 45 patients suffering from type 2 diabetes mellitus. (see Table no.1,2)

Table 1

Patients with Diabetes mellitus type 1

Number of patients examined	**Number of patients suffering from diabetes mellitus type 1**	**Share of patients suffering from diabetes mellitus type 1 (%)**
52	12	13.46%

From the data contained in consultation sheets (medical records) and those collected from the patient's history we have distributed the lot of patients by the age of their disease as follows: a) diabetes mellitus disease age >10 years - 28 patients b) diabetes mellitus disease age range ranging between 3-10 years - 19 patients, and c) 5 patients with their diabetes mellitus disease age < 3 years (Fig No.1)

Table 2

Patients with Diabetes mellitus type 2

Number of patients examined	**Number of patients suffering from diabetes mellitus type 2**	**Share of patients suffering from diabetes mellitus type 2 (%)**
52	45	86.53%

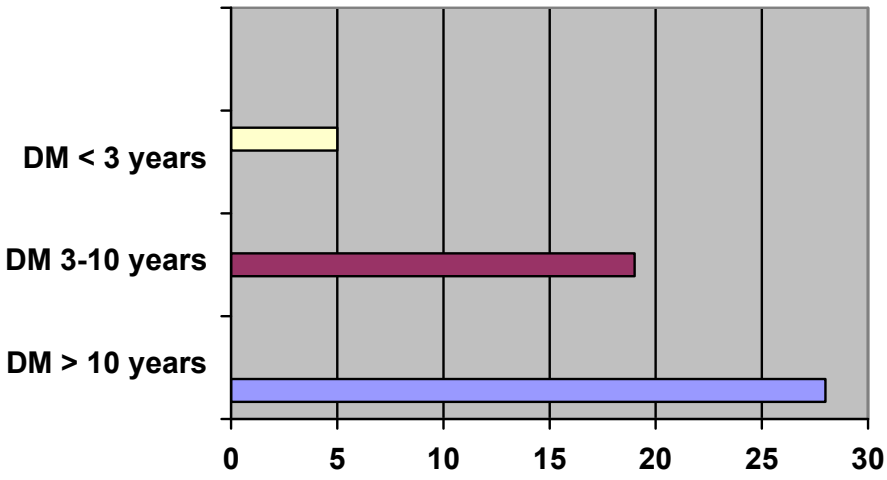

Fig. 1 The age of Diabetes mellitus

Most patients were nonsmokers, while the smokers faced periodontal and tartar problems (Fig No.2)

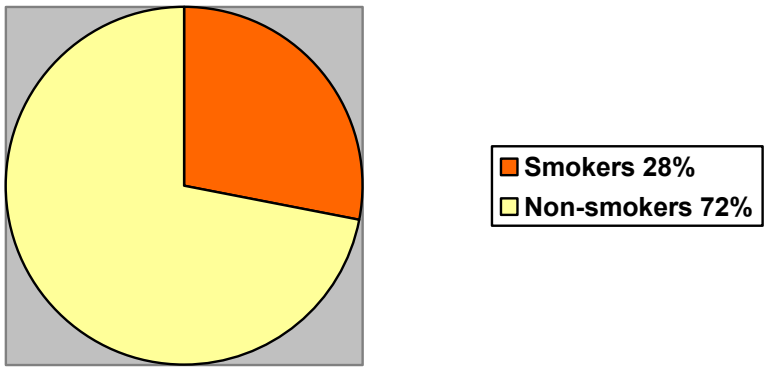

Fig 2 Tobacco consumption

During the clinical examination we focused on the following procedures: inspection, palpation, periodontal probing, gingival bleeding assessment and pulp vitality testing. Patients often reported the burning mouth syndrome due to xerostomia (dry mouth). One patient with decompensated type 2

diabetes mellitus presented oral candidiasis and three patients confirmed the occurrence of the infection in the past.

The presence of numerous carious lesions was associated with xerostomia or high levels of glucose in gingival sulcus fluid, but also with poor oral hygiene in some patients. Of the 52 patients, 37 had tooth decays of which 72% were common and 28% presented tooth decays with complications. (Fig No.3)

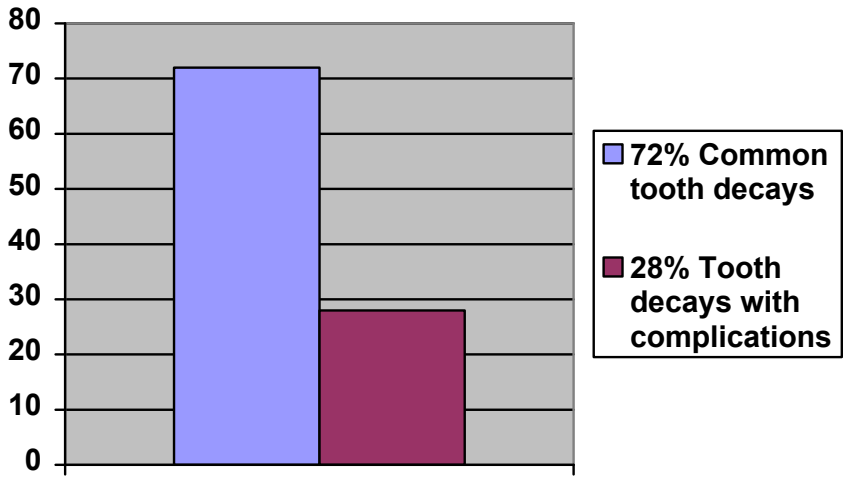

Fig. 3 Occurrence of tooth decay

In terms of marginal periodontal damage 35% of patients suffered from gingivitis, bacterial plaque and small (or none) tartar, 43% of patients suffered from advanced forms of periodontal disease. Severe forms of periodontal disease were reported in decompensated patients with poor oral hygiene. A share of 22% of patients with well contained diabetes mellitus and good oral hygiene showed no significant complications (Fig No.4). With reference to age of periodontal disease, we found that the vast majority of patients who had severe periodontal disease had been suffering from this disease from more than 8 year (Mealey B, 1999). Patients with type 1 diabetes mellitus have an increased risk of developing periodontal disease, especially when reaching old age, and the severity of such disease increases proportionally with the diabetes mellitus development time. In the case of decompensated diabetics with a poor control of bacterial plaque, the periodontal disease occurs quickly, and its development is more acute (Newman M. et al 2007, Severineanu V.,1994, Salvi G.E. et al 2005).

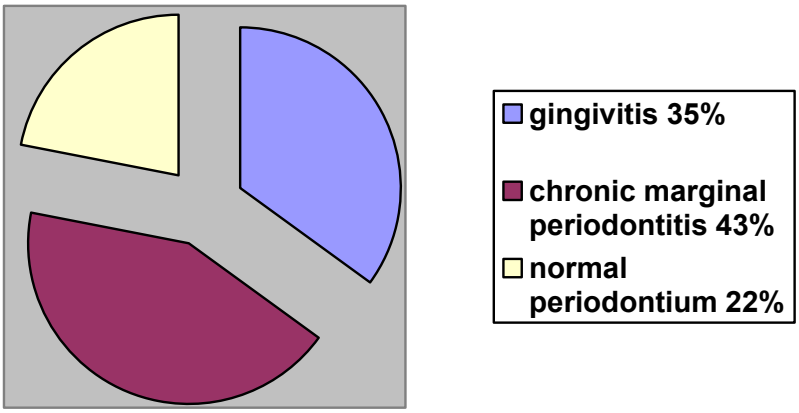

Fig. 4 Periodontium status

One noted that when diabetes mellitus which is well contained, the periodontium status is similar to that of non-diabetic patients; however, in the cases of diabetes mellitus which is poorly contained, one perceived increased gingival inflammation, attachment loss, and bone lysis (Papapanou PN., 1996, Plagmann HC. et al 1988).

CONCLUSIONS

Patients gathered in the study sample group showed a relatively high frequency of >4mm deeper periodontal pockets, associated with the accumulation of supra and subgingival plaque, gingival inflammation and increased bleeding index. Gingival bleeding index values are higher for deteriorated metabolic control and are associated with high gum disease index i.e. high presence of plaque, tartar, and periodontal pockets. We noticed a direct correlation between the severity of periodontal disease on the one hand, and the containment degree of diabetes and the level of oral health on the other hand, since we met a high incidence of periodontal diseases in the group of subjects with high blood sugar levels. Orodental complications in patients with diabetes can be prevented by performing proper oral hygiene, complying with the hygiene and diet plan and medication, as well as presenting oneself to regular dental check-ups. Diabetes mellitus patients return to regular medical check-ups, scheduled every 3-6 months, when they are assessed in terms of dental self-care,

bleeding gums and the depth of periodontal pocket. At this moment any change which calls for medical expert advice is noticed.

REFERENCES

1. Carranza F.A., Glickman;s, 1984: Clinical Periodontology , Ed. W.B.Saunders, sixth edition , pp124-135
2. Dumitriu T.H., 1997 : Parodontologie, Ed. Viața Medicală Românească ,pp 45-90
3. Mealey B., 1999 , Diabetes and periodontal diseases. J Periodontol *;70(*8):935–49.
4. Mullally BH., Dace B., Shelburne CE, Wolff LF, Coulter WA.,2000, Prevalence of periodontal pathogens in localized and generalized forms of early-onset periodontitis. JPeriodontal Res Aug;35(4):pp 232-41.
5. Newman M., Takei H., Klokkevold P.R.,Carranza Fermin A. 2007, : Clinical Periodontology , Ed Elsevier , Tenth Edition, pp 50-120
6. Papapanou PN., 1996 Periodontal diseases: epidemiology. Ann Periodontol 1(1):1–36.
7. Plagmann HC., Koher T, Engelsmann V.,1988 :Epitheliales New-Attachment nach Wurzeloberflachenbearbeitung mit verschidenem Instrumenten. Dtsch ZahnartztlZ ; 43: pp 686-692.
8. Severineanu V., 1994: Parodontologie clinica si terapeutica, Ed. Academiei Romane , Bucureşti , pp 23-56
9. Salvi GE, Kandylaki M, Troendle A, Persson GR, Lang NP.,2005 Experimental gingivitis in type 1 diabetics: a controlled clinical and microbiological study. J Clin Periodontol ;32(3):310–6.