IMPACT OF DIABETES MELLITUS ON ORAL CAVITY

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ABSTRACT

Introduction The pathology from the level of the oral cavity may represents sings of homeostatic
disequilibrium or structural modifications on the level of the entire organism. The oral manifestations can be
indicators in order to establish an early diagnosis for the general disease. Material and methods The patients
suffering from diabetes mellitus were examined and they presented different pathological aspects both on
general level and of the oral cavity. Within the evaluation, there were included the people that showed pain
determined by dental decay, with pulp and periodontal complications, with acute periodontal inflammatory
phenomena, masticatory and aesthetic dysfunctions, tension and gingival itching. For each patient, we took into
account the type of diabetes, the values of the glycaemia and the followed treatment. Results In the case of the
affections, on the level of the mucosa, we found lesions on the level of the tongue, marginal periodontal and
labial mucosa and the edentulous ridge. Diabetes mellitus is a risk factor for the modifications on the level of the
oral cavity because the patients suffering from diabetes have affections characterized by seriousness and rapid
evolution. Conclusions Even if there are several general affections that can influence or accelerate the
edentation, the diabetes greatly influences both the rate of the loss of odonto - parodontal units and the
deterioration of the edentulous prosthetic area.

Key words: diabetes mellitus, oral cavity lesions

INTRODUCTION

Diabetes mellitus is a disease about which it was written in the Egyptian journal that was
“a disease causing the elimination of some abundant and frequent urine”. Chinese
medicine described it as a disease of thirst, accompanied by polyuria, polyphagia and
polydipsia. In 1712, Cullen added to the term diabetes, the term mellitus. Diabetes mellitus
is a metabolic disease that determines premature irreversible degenerative lesions in
the entire organism. The odonto-periodontal unit is the most affected part by the
modifications induced by diabetes mellitus that determined the exacerbation of the caries
and periodontopathy and finally leading to the loss and mobilisation of teeth from the arch
and the appearance of different clinical forms of edentulous [7, 8, 10].

In order to prevent the major oral complications caused by diabetes, it requires the
early establishing of the diagnosis and applying a treatment for diabetes mellitus follow by a
correct therapy for oral affections [1, 4].
Diabetes develops in people of all ages, but the prevalence has increased dramatically over the past several decades. Diagnosis is made on the basis of a host of systemic and oral signs and symptoms, including gingivitis and periodontitis, recurrent oral fungal infections and impaired wound healing [3, 6, 11, 13].

MATERIAL AND METHODS

The patients, 57 female and male, suffering from diabetes mellitus were examined and they presented different pathological aspects both on general level and the oral cavity. Within the evaluation, there were included the people that showed pain determined by dental decay, with pulp and periodontal complications, with acute periodontal inflammatory phenomena, masticatory and aesthetic dysfunctions, tension and gingival itching. For each patient, we took into account the type of diabetes, the values of the glycaemia and the followed treatment.

DISCUSSIONS

The onset of symptoms is rapid in type 1 diabetes and symptoms of type 2 diabetes develop more slowly, and frequently without the classical triad. Due to the unbalances produced on the level of the entire organism, we can find circulatory modifications, retinopathy, peripheral neuropathy, amiotrophy and the infections which are more frequent and they could present different types of complications. At the patients with neuropathy, the salivary flux decreases nearly 50% and they could accuse the sensation of the dry mouth. Beside the quantitative modifications, they are also qualitative modifications of the saliva. This data emphasizes the loss of the enervation on the level of the salivary glands, at the patients with neuropathy.

In the specialized literature, there are data that establish a real relation between the angular cheilitis, median rhomboid glossitis and the presence of the oral candidosis. The angular cheilitis could appear at the corners of the mouth, usually associated with a oral candidosis. This form is commonly found at the diabetes patients with removable prostheses (Fig. 1).

Median rhomboid glossitis is a result of the candida albicans infections associated with other factors represented by tobacco or the modification of the oral pH (Fig. 2).

Diabetes mellitus patients or the patients who followed a treatment with antibiotics for a long time presented an increased risk for the appearance of this affection. The lesions are known as central papillary atrophy, red spot, soft, lacking filiform papilae situated of the median line of the dorsal side of the tongue. Another manifestation of diabetes and an oral sign of systemic immunosuppression is the presence of opportunistic infections, such as oral candidiasis (Fig. 3). Symptomatic candidosys is associated with various conditions, including nutritional deficiencies, diabetes, xerostomia and immune deficiencies and disorders.

In order to appreciate the modification of the salivary glands we have to perform tests which investigated the physical, chemical and antimicrobial properties of the saliva. It was found in the case of the patients with diabetes mellitus a decrease of secretory functions, the hyposialia being determined by diabetic polyuria, in the case of the untreated patients or incorrectly treated and by diffuse process of glandular sclerosis.

The modifications of the alveolar bone are determined by the systemic factors and the masticatory forces [5, 12]. However, there is the possibility that the differences in the maxillary bone and posextractional mandibular loss rate, for different patients, to be maintained in the case of bone losses that refer to the entire skeleton. The modifications that appear on the level of the covering mucosa are tightly related to the metabolic modification on the level of the bone support.
When the two processes are concordant, the mucosa remains tightly attached to its bone support maintaining its resilience within normal limits. Massler attributed the vulnerability of the mucosa on the modifications produced in the hydric balance between intra and extracellular compartment, tissues, following the deshydration produced as a result of the decrease of the renal function. The edentulous appears more rapid and more accentuated at patients with type 1 diabetes due to the complications that appear on the level on the stomatognat system (Fig. 4, Fig. 5).

The periodontal disease is registered as "the 6th complication of diabetes mellitus" (LÖE 1993). The mechanisms through which diabetes act on the gum are: modification of the local mechanism and the accumulation of intermediary compounds, with toxic action through acidosis and vascular modifications and of the nervous formation characterized by capillary meiopragy and arterial and venous vascular sufferings and the appearance of the diabetic nevritis [2, 9]. It was noticed in the saliva of the patients suffering from diabetes mellitus an increase of the level of calcium favourable to the formation of calculus deposits. The abundant calculus deposits can be found in most of the patients suffering from diabetes mellitus which can be explained through the high concentration of calcium from the saliva and the poor oral hygiene determined by pain and gingival bleeding during brushing (Fig. 6).

Several mechanisms have been proposed for explaining the increased susceptibility to periodontal diseases, including alterations in the host response, subgingival microflora, collagen metabolism, vascularity, gingival crevicular fluid and hereditary patterns.

The relationship between diabetes and dental caries has been investigated, but no clear association was found. It is important to notice that patients with diabetes are susceptible to oral sensitivity, periodontal and salivary disorders, which could increase their risk of developing new and recurrent dental caries. For example, several studies have reported a greater history of dental caries in people suffering from diabetes.
CONCLUSIONS

Diabetes is a complex disease characterized by numerous variables that can influence the development of complications. Although there are several general diseases that can influence or hurry up the appearance of the edentulous, diabetes mostly influences both the loss rate of the odonto-periodontal units and the damage of the prosthetic field. The detailed knowledge of the field is important because it influences the prognostic of the prosthetic treatment. In the case of the patients suffering from diabetes mellitus, it could be noticed an increased incidence of the severe forms of chronical periodontal disease. A check of the level of insulin at patients type I corresponds to the degree of periodontal affection. Any person suffering from diabetes mellitus requires a close, careful preparation that aims at protecting him against the post-surgery complications through the best metabolical re-balance. The goal of the therapy is to promote oral health in patients with diabetes, to help prevent and diagnose diabetes in dental patients receiving routine stomatological care and to enhance the quality of life of the patients suffering from this incurable disease.

REFERENCES