



Diabetes Mellitus and Dental Health: Problems in Diagnosis and Treatment of Dental Clinics' Patients

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Annotation. The article considers interection between diabetes mellitus and dental health. Shortage of knowledge of diabetes among dentists and dental patients is suggested. The role of a dentist in early diagnosis of diabetes mellitus and peculiarities of dental diseases treatment in diabetic patients is discussed. Assessment results of gingival blood glucose level in patients with chronic periodontitis are given.

Key words: diabetes, oral health, knowledge, diagnosis, treatment.

Diabetes mellitus is one of the most common somatic diseases. It has a negative impact on the state of the cardiovascular, nervous, urinary, musculoskeletal systems, aggravates the course of concomitant pathology, and significantly reduces the quality of life of patients. Often, the fact of the influence of diabetes mellitus and the development of the pathology of the dentoalveolar system will fall out of sight of the attending physician. Individuals with diabetes are prone to developing dental diseases such as gingivitis, periodontitis, fungal infections, and often suffer from oral discomfort when brushing their teeth and eating.

The analysis of data obtained during the examination of 48 patients with type I and type II diabetes mellitus was carried out. The examination included a questionnaire and a dental examination. The survey was conducted using our own questionnaire containing questions regarding the duration of diabetes mellitus, glycemic control, food addictions, and oral hygiene. To obtain information about the state of the oral cavity, a survey of patients and a dental examination were conducted. Information from outpatient patient records was also taken into account. An analysis of the data from a survey of patients with diabetes mellitus revealed the following: 1) Poor control of the course of diabetes mellitus in 69% of patients, the "normal" fasting glucose level of capillary blood during self-control in these patients is more than 6.5 mmol/l; 2) Insufficient adherence of patients to hygienic prevention of diseases of the teeth and mucous membranes of the oral cavity; 3) The presence of a relationship between the state of hard dental tissues and the duration of diabetes, the patient's usual level of glycemia and age; 4) The frequency of occurrence of xerostomia increases with the "usual" level of glycemia for the patient above 8 mmol / l; 5) Patients with diabetes have an increased incidence of gingivitis and periodontitis compared to patients without diabetes.

A conversation was held with each patient about the effect of a constantly elevated blood glucose level on human tissues and organs, including the condition of the oral cavity, as well as the need for preventive care for it. The patients were referred for a consultation with a dentist. Dental examination included visual examination, palpation, probing and percussion. Also, for each patient, an index of the intensity of tooth decay by caries - the sum of carious, filled and extracted teeth in one individual) was determined. Statistical



data processing was carried out on the basis of Microsoft Excel using the "Analysis Package" add-on. The correlation between the signs was determined, namely, the multiple correlation coefficient was calculated for the KPU(h) index and the duration of diabetes in years, age, and the average fasting glucose level during self-control in mmol/l. The remaining calculations were carried out by traditional methods of mathematical statistics.

For patients with diabetes, the defeat of the mucous membranes in the form of xerostomia is quite characteristic, i.e. dryness in the mouth caused by suppression of the function of the salivary glands. It is one of the early signs of oral pathology in diabetes mellitus. In the study, it was confirmed that people who do not control the level of glycemia are more likely to have problems with the mucous membrane. The phenomena of xerostomia in the group of examined met with a greater frequency at the usual level of glycemia above 8 mmol/l. In addition, great attention during the examination was paid to the presence of inflammatory changes. In patients with diabetes, the incidence of gingivitis and periodontitis increases to 51-98%.

On the one hand, dentoalveolar surgery, infections, stress from dental procedures can increase blood glucose levels and patients' metabolic insulin requirements. On the other hand, medications prescribed by dentists can affect diabetic therapy. For example, corticosteroids significantly impair glycemic control; a patient with type 2 diabetes may require short-term insulin therapy; antifungal drugs (miconazole, fluconazole) disrupt the metabolism of tolbutamide. Therefore, in the treatment of patients with DM, the interaction of a dentist and a diabetologist is necessary. Acute infections of the maxillofacial area in patients with DM require more aggressive treatment, the use of antibiotics, antiseptics, and more frequent follow-up examinations. Thorough daily double brushing, regular interdental cleaning (flossing) are important. If surgical intervention is necessary, consultation with an endocrinologist is mandatory to prescribe and correct general therapy, insulin dose, diet, meal times, and control of glycemia and HbA1c levels is important. In patients with poor glycemic control before surgery, antibiotics can be given prophylactically, one hour before the procedure. With planned treatment, an individual selection of an antibiotic is necessary based on determining the sensitivity of the microflora. At the same time, it is not necessary to prescribe systemic antibiotics routinely, for all types of pathology, it is necessary to carefully weigh the benefits and possible harms of antibiotics. Although some authors report the benefits of tetracyclines after professional teeth cleaning to improve glycemic control. Thus, dental treatment of patients with DM should be carried out on the basis of a team approach, with the interaction of a dentist with an endocrinologist (diabetologist) and other specialists. However, in order to carry out this interaction, both dentists, endocrinologists, and diabetic patients must have appropriate knowledge about the relationship between dental and diabetic pathology. Meanwhile, the results of studies have shown that patients with DM have an insufficient level of knowledge about the relationship between their disease and dental health. According to our data, 36% of periodontal patients did not believe that DM has an impact on dental health, 56% recognized the impact of DM on the state of the oral cavity, and only 8% were aware that dental diseases can aggravate the course of diabetes. Every second patient (52%) did not understand that the condition of the periodontium may depend on the level of blood glucose. Therefore, only 16% of periodontal patients regularly visited a dentist; the rest - "on occasion" or "if there is free time." Only 24% of patients assumed that they would definitely turn to an endocrinologist in the direction of a dentist (16% - "would not apply", 60% - "if they found free time").

However, dentists also did not have the necessary knowledge and underestimated the impact of periodontal disease on the course of DM, and 60% of doctors did not believe that tooth loss and abscesses were more frequent in patients with diabetes [35]. According to our data, the knowledge of dentists was limited, only 36% believed that dental pathology aggravates the course of DM. Only antibiotic therapy was named in the specifics of providing dental care to patients with diabetes. More than a third (36%) of patients with periodontal disease reported that dentists never asked them if they had DM. Only 8% of dentists prescribed periodontal treatment to their patients after consultation with an endocrinologist, 44% referred them to an endocrinologist, but prescribed the treatment on their own. The remaining dentists (48%) did not consider it necessary to recommend endocrinological examination to periodontal patients. The study of international and domestic practical recommendations for the management of patients with DM showed that they pay little attention to the relationship between DM and oral pathology. At the same time, patients with DM, having received the necessary knowledge, could more effectively comply with preventive regimens of



individual oral hygiene, notice the first signs of pathological changes, regularly apply for professional dental care, which would allow.

Of the factors that can affect the condition of the teeth, periodontium, mucous membranes, modifiable are the level of blood glucose and the degree of control of the course of diabetes mellitus, as well as the hygiene habits of patients, adherence to oral care. The revealed poor control of diabetes mellitus, low hygienic and preventive focus of patients have a negative impact on the structures of the oral cavity, which cannot but worsen the quality of life of patients. Based on the data obtained, it can be concluded that there is a need for closer cooperation between the attending physician (therapist, endocrinologist) and the dentist and for educational work among patients aimed at increasing their adherence to the treatment of diabetes mellitus, the formation of a healthy lifestyle, which also includes preventive oral care. Mouth.

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