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Diabetic patient at the dental surgery

Pacjent z cukrzycą w gabinecie stomatologicznym

Diabetes is a chronic metabolic disease characterized by disturbances of the carbohydrate metabolism leading to hyperglycaemia. Insulin deficiency leads to disturbances of carbohydrate, fat and protein metabolism as well as morphological changes in numerous tissues and organs. Etiological and pathogenic mechanisms vary in different forms and types of diabetes [2, 7, 18]. Independently of its type, however, diabetes is one of the diseases which influence oral health state, particularly oral mucosa and periodontium [15]. Patients with uncontrolled diabetes are exposed to inflammatory and atrophic changes. In diabetic patients the most frequently encountered disease of the oral cavity is periodontitis. It is manifested by redness, change in the shape of gingivae and bleeding.

Diabetic microangiopathy leads to circulatory disturbances. The narrowing of the vascular lumen hinders oxygen diffusion and transport of nutrients, among others, also to the oral tissues as well as elimination of products of metabolism [9]. Necrotic changes within the region of salivary glands are manifested with decreased saliva secretion and increase of its viscosity, which leads to improper lubrication of the mucous membrane, decreased efficiency of self-purification as well as increased susceptibility to injury and development of infection [9, 10]. Diabetes, especially type 1, causes complications such as pulp inflammation, necrosis and gangrene. Increased viscosity of the saliva and a high level of calcium promote quicker accumulation of dental calculus especially in subgingival region, when compared with healthy people. Residual deposits accelerate destructive processes within periodontal region leading to exposure of dental necks, and to pathological gingival and osseous pockets formation. The atrophy of the osseous tissue within the jaws causes loosening of teeth and premature loss of teeth [1, 4, 8, 9].

A high level of glycaemia promotes the development of cariogenic bacterial microflora by lowering the saliva's pH, the secretion of which is very often decreased and in consquence there is the feeling of thirst and oral dryness [11, 19]. Prolonged states of hyperglycaemia together with xerostomia lead to demineralization of the enamel, increase of its porosity, development of carious process as well as changes within the mucous membranes. Symptoms of inflammation may be limited or scattered over the whole oral cavity. Initially, the mucous membrane becomes reddened, its painfulness gradually increases. Inflammatory processes also involve the tongue which changes its colour, increases its size and its surface becomes smoothed. At this stage the patient reports pain and burning sensation [5, 11]. Outside the oral cavity, cracks and erosions in the corners of the mouth are often observed [16]. According to Szymańska and Fetkowska-Mielnik, in patients with

type1 diabetes inflammation of the mucous membrane is three times as frequent as in healthy people [17]. In children with uncontrolled diabetes progressive inflammatory changes, recurrent abscesses and gingival hypertrophy lead to the destruction of periodontium and subsequent development of malocclusion [6]. Other problems affecting diabetic patients also include: oral blastomycosis, the development of which is promoted by acid reaction of the saliva, lowered buffer capacity of the saliva or xerostomia [3]. Halitosis (bad breath) is a crucial discomfort negatively influencing the quality of life of patients with uncontrolled glucose level.

The latest studies reveal that correlation between diabetes and gingival inflammations is bidirectional. Not only patients with diabetes are more prone to oral inflammations but also untreated inflammation may promote the incidence and development of diabetes as it is the factor which increases sugar level in the blood [17].

The basic rule in the treatment of a diabetic patient should be urgent and complete eradication of each dental change [15]. Patients demand frequent check-ups with information provided by the doctor about the proper diet and oral hygiene, as well as performing professional cleaning teeth procedures (removal of calculus, curettage, root planning) [8, 15]. It should be emphasized that hyperglycaemic patients have lowered immunity, therefore, during dental procedures such as: scaling or extraction there may occur bacterial dissemination inside their bodies. These procedures should be performed with antibiotic cover, early in the morning, 2 hours after the meal as it reduces the risk of bacterial infection or hypoglycaemia. When there is a necessity of implementing more serious surgical interventions demanding administration of anaesthetics (always without vasoconstrictive compounds having hyperglycaemic properties) a diabetologist should be consulted. Dental procedures such as extraction, even in local anaesthesia may be stressful for the patient. This results in the sympathetic system stimulation and insulin secretion impairment [12]. In case of prosthetic treatment permanent prosthetic restorations are recommended. If it is not possible, however, a patient should be thoroughly informed how to use the prosthetic appliance properly. Compulsory hygiene regimen allows eliminating the risk of fungal infections [14, 15]. It is also important that a patient reporting to the dental surgery has controlled glycaemia, which will make dental treatment easier. Controlled diabetes prevents dryness in the mouth so it allows safer performance of numerous dental procedures decreasing the risk of complications.

Providing patients with systemic diseases with complex care is a challenge for dentists and doctors of various specializations. Good cooperation between diabetology and dental specialists is particularly important. It does not only help in a better control of diabetes but also in the control of pathological changes in the oral cavity. Increase in the pro-health awareness concerning oral diseases and knowledge about complications resulting from diabetes in the group of these patients should motivate them to maintain their own dentition in as good condition as they can.

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SUMMARY

Regardless of the reasons of its development, diabetes is one of the diseases that affect the state of our oral cavity, particularly the state of oral mucosa and periodontium. Patients with uncontrolled diabetes are exposed to inflammatory and atrophic changes. The latest studies reveal that the correlation between diabetes and gingival inflammations is bidirectional. Not only are diabetic patients more prone to oral inflammations but also untreated inflammation promotes the occurrence and development of diabetes, as it increases sugar level in the blood. Providing patients with systemic diseases with complex care is a challenge for dentists and doctors of various specializations. Good cooperation between diabetology and dental specialists is particularly important. It does not only help in a better control of diabetes but also in the control of pathological changes in the oral cavity. The increase in the pro-health awareness concerning oral diseases and knowledge about complications resulting from diabetes in the group of these patients should motivate them to maintain their own dentition in the best condition possible.

STRESZCZENIE

Niezależnie od przyczyn powstania cukrzyca jest jedną z chorób, która ma wpływ na stan jamy ustnej, szczególnie na stan błon śluzowych i przyzębia. Pacjenci z niewyrównaną cukrzycą narażeni

są na zmiany zapalne i zanikowe. Najnowsze badania wykazują, że związek choroby cukrzycowej i stanów zapalnych dziąseł jest dwukierunkowy. Nie tylko pacjenci z cukrzycą są bardziej narażeni na stany zapalne jamy ustnej, ale również nieleczony stan zapalny może sprzyjać wystąpieniu i rozwojowi cukrzycy, gdyż stanowi czynnik podwyższający poziom cukru we krwi. Objęcie kompleksową opieką pacjentów z chorobami ogólnoustrojowymi stanowi wyzwanie dla lekarzy różnych specjalności, również dla lekarzy stomatologów. Szczególnie istotna jest dobra współpraca pomiędzy specjalistami z zakresu diabetologii i stomatologii. Pomaga ona nie tylko lepiej opanować cukrzycę, ale i chorobowe zmiany w obrębie jamy ustnej. Wzrost świadomości prozdrowotnej z zakresu chorób jamy ustnej oraz wiedzy na temat powikłań w wyniku cukrzycy w grupie tych pacjentów powinien motywować ich do utrzymania własnego uzębienia w jak najlepszym stanie.