RISK FACTORS OF PERIODONTAL DISEASE AMONG THE POPULATION

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ABSTRACT

This article deals with pathogenesis of periodontitis and metabolic syndrome. Possible mechanisms of connection between diabetes mellitus, arterial hypertension and dyslipidemia and condition of periodontal tissues are analyzed.

Keywords: metabolic syndrome, diabetes mellitus, arterial hypertension, obesity, dyslipidemia, periodontitis.

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ФАКТОРЫ РИСКА РАЗВИТИЯ БОЛЕЗНЕЙ ПАРОДОНТА СРЕДИ НАСЕЛЕНИЯ

АННОТАЦИЯ

В данной статье рассматривается патогенез пародонтита и метаболического синдрома. Проанализированы возможные механизмы связи между сахарным диабетом, артериальной гипертензией и дислипидемией и состоянием тканей пародонта.

Ключевые слова: метаболический синдром, сахарный диабет, артериальная гипертензия, ожирение, дислипидемия, пародонтит.

Relevance of research. Periodontal pathology, being very common, progresses with age, and by the age of 40 it affects almost 100% of the population. Often, periodontal diseases are asymptomatic, therefore, for their early diagnosis and prevention, a comprehensive examination and characteristics of the state of the protective factors of the oral cavity in patients are necessary.

Despite a significant number of annual studies on the problem of periodontal disease, both in our country and abroad, many aspects of pathogenesis, clinical options

for complications, its timely diagnosis and effective prevention remain unclear, controversial and poorly understood. One of the insufficiently studied issues of the problem is the clinic, diagnosis and prevention of generalized periodontitis in persons suffering from underlying diseases and especially their association. Meanwhile, in the last decade there has been a tendency to a significant increase in combined forms of somatic pathology in patients with periodontitis. [1,2,7]

In the International Classification of diseases, obesity is singled out as an independent disease. Obesity criterion - body mass index (BMI) >30.0 kg/m2, and excess body weight - 25.0-29.9 kg/m2. [2,4]

Current literature data indicate that there is an etiopathogenetic relationship between obesity and periodontal disease. [1,3,9].

Adipose tissue is a powerful endocrine organ that is in a state of so-called aseptic inflammation. Fat cells secrete a number of hormones, cytokines, which provoke the development of inflammatory diseases that have common pathophysiological bases with obesity and periodontitis. [3,8,9]. There is a strong relationship between obesity and inflammation, which is reflected by the plasma concentration of C-reactive protein (CRP) [4,6].

In a study by Boucher N.E., Hanrahan J.J. and Kihara F.Y. in 1967, an association was shown between serum CRP and inflammatory diseases of the oral cavity. Recent data have shown that patients with various forms of periodontitis have elevated levels of CRP. But they do not show that periodontitis was the cause of the observed serum CRP levels [2,5,9].

Recent research indicates that the hormone leptin, originally known for its effects on body weight regulation, metabolism, and reproductive function, may also be part of some inflammatory diseases by influencing the innate and adaptive immune response. Defects in the expression of the gene for the production of leptin or its receptors (gene diabetes) can cause extreme obesity [6,9].

Adipocytes are the main cells responsible for the production of leptin. Also, this function is performed by cells of the epithelium of the stomach and placental cells. It has recently been discovered that gingival epithelial cells also produce leptin. [1,3,6].

In a study conducted by Karthikeyan B. V. and Pradeep A. R., it was shown that as the inflammatory destruction of periodontal tissues increases, the concentration of leptin in the gingival sulcus fluid will decrease [8,9].

The purpose of this study is to evaluate the prevalence and characteristics of the clinical course and the relationship between periodontal disease and overweight on the basis of clinical and laboratory studies. And also the development of a way of prevention.

Materials and methods of research. We examined 47 patients (of which 30 were obese) aged 25-45 years (45+2.3 years), including 29 women and 18 men. The state of periodontal tissues was assessed using clinical (determination of the depth of dentogingival pockets; the degree of Mulleman gingival recession; indices: Fedorov-Volodkina hygiene, PMA, PBI, CPITN, Russel) and paraclinical (orthopantomography) methods of examination and Doppler ultrasound. The obtained data were statistically processed.

Research results. Based on the analysis of the results of clinical and radiological studies, the diagnosis of chronic generalized periodontitis (CGP) was made in 93.3% of patients. In patients of the control group, CGP was diagnosed only in 42.7% of patients. When comparing the severity of periodontal pathology in the main and control groups, using correlation analysis, significant differences between groups were obtained.

Table 1.

Scoring of clinical symptoms and index indicators of the severity of the pathological process in the periodontium

Symptoms		**Intact periodontium n =14**	**Generalized periodontitis moderate n =17**	**Generalized periodontitis of moderate severity aggravated by obesity n=30**
1	Pain	0	2,22±0,07*	2,56±0,07*^
2	Bleeding gums	0	2,28±0,22*	2,55± 0,13*^
3	Smell from the mouth	0,06±0,02	1,98±0,09*	2,77± 0,15*^
4	Depth of periodontal pocket	0	2,29±0,13*	3,44± 0,27*^
5	Tooth mobility	0	2,33±0,14*	3,62± 0,19*^
6	Discharge from periodontal pocket	0	2,49±0,07*	3,11± 0,12*^
7	X-ray signs	0	2,07±0,01*	2,94± 0,14*^
8	OHI – S	0,77±0,09	2,31±0,12*	2,88± 0,06*^
9	PMA	0	2,27±0,07*	2,91± 0,11*^
10	PI	0	2,23±0,09*	2,88± 0,03*^

Note: * - P<0.05 in relation to the intact periodontium;
^ – P<0.05 in relation to generalized periodontitis moderate.

Analysis of laser doppler flowmetry parameters showed that in all patients with generalized periodontitis of moderate severity, statistically significant decreases in

microcirculation parameters were observed compared with the group of intact periodontium.

CONCLUSIONS

1. Based on the analysis of the literature and clinical and statistical studies

nii revealed etiopathogenetic relationship between the severity of changes in the periodontium and obesity.

2. There is a need for an integrated approach in the treatment and prevention of obesity in combination with periodontal disease.

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