

# Improving the Efficiency of Diagnosis and Complex Treatment of Inflammatory Periodontal Diseases by Assessing the Immune Status

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**Abstract** – One of the leading places in dental practice is occupied by inflammatory periodontal disease. The causes of this pathology are very diverse. The leading link in the pathogenesis is microbial contamination. In the pathogenesis of the severity of the inflammatory process is largely associated with disorders in the immune system. The aim of the study was to determine the nature of immunological disorders in patients with periodontal disease and to evaluate the effectiveness of immunocorrecting therapy. 20 patients with chronic generalized periodontitis and a control group consisting of 10 people were examined. Also, for a more accurate final result, a comparison was made with a group of patients without somatic pathology, which, in turn, was divided into two groups with a percentage of 58 to 42. The efficiency of immunomodulatory therapy in children with the revealed pathology of the immune system is shown. Local therapy with the addition of lysozyme in the form of local applications was used in complex treatment. The practical significance of the work is to optimize the diagnosis and immunocorrecting therapy in patients with chronic generalized periodontitis. The results will be implemented in the work of the

dental clinic base of the Department of dentistry №3 of the North Ossetian state medical Academy.

**Key words** – diagnosis, complex treatment, periodontal disease, immunity

## I. INTRODUCTION

The high prevalence of inflammatory periodontal diseases and their role in the development of somatic disorders determine the relevance of the search for new tools and methods of complex therapy of this disease. [1–3, 7, 10].

It is known that microbial contamination is recognized as the leading link in the pathogenesis, however, the amount of microflora is not always proportional to the severity of periodontitis. The severity of the inflammatory-destructive process, to a large extent, correlates with immunological reactivity, the ability of the macroorganism to resist foreign

influence, mobilizing a set of factors of nonspecific and specific resistance. [4–6].

The conventional method of treatment of periodontitis, considering the eradication of microbial factor is ineffective, referring to evidence of long-term persistence of pathogenic strains, chronic course, macroorganism sensitization, short period of remission and periodic relapses. [8, 9].

**II. PURPOSE OF RESEARCH**

Evaluation of the immune status of persons with chronic generalized periodontitis (CGP) and the role of immune-mediated inflammation in the development of this disease.

**III. MATERIALS AND METHODS**

The study involved 20 people, 8 men, 12 women (mean age 43 years) with CGP (relapse) without somatic pathologies – a group of patients (GP). The diagnosis of CGP was carried out on the basis of x-ray data and clinical examination. The control group (GC) consisted of 10 people without dental status, comparable to the GP by age and sex.

The complex of measures included: determination of the level of T- and B-lymphocytes, circulating immune complexes (CIC), phagocytic activity of neutrophils (FAN), concentration of antibodies of peripheral blood and gingival transudate, saliva lysozyme activity. Materials were: venous blood, the fluid of periodontal pockets (ZHPK), saliva.

**IV. RESULTS AND DISCUSSION**

In the course of work were recorded a decline in the population of CD3+ 59,2±3,13 % (75,58±4,2 % GK) and higher values of CD19+ 34,6±2,1 % compared to GK (20,8±3,66 %). Study the concentration of serum immunoglobulins A,M,G showed that patients with present study included significantly increasing the content of Ig G of 17.4 ± 2.5 g/l, in 2 times exceeds similar indicators of individuals with intact periodontium of 9.92 ±1.12 g/L. the values of IgM in 42 % of GP exceeds the reference values of 3.5±0.7 g/l in 58 % of the study significant differences with the General Ledger were noted of 2.63±0.7 g/L. (2,24± 0.82 GC). The content of IDA, on the contrary, decreased 2.04 ±0.7 g/l (3.1±0.16 g/l ha). In GP the high titer of CEC 0,09 ± 0,022 g/l prevailing over data of GK in 4,5 times (0,02±0,016 g/l) and, similarly, rise of values of FAN, 3,72 ± 0,77 at is revealed.e. that is 3 times more than the control digits of GC (1,2±0, 62 y.e.)

TABLE I. THE INDICATORS OF SUBPOPULATIONS OF LYMPHOCYTES IN PATIENTS

Lymphocyte subpopulation	Patients n=20	Monitoring group n=10
CD3+ (%)	59,2±3,13 p<0,05	75,58±4,2
CD19+ (%)	34,6±2,1 p<0,05	20,8±3,66

<sup>a</sup> p-reliability of differences in indicators in relation to the control group

TABLE II. INDICATORS

Indicator	Patients n=20	Monitoring group n=10
IgG, (g/l)	0,57±0,06 p<0,05	0,18±0,04
IgM, (g/l)	0,09±0,008 p<0,05	0,014±0,005
sIg A, (g/l)	0,17±0,04 p<0,05	0,35±0,02
Saliva lysozyme activity, u/ml/min	10,4±2,5 p<0,05	16,1±4,02

<sup>b</sup> p-reliability of differences in indicators in relation to the control group

The study of ZHPK for the presence of antibodies allowed to establish a huge rise in the level of IgG 0.57±0.06 g/l, 3 times higher than the data of GC (0.18±0.04 g/l). The same pattern is observed with IDM (0.09±0.008 g/l) values 6 times greater than ha (0.014±0.005 g/l). SIG A Values were significantly reduced by 0.17±0.04 g/l (0.35±0.02 g/l). On a level with this marked decline in the activity of saliva lysozyme 10,4±2,5 u/ml/min (16,1±4,02 u/ml/min ha)

**V. CONCLUSION**

Revealed significant changes in the indices of local and General immunity in individuals with present study included in the period of exacerbation. The failure of T - cell link and the associated hyporeactivity syndrome, destabilization diagrams of a humoral link, increased numbers of b lymphocytes, selective lifting of the production of IgG, IgM and IgA fall. A significant increase in IgG, IDM ZHPK, regarded by us as antibodies against periodontal microflora, cross-reacting with the structures of the periodontal complex. There was a significant load of people with CGP high titer of CEC, indicating the manifestation of immune autoaggression, its progression, prolonged course and transition to chronic form. Indicators of nonspecific resistance of the oral cavity (lysozyme and SIDA) are significantly reduced, which also contributes to the growth of pathogenic strains.

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