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CLINICAL AND IMMUNOLOGICAL FEATURES OF CHRONIC PERIODONTITIS IN PATIENTS IN THE POST-COVID PERIOD

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Abstract. The aim of this study was to investigate the clinical, dental, and immunological characteristics of chronic periodontitis in patients who had coronavirus infection. The study included 88 patients aged 25 to 64 years with a confirmed diagnosis of chronic periodontitis. Clinical, biochemical, microscopic, and statistical methods were used. Post-COVID-19 patients demonstrated more pronounced dental and systemic symptoms, worsening hygiene and periodontal health, and an imbalance of proinflammatory and anti-inflammatory cytokines in the serum and oral fluid. The obtained results confirm the need for a comprehensive assessment of clinical, immunological, and laboratory markers when determining the severity of chronic periodontitis in patients after COVID-19.
Keywords:chronic periodontitis, COVID-19, post-COVID period, cytokines, immunoglobulins, mixed saliva, periodontal status.

Introduction: Chronic periodontitis is an inflammatory and destructive disease, the course of which is determined by the interaction of local and systemic factors. The study of periodontal pathology in patients who have recovered from COVID-19 is of particular interest, as systemic inflammation, immune disorders, and changes in the oral mucosa may persist in the post-COVID period.

According to the study, patients with chronic periodontitis significantly more frequently reported dry mouth, burning and sore tongue, halitosis, and increased tooth sensitivity after COVID-19. A significant deterioration in periodontal and hygienic parameters was also noted, indicating a more severe inflammatory process.

The aim of the study was to evaluate the clinical, dental, cytokine, and immunological characteristics of chronic periodontitis in patients who have recovered from COVID-19.

Materials and methods. The study included 88 patients aged 25 to 64 years with a diagnosis of chronic periodontitis. Clinical observation and outpatient treatment were conducted in the therapeutic dental clinics of the Andijan State Medical Institute and Tashkent State Dental Institute from 2021 to 2024.

The study included the results of a clinical and periodontal examination, as well as samples of oral fluid, mixed saliva, and blood serum. The methodological complex included clinical observations, biochemical and microscopic studies, and statistical processing of the obtained data.

To assess the condition of periodontal tissues, hygiene and inflammation indicators were used, including OHI-S, SBI, periodontal pocket depth, and other clinical and periodontal parameters. Cytokine levels, including IL-6, IL-8, IL-2, IL-1, α-interferon, and α-TNF, as well as immunoglobulin levels, were assessed in oral fluid and serum. The cellular profile of mixed saliva was also examined.

Results. In patients with chronic periodontitis who had recovered from COVID-19, dry mouth was reported in 53.3% of cases, burning and pain of the tongue in 70.0%, halitosis in 83.3%, and increased tooth sensitivity in 73.3%. Compared with control values, the gingival bleeding index

(SBI) was 9.6 times higher, periodontal pocket depth was 4.7 times higher, and the OHI-S score worsened threefold.

At the same time, systemic manifestations of the post-COVID period were recorded in patients: weakness in 76.7% of cases, myalgia in 56.7%, cardiovascular disorders in 50.0%, cognitive impairment in 50.0% of cases.

[03.09.2026 17:30] Baxtiyorjon Usmonov : A cytokine profile study revealed that oral fluid levels of IL-6 were 7.25% higher, IL-2 by 16.84%, IL-1 by 8.72%, α-interferon by 6.3%, and α-TNF by 9.3% compared to the comparison group. At the same time, levels of the anti-inflammatory cytokines IL-4 and IL-10 decreased. Serum levels also showed an increase in several pro-inflammatory cytokines and a decrease in anti-inflammatory mediators, indicating continued inflammatory and immune imbalance in the post-COVID period.

Correlation analysis revealed a link between laboratory and clinical parameters. In particular, correlations were observed between oral fluid α-amylase and immune profile parameters, as well as between individual cytokines and periodontal inflammation indices. The obtained data confirm the pathogenetic relationship between systemic inflammation, immune disorders and destructive changes in periodontal tissues.

The cellular profile of mixed saliva also showed changes. In the post-COVID period, increased levels of neutrophils, lymphocytes, epithelial cells, erythrocytes, naked nuclei, and fibroblasts were observed compared to the comparison group. These changes correlated with individual clinical and cytokine parameters, demonstrating the potential prognostic value of cellular analysis of mixed saliva.

Discussion. The obtained results indicate that chronic periodontitis in patients after COVID-19 occurs against a background of more pronounced clinical and laboratory abnormalities. A high incidence of xerostomia, halitosis, tongue soreness, and dental hypersensitivity is associated with deteriorating oral hygiene and increased inflammatory and destructive processes in periodontal tissues.

An increase in proinflammatory cytokines with a simultaneous decrease in anti-inflammatory mediators indicates a dysregulation of the inflammatory response. The established correlations between oral fluid parameters, immunoglobulins, and clinical indices allow them to be considered additional markers for assessing the activity of the pathological process.

Therefore, using clinical indicators alone may be insufficient to fully assess the severity of chronic periodontitis in patients in the post-COVID period. A comprehensive assessment of periodontal status, cytokine profile, and cellular composition of mixed saliva may improve the accuracy of diagnosis and prognosis.

Conclusion. Chronic periodontitis in patients who have recovered from coronavirus infection is characterized by more pronounced clinical manifestations, deterioration of periodontal and hygienic status, cytokine imbalance, and changes in immunological parameters. The cellular profile of mixed saliva and cytokine metabolism parameters can be used as additional laboratory markers for assessing the severity of the disease and the effectiveness of subsequent treatment.

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