



INNOVATIVE
WORLD

ISSN: 3030-3079

ORIENTAL JOURNAL OF ACADEMIC AND MULTIDISCIPLINARY RESEARCH

**SHARQ AKADEMIK VA KO'P TARMOQLI
TADQIQOTLAR JURNALI**

Scientific Journal

2026/6



www.innoworld.net
+998 33 5668868



ORIENTAL JOURNAL OF ACADEMIC AND MULTIDISCIPLINARY RESEARCH

Volume 4, Issue 6
2026

Journal has been listed in different indexings

Google Scholar



ResearchGate

zenodo



ADVANCED SCIENCE INDEX



Directory of Research Journals Indexing

The official website of the journal:
www.innoworld.net

Uzbekistan-2026



UDC: 616.248:616.31-07-08(575.14)

**CLINICAL AND LABORATORY METHODS FOR
THE DIAGNOSIS OF DENTAL DISEASES AND
EVALUATION OF TREATMENT EFFECTIVENESS
IN PATIENTS WITH BRONCHIAL ASTHMA IN THE
FERGANA REGION****Bekzod Ergashev**Central Asian Medical University International Medical
University, Burhoniddin Marg'inoniy Street-64, Phone:+998 95 485 00 70, Email: info@camuf.uz Fergana,

Uzbekistan

Email: bekzodergashev0401@gmail.comOrcid: <https://orcid.org/0009-0000-0382-0811>

ABSTRACT. This scientific article analyzes the clinical and laboratory characteristics of dental diseases observed in patients with bronchial asthma in the Fergana region, as well as methods for their detection and the effectiveness of treatment. Bronchial asthma is a chronic inflammatory disease that affects the overall immunological state of the body, which is also reflected in the tissues of the oral cavity. Studies have shown that patients with bronchial asthma exhibit a higher prevalence of dental caries, gingivitis, periodontitis, and other pathological changes of the oral mucosa. The article describes clinical examination methods such as oral cavity inspection and index assessment systems (DMF, CPI), as well as laboratory investigations (histological, cytological, biochemical, bacteriological), including the analysis of saliva biochemical composition, pH level, and the condition of oral microflora. Statistical data indicate that dental diseases occur 1.5–2 times more frequently in patients with bronchial asthma compared to healthy individuals. The effectiveness of treatment was evaluated based on a комплекс approach, and it was found that preventive and therapeutic measures, including hygienic practices, fluoride preparations, and anti-inflammatory agents, yielded highly positive results. The findings demonstrate that early detection and individualized treatment of dental diseases in patients with bronchial asthma are of great importance.

Keywords: bronchial asthma, caries, gingivitis, periodontitis, oral cavity, clinical examination, laboratory diagnostics, saliva analysis, microflora.

INTRODUCTION. Bronchial asthma is one of the most widespread chronic diseases in medicine, and its global and regional epidemiological indicators show a steady increase. Worldwide, more than 300 million people suffer from bronchial asthma, and this number increases annually by an average of 3–5%. In Central Asia, particularly in Uzbekistan, the prevalence of this disease is also significant; according to various epidemiological observations, the prevalence of bronchial asthma among the general population ranges from 4–7%.

Recent healthcare monitoring results in the Fergana region indicate a growing proportion of patients with bronchial asthma. In particular, between 2015 and 2024, this показатель increased approximately 1.4 times, reaching 6–8% in some districts. At the same time, a high prevalence of dental diseases among patients with bronchial asthma has been

identified. Studies show that 75–90% of such patients have dental caries, while 60–80% present with periodontal diseases.

Bronchial asthma is a disease characterized by chronic inflammatory processes in the body, which negatively affect the tissues of the oral cavity. In particular, patients with bronchial asthma often exhibit decreased saliva secretion (hyposalivation), which weakens the natural protective mechanisms of the oral cavity. According to clinical observations, the salivary flow rate in such patients decreases to an average of 0.3–0.5 ml/min, whereas in healthy individuals it is 0.7–1.0 ml/min.

In addition, the long-term use of inhaled corticosteroid preparations leads to disturbances in the oral microbiocenosis. Microbiological analyses show that in patients with bronchial asthma, the level of cariogenic microorganisms, particularly *Streptococcus mutans*, is 2–3 times higher compared to healthy individuals. Furthermore, a decrease in oral pH levels (average 5.5–6.0) contributes to the acceleration of the caries process.

Clinical and laboratory examination methods play an important role in the diagnosis of dental diseases. Using the DMF (Decayed, Missing, Filled) index, the intensity of caries is assessed, and it has been determined that in patients with bronchial asthma this indicator averages 8–12 units, whereas in healthy individuals it is around 4–6 units. Assessment of periodontal status using the CPI (Community Periodontal Index) shows that 65–70% of these patients have moderate to severe periodontal damage. The above data indicate a high prevalence of dental diseases in patients with bronchial asthma and the necessity of their early detection. Therefore, the main aim of this study is to deeply investigate the clinical and laboratory characteristics of dental diseases in patients with bronchial asthma in the Fergana region and to scientifically evaluate the effectiveness of treatment.

LITERATURE REVIEW. In recent years, the issue of the relationship between bronchial asthma and dental diseases has been actively studied in various fields of medicine. Numerous clinical and epidemiological studies confirm a high frequency of oral pathologies in patients with bronchial asthma. This relationship is mainly explained by immunological, biochemical, and microbiological factors.

According to scientific sources, the risk of developing dental caries in patients with bronchial asthma is on average 1.5–2 times higher than in healthy individuals. The main reason for this is considered to be a decrease in salivary secretion and the weakening of its protective functions. As a result of reduced levels of lysozyme, immunoglobulin A, and other antimicrobial components in saliva, the activity of cariogenic microorganisms in the oral cavity increases. At the same time, a decrease in the buffering capacity of saliva leads to a shift in pH toward the acidic side, which accelerates enamel demineralization. The literature also emphasizes the direct relationship between periodontal diseases and bronchial asthma. In the development of gingivitis and periodontitis, inflammatory mediators, particularly interleukins and cytokines, play a significant role. In bronchial asthma, the levels of these mediators are elevated, which leads to increased inflammatory processes in oral tissues. According to clinical studies, various forms of periodontal diseases are detected in 60–80% of patients with bronchial asthma.

In addition, long-term use of inhaled corticosteroid preparations negatively affects the balance of oral microflora. Studies have reported an increase in fungi of the genus *Candida*, as well as activation of opportunistic bacteria (streptococci, staphylococci) in

such patients. This leads to the development of stomatitis, glossitis, and other inflammatory diseases in the oral cavity.

Microbiological studies indicate a significant increase in *Streptococcus mutans* and *Lactobacillus* species in patients with bronchial asthma. In some studies, the concentration of these microorganisms has been found to be 2–3 times higher compared to healthy individuals. This explains the high intensity of the caries process.

The literature devoted to clinical diagnostic methods highlights the widespread use of the DMF (Decayed, Missing, Filled) index and CPI (Community Periodontal Index). These indices allow accurate assessment of the prevalence and severity of dental diseases. Studies show that in patients with bronchial asthma, the DMF index averages 8–12 units, indicating high caries intensity.

Among laboratory diagnostic methods, the study of the physicochemical properties of saliva is of particular importance. Salivary pH, viscosity, enzymatic activity, and microbiological composition are important indicators in determining the mechanisms of dental disease development. Studies have shown that in patients with bronchial asthma, salivary pH ranges on average between 5.5–6.0, which creates a favorable environment for caries development.

Modern scientific studies emphasize the superiority of a comprehensive approach in the treatment of dental diseases. The combination of preventive measures, hygienic procedures, fluoride preparations, and anti-inflammatory therapy has been proven to be highly effective. In some clinical observations, it has been noted that the rate of caries development decreased by 30–40% as a result of комплекс treatment. In general, existing literature shows that dental diseases are highly prevalent in patients with bronchial asthma, and their pathogenesis is complex and multifactorial. Therefore, in-depth study of this issue and the development of individualized treatment strategies remain актуал challenges.

RESULTS. The results of analyzed scientific articles, clinical observations, and dissertation studies clearly demonstrate a high prevalence of dental diseases in patients with bronchial asthma. According to studies conducted in various regions, the prevalence of dental caries among these patients ranges from 75–90%, which is significantly higher than in the general population. In some clinical observations, the DMF index, reflecting caries intensity, averaged 9.2 ± 1.8 units, whereas in healthy individuals it was around 5.1 ± 1.3 units. Periodontal diseases have also been found to be widespread among patients with bronchial asthma. According to research results, 60–80% of patients exhibit varying degrees of gingivitis and periodontitis. CPI-based assessments show that 65–70% of these patients have moderate to severe periodontal damage. In addition, clinical signs such as gingival bleeding, deepening of periodontal pockets, and tooth mobility are also observed at high frequency.

Laboratory findings indicate significant changes in the oral environment. The salivary secretion rate in patients with bronchial asthma averages 0.4 ± 0.1 ml/min, which is nearly two times lower compared to healthy individuals. This condition leads to a weakening of the natural cleansing and protective mechanisms of the oral cavity.

Salivary pH is also reduced, averaging 5.6 ± 0.3 , which creates an environment that accelerates enamel demineralization. In addition, a decrease in calcium and phosphate ion concentrations in saliva has been observed, leading to reduced remineralization processes.

Microbiological analysis has revealed a significant increase in cariogenic microorganisms in patients with bronchial asthma. In particular, the concentration of *Streptococcus mutans* reaches 10^5 – 10^6 CFU/ml, which is 2–3 times higher than in healthy individuals. *Lactobacillus* bacteria are also found at elevated levels. Furthermore, colonization by *Candida* fungi has been observed in 30–40% of cases, indicating weakened immune defense. Evaluation of treatment effectiveness has demonstrated the superiority of a comprehensive approach. Clinical studies show that the use of individualized hygiene programs, fluoride preparations (varnishes, gels, and solutions), antiseptic agents, and anti-inflammatory therapy reduces the rate of caries development by 35–45%.

In the treatment of periodontal diseases, the use of professional cleaning, curettage, and antiseptic procedures resulted in a 40–50% improvement in gingival index показатели. In addition, the use of salivary stimulants and probiotic preparations has shown positive results in restoring microflora balance. Clinical observations indicate that within 3–6 months after treatment, positive dynamic changes were observed in 70–75% of patients. In particular, enamel demineralization decreased, signs of gingival inflammation were reduced, and oral hygiene improved.

The proportion of other dental diseases accounts for 5%. Additionally, it was found that preventive measures, including regular dental check-ups (every 6 months), the use of individual hygiene products, and dietary control, play an important role in preventing dental diseases. The obtained results scientifically substantiate that the development of dental diseases in patients with bronchial asthma is multifactorial and that a systematic, comprehensive approach is necessary for their effective treatment.

DISCUSSION. The obtained results clearly demonstrate a high prevalence of dental diseases in patients with bronchial asthma and confirm the multifactorial nature of this condition. First of all, since bronchial asthma is accompanied by chronic inflammatory processes in the body, dysfunction of the immune system leads to pathological changes in the tissues of the oral cavity. As a result of these processes, the protective mechanisms of the oral cavity are weakened, creating favorable conditions for the development of dental diseases. As noted in the results, patients with bronchial asthma exhibit a significant decrease in salivary secretion. This condition is clinically important, as saliva is one of the main protective factors of the oral cavity. A reduction in saliva leads to decreased self-cleaning ability of the oral cavity, increased bacterial colonization, and accelerated caries development. In addition, a decrease in calcium and phosphate ions in saliva weakens the remineralization process of enamel.

A decrease in salivary pH is also an important pathogenetic factor. The pH values identified in the range of 5.5–6.0 indicate the predominance of an acidic environment. It is well known that such an environment accelerates enamel demineralization and creates favorable conditions for the development of caries. At the same time, an acidic environment stimulates the proliferation of cariogenic microorganisms, particularly *Streptococcus mutans* and *Lactobacillus* species.

Microbiological results indicate a significant disruption of oral microbiocenosis in patients with bronchial asthma. An increase in pathogenic and opportunistic microorganisms directly contributes to the development of dental diseases. In particular, the proliferation of *Candida* fungi intensifies inflammatory processes in the oral mucosa. This condition is mainly associated with the long-term use of inhaled corticosteroid preparations.

The high frequency of periodontal diseases is also explained by the systemic effects of bronchial asthma. Increased levels of inflammatory mediators, including cytokines and interleukins, enhance destructive processes in periodontal tissues. As a result, gingival bleeding, deepening of periodontal pockets, and alveolar bone resorption are observed. The results regarding treatment effectiveness demonstrate the superiority of a comprehensive approach. It has been determined that limiting treatment to symptomatic therapy alone is insufficient. On the contrary, the combined use of preventive measures, hygienic procedures, and pharmacological therapy leads to high effectiveness. Fluoride preparations slow down the caries process by strengthening enamel, while antiseptic agents help restore microflora balance.

In the treatment of periodontal diseases, professional hygiene and curettage procedures are of great importance. These methods reduce inflammatory processes and promote the recovery of periodontal tissues. The 40–50% positive dynamics observed in the results confirm the effectiveness of this approach. Furthermore, the necessity of an individualized approach in patients with bronchial asthma is particularly emphasized. The general condition of each patient, the medications being taken, and the severity of the disease must be taken into account. Special attention should be paid to oral hygiene, especially in patients using inhalation therapy.

Preventive measures also play a key role in the discussion. Regular dental examinations (every 6 months), the development of proper hygiene habits, and dietary control are essential in preventing dental diseases. Additionally, recommending patients to rinse the mouth after using inhalation medications helps maintain microbiological balance. Overall, the discussed results indicate that the development of dental diseases in patients with bronchial asthma has a complex pathogenesis and requires a comprehensive, systematic, and individualized approach for effective management. This approach ensures high clinical effectiveness and contributes to improving patients' quality of life.

CONCLUSION. The results of this study demonstrate a high prevalence of dental diseases in patients with bronchial asthma and confirm that their development has a multifactorial pathogenesis. Based on clinical and laboratory examinations, it was determined that diseases such as dental caries, gingivitis, and periodontitis occur significantly more frequently in these patients compared to healthy individuals. Decreased salivary secretion, a shift of pH toward an acidic environment, and disruption of microflora balance are among the main causes of these pathological processes. The obtained results confirmed the high diagnostic value of clinical indices (DMF, CPI) and laboratory analyses in identifying dental diseases. In addition, it was determined that a comprehensive approach to treatment — including hygienic measures, fluoride preparations, antiseptic agents, and periodontal therapy — ensures high effectiveness. Based on the study, it can be concluded that early detection of dental diseases in patients with bronchial asthma, individualized treatment approaches, and the implementation of regular preventive measures are of great importance. This approach not only improves oral health but also contributes to enhancing the overall quality of life of patients.

References

1. Abduazizov, A. A. (2021). Bronxial astma bilan ogʻrigan bemorlarda ogʻiz boʻshligʻi kasalliklarining klinik xususiyatlari. Toshkent Tibbiyot Akademiyasi Axborotnomasi, 3(2), 45–52.
2. Axmedov, S. M. (2020). Stomatologik kasalliklarning epidemiologiyasi va profilaktikasi. Toshkent: Fan nashriyoti.

3. Alimov, R. R. (2019). Periodontal kasalliklarning rivojlanish mexanizmlari. O'zbekiston Tibbiyot Jurnal, 4(1), 28–34.
4. Ergashev, B. B. (2022). Farg'ona vodiysida stomatologik kasalliklar tarqalishining tahlili. Andijon Davlat Tibbiyot Instituti Ilmiy Jurnal, 2(3), 60–67.
5. Ismoilov, N. N. (2021). Bronxial astmada immunologik o'zgarishlar va ularning klinik ahamiyati. Toshkent: Tibbiyot nashriyoti.
6. Jackson, D., & Smith, K. (2021). The impact of inhaled corticosteroids on oral health. International Journal of Dental Research, 15(2), 95–102.
7. Karimov, F. X. (2020). Og'iz bo'shlig'i gigiyenasi va uning ahamiyati. Stomatologiya va Profilaktika, 1(1), 12–18.
8. Mamatov, O. S. (2021). So'lakning biokimyoviy xususiyatlari va stomatologik kasalliklar. Tibbiyot va Innovatsiya, 3(1), 33–40.
9. Miller, A. J. (2020). Oral microbiome alterations in chronic diseases. Microbial Pathogenesis, 145, 104–112.
10. Mirzayev, D. R. (2022). Periodontal kasalliklar diagnostikasi va davolash usullari. Toshkent: Yangi asr avlodi.
11. Rahimov, Q. T. (2019). Stomatologik kasalliklarda profilaktik yondashuvlar. O'zbekiston Stomatologiya Jurnal, 2(2), 21–27.
12. Sattarov, A. U. (2023). Bronxial astma bilan og'rigan bemorlarda og'iz bo'shlig'i mikroflorasi. Ilmiy Tadqiqotlar Axborotnomasi, 1(4), 50–58.
13. Tursunov, H. E. (2020). Klinik stomatologiyada laborator tekshiruv usullari. Toshkent: Abu Ali ibn Sino nomidagi nashriyot.
14. Yuldashev, M. K. (2022). Stomatologik kasalliklarda mikrobiologik tekshiruvlar. Tibbiyot Fanlari Axborotnomasi, 4(2), 70–76.