STUDY OF CLINICAL, LABORATORY, AND IMMUNOLOGICAL FEATURES IN PATIENTS WITH BRONCHOPULMONARY DISEASES

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Abstract. Bronchopulmonary diseases remain a significant medical problem due to their chronic course and frequent complications. This study evaluates clinical manifestations, laboratory findings, and immunological parameters in patients with bronchopulmonary pathology. The analysis focused on inflammatory activity, hematological changes, and immune system responsiveness. The findings demonstrate that early inflammatory responses and immune imbalance are common even in the initial stages of the disease, highlighting the importance of timely diagnosis and individualized treatment strategies.

Diseases of the bronchopulmonary system, such as chronic bronchitis, pneumonia, and bronchial asthma, are widely prevalent and often associated with immune dysfunction and recurrent infections. The chronic nature of these conditions contributes to persistent inflammatory processes and alterations in the body's defense mechanisms. Recent studies suggest that immunological disturbances play a key role in disease progression. Therefore, a comprehensive evaluation of clinical, laboratory, and immune parameters is essential for improving diagnostic accuracy and therapeutic outcomes.

The aim of this study was to assess clinical, laboratory, and immunological changes in patients with bronchopulmonary diseases and to formulate evidence-based recommendations for optimizing diagnostic and treatment approaches.

The study involved 120 patients diagnosed with bronchopulmonary pathology who received inpatient treatment between 2022 and 2024. The control group included 30 apparently healthy individuals. Clinical assessment was combined with laboratory investigations, including complete blood count and biochemical analysis, as well as immunological evaluation of CD4+, CD8+, IgA, IgM, and IgG levels. Statistical processing was carried out using SPSS software, applying Student's t-test, χ^2 test, and correlation analysis.

Patients with bronchopulmonary diseases showed elevated inflammatory indicators, including leukocyte count, neutrophil proportion, and C-reactive protein levels, even at early stages. A decrease in IgA concentration was observed in the majority of cases, suggesting impaired mucosal immunity. The CD4/CD8 ratio was reduced below 0.9 in a significant number of patients, indicating the development of immune dysfunction. Clinically, recurrent cough, dyspnea, and general fatigue were the most frequently reported symptoms.

The results confirm that bronchopulmonary diseases are influenced not only by infectious factors but also by disturbances in immune regulation. Isolated assessment of clinical symptoms may be insufficient for accurate diagnosis. Incorporating immunological indicators into routine evaluation allows for a more precise understanding of disease mechanisms and supports the selection of individualized therapeutic strategies, including immunomodulatory approaches.

Regular immunological monitoring plays an important role in the management of bronchopulmonary diseases. Treatment strategies that account for immune status in addition to clinical manifestations contribute to improved outcomes. A personalized therapeutic approach, including immunotherapy when indicated, appears to be the most effective strategy for managing these patients.