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Influence of Comorbidity of Bronchial Asthma and Type 2 Diabetes Mellitus on Disease Control

Mukhtorov Sh. M.
Institute of Human Immunology and Genomics, Academy of Sciences of the Republic of Uzbekistan

Relevance: Bronchial asthma (BA) remains one of the leading causes of patient disability, especially in combination with metabolic disorders. Type 2 diabetes mellitus (T2DM) is often accompanied by inflammatory changes affecting the airways. Insufficient control of bronchial asthma in the presence of T2DM can increase the frequency of exacerbations and the need for high doses of inhaled glucocorticosteroids. Hyperglycemia is associated with deterioration of lung function parameters, which reduces the effectiveness of basic therapy for BA. Patients with BA and T2DM have a high risk of hypoxic conditions and progression of obstructive disorders. The study is aimed at identifying factors influencing BA control in patients with T2DM.

Materials and methods of research: The study included 89 patients who were treated at the private clinic "Aram" in Tashkent in the period from 2024 to 2025. They were divided into three groups: 1) bronchial asthma + T2DM (n = 19); 2) isolated bronchial asthma (n = 44); 3) isolated T2DM (n = 26). Asthma control was assessed using the asthma control questionnaire (ACQ-5) and the asthma control test (ACT). Spirometry parameters (FEV1, FVC, MEF25, MEF50, MEF75) were measured. Laboratory tests included analysis of venous blood glucose and glycated hemoglobin levels. Statistical methods of data analysis, including the Mann-Whitney test, were used.

Research results: Patients with combined pathology have worse asthma control compared to patients without T2DM (ACQ-5: 4.2 vs. 0.9, p=0.031). Patients with asthma + T2DM are more likely to have severe forms of the disease requiring the 4th step of therapy according to GINA – 2024 (67% vs. 29% in the isolated asthma group, $p \leq 0.05$). External respiratory function indicators are lower in the asthma + T2DM group: FEV1 = 53% vs. 80% ($p \leq 0.05$). Patients with combined bronchial asthma and type 2 diabetes mellitus have difficulties in achieving target glycemic indicators, which negatively affects the prognosis of the disease and increases the risk of its unfavorable course. Microcirculation disorders in T2DM can contribute to a decrease in the elasticity of lung tissue and an increase in bronchial hyperreactivity. The obtained data confirm the need for a comprehensive approach to the treatment of patients with asthma and type 2 diabetes.

Conclusions: Comorbidity of asthma and T2DM leads to decreased disease control and increased need for intensive care. Patients with asthma and T2DM require additional monitoring and

individualized treatment tactics.

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