THE IMPORTANCE OF STATINS IN BRONCHIAL ASTHMA

Akhmedova Gulchehra Abdullayevna
Acting Associate Professor, PhD, Department of Internal Medicine No.1, Samarkand State Medical University.
Kholjigitova Mukhayyo Berdikulovna
DSc, Associate Professor, Department of Internal Diseases No. 4, Faculty of Medicine, Samarkand State Medical University.

Abstract. *Bronchial asthma is a chronic inflammatory disease of the airways characterized by bronchial hyperresponsiveness and reversible airflow obstruction. In recent years, it has been recognized that not only allergic but also systemic inflammatory mechanisms play an important role in its pathogenesis. Statins (HMG-CoA reductase inhibitors), primarily used as lipid-lowering agents, also possess anti-inflammatory, immunomodulatory, and endothelial-protective properties. This thesis analyzes the potential clinical significance and therapeutic role of statins in bronchial asthma.*

Keywords: *bronchial asthma, statins, inflammation, IL-6, TNF-α, bronchial hyperresponsiveness, immunomodulation.*

Relevance. Bronchial asthma is a widespread chronic respiratory disease that remains insufficiently controlled in a proportion of patients despite standard therapy, including inhaled corticosteroids and bronchodilators. Persistent airway inflammation in some patients highlights the need for additional anti-inflammatory strategies. Therefore, statins have attracted scientific interest as potential adjunctive therapy due to their pleiotropic effects.

Aim of the Study. To evaluate the effects of statins in bronchial asthma on: inflammatory biomarkers, clinical symptoms, pulmonary function, overall disease control.

Main Findings (Based on Literature Review). Statins may demonstrate the following beneficial effects in bronchial asthma: reduction of IL-6 and TNF-α levels, decrease in CRP concentration, suppression of airway inflammation, reduction of epithelial cell injury, decreased bronchial hyperresponsiveness, potential improvement in FEV1 values, possible reduction in asthma exacerbation frequency

Discussion. The beneficial effects of statins in bronchial asthma are mainly explained by their pleiotropic mechanisms, including: inhibition of inflammatory mediators, suppression of NF-κB signaling pathways, reduction of oxidative stress protective effects on endothelial and epithelial cells, However, therapeutic, esponse varies among patients due to different asthma phenotypes and underlying inflammatory pathways.

Conclusion. Statins may serve as a potential adjunct anti-inflammatory therapy in bronchial asthma.

1. They reduce key inflammatory biomarkers such as IL-6, TNF-α, and CRP.
2. They may decrease bronchial hyperresponsiveness.
3. Statins can contribute to improved asthma control in selected patients.
4. Further large-scale clinical studies are required to confirm their efficacy in asthma management.

References

1. Global Initiative for Asthma (GINA). Global Strategy for Asthma Management and Prevention. 2024 Update.
2. Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global Strategy for COPD Prevention, Diagnosis and Management. 2024 Report.
3. Barnes PJ. Inflammatory mechanisms in asthma: new insights and therapeutic implications. Lancet Respir Med. 2022.
4. Agustí A, et al. Systemic inflammation in chronic airway diseases. Eur Respir J. 2022.
5. Sin DD, et al. Cardiovascular comorbidity and chronic respiratory diseases. Chest. 2023.
6. Ridker PM, et al. Anti-inflammatory therapy and cardiovascular risk reduction. N Engl J Med. 2023.
7. Jain MK, et al. Anti-inflammatory mechanisms of statins: clinical implications. Nat Rev Drug Discov. 2024.
8. Timmis A, et al. Cardiovascular disease prevention and statin therapy updates. Eur Heart J. 2025.