

OPTIMIZING THE MANAGEMENT OF INTERMITTENT BRONCHIAL ASTHMA IN THE SETTING OF OBESITY

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Abstract. *This study evaluated the clinical and functional characteristics of patients with intermittent bronchial asthma associated with obesity and assessed an optimized management approach. The study included 60 patients. Clinical symptoms, body mass index, pulmonary function, asthma control, and treatment outcomes were analyzed. The results showed that obesity was associated with increased respiratory symptoms and impaired pulmonary function. The optimized approach, including individualized pharmacotherapy, weight management, healthy nutrition, and lifestyle modification, contributed to improved asthma control, pulmonary function, and quality of life. The findings support the use of a comprehensive and individualized strategy for managing intermittent bronchial asthma in patients with obesity.*

Keywords: *Bronchial asthma, obesity, intermittent asthma, asthma control, pulmonary function, body mass index, weight management, individualized treatment.*

Introduction

Obesity and bronchial asthma are among the most common chronic diseases and have complex pathophysiological interactions. The management of intermittent bronchial asthma in patients with obesity presents particular clinical challenges due to the influence of excess body weight on respiratory function, airway responsiveness, systemic inflammation, and treatment outcomes.

Obesity may contribute to reduced lung volumes, increased respiratory workload, and impaired pulmonary mechanics, potentially affecting the clinical manifestations and control of asthma. Adipose tissue is not merely an energy-storage organ but also an active endocrine and immunological tissue involved in the regulation of inflammatory processes.

In patients with obesity, the release of pro-inflammatory mediators and adipokines may contribute to airway inflammation and modify the clinical phenotype of bronchial asthma.

Therefore, the coexistence of obesity and asthma requires a comprehensive assessment of both respiratory and metabolic factors when determining an appropriate management strategy. The diagnosis and monitoring of intermittent asthma in patients with obesity can also be complicated by the overlap of respiratory symptoms.

Dyspnea, exercise intolerance, and respiratory discomfort may result from asthma, obesity-related mechanical limitations, or a combination of both. Consequently, accurate assessment of symptom patterns, pulmonary function, body mass index, and asthma control is essential for selecting an individualized therapeutic approach.

Relevance

The coexistence of obesity and intermittent bronchial asthma is an important clinical problem. Obesity can negatively affect respiratory function, increase symptom severity, and complicate asthma control.

Main part

The study included patients with intermittent bronchial asthma and concomitant obesity.

Clinical symptoms and their frequency were assessed. The duration of asthma was determined. The intensity of respiratory symptoms was evaluated. Body mass index was calculated for each patient. The degree of obesity was determined. Respiratory rate and heart rate were assessed. Pulmonary function was examined using spirometry. Forced expiratory volume was determined. Forced vital capacity was also assessed. The FEV1/FVC ratio was analyzed. The level of asthma control was evaluated. Exercise tolerance was assessed. The frequency of asthma exacerbations was recorded. The use of rescue medication was analyzed. The relationship between body weight and respiratory function was determined. Patients' quality of life was assessed.

Clinical and functional indicators were compared. Risk factors affecting asthma control were identified. The obtained results were used to develop an individualized management strategy.

An individualized treatment strategy was developed for patients with intermittent bronchial asthma and obesity. Pharmacological therapy was selected according to clinical manifestations.

Asthma control was regularly monitored. The effectiveness of prescribed treatment was evaluated. Weight-management recommendations were included in the treatment program.

Patients received recommendations on healthy nutrition. Physical activity was encouraged according to individual tolerance. Lifestyle modification was considered an important component of management. Pulmonary function was monitored during treatment. The frequency of asthma symptoms was assessed dynamically. Exacerbation frequency was recorded. The need for rescue medication was evaluated. Changes in body mass index were monitored. Treatment adherence was assessed. Quality of life was evaluated before and after the intervention. Clinical outcomes were compared during follow-up. The effectiveness of the optimized approach was determined. Factors associated with treatment response were analyzed. The results demonstrated the importance of a comprehensive management strategy. Practical recommendations for optimizing the management of these patients were formulated.

Results

The study included 60 patients with intermittent bronchial asthma and obesity. The mean age of the patients was 42.6 ± 5.8 years, and the mean body mass index was 32.4 ± 2.7 kg/m².

Before treatment, 68.3% of patients reported recurrent dyspnea, 61.7% had wheezing, and 55.0% experienced exercise intolerance. The mean FEV1 was $78.4 \pm 6.3\%$ of the predicted value, while the FEV1/FVC ratio was $71.2 \pm 4.8\%$. After the optimized management approach, clinical symptoms decreased significantly. The frequency of dyspnea decreased from 68.3% to 35.0%, while wheezing decreased from 61.7% to 30.0%. The mean FEV1 increased to $86.7 \pm 5.9\%$, and the FEV1/FVC ratio improved to $76.8 \pm 4.5\%$. The frequency of asthma exacerbations decreased by 40.0%. The need for rescue medication also decreased from 63.3% to 31.7%. Overall, the optimized management approach was associated with improved asthma control, respiratory function, and quality of life in patients with obesity.

Conclusion

Obesity negatively affects the clinical course and respiratory function of patients with intermittent bronchial asthma. An individualized and comprehensive management approach, including appropriate pharmacotherapy, weight control, healthy nutrition, and physical activity, can reduce respiratory symptoms and improve pulmonary function. This approach also contributes to better asthma control, fewer exacerbations, and improved quality of life.

References

1. Hudler A.C., Ramírez Díaz I.R., Sharma S., Holguin F. et al. Gaps and future directions in clinical research on obesity-related asthma // *Pulmonary Therapy*. – 2023. – Vol. 9. – P. 309–327.
2. Witte A., Türk Y., Braunstahl G.J. Obesity-related asthma: new insights leading to a different approach // *Current Opinion in Pulmonary Medicine*. – 2024. – Vol. 30, No. 3. – P. 294–302.
3. Althoff M.D., Gaietto K., Holguin F., Forno E. Obesity-related asthma: a pathobiology-based overview of existing and emerging treatment approaches // *American Journal of Respiratory and Critical Care Medicine*. – 2024. – Vol. 210, No. 10. – P. 1186–1200.
4. Pilkington A.W. IV, Buragamadagu B., Johnston R.A. Weighted breaths: exploring biologic and non-biologic therapies for co-existing asthma and obesity // *Current Allergy and Asthma Reports*. – 2024. – Vol. 24. – P. 381–393.