
**EXERCISE TESTING INFLUENCE ON PULMONARY VENTILATION PARAMETERS IN PATIENTS WITH BRONCHIAL ASTHMA,
CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND THEIR COMBINATION**

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Abstract

For patients with bronchial asthma and chronic obstructive pulmonary disease, adaptation to physical activity is worse than in healthy individuals, which is caused by such factors as violation of bronchial patency at rest, the emergence of bronchial obstruction under load due to airway hyperreactivity, concomitant obesity, excessive dyspnea feeling, dynamic hyperinflation of the lungs.

The purpose of the study: This study aimed to investigate the exercise testing influence on pulmonary ventilation parameters in patients with bronchial asthma, chronic obstructive pulmonary disease and their combination.

Results: In bronchial asthma, chronic obstructive pulmonary disease and their combination under the influence of exercise, there is a significant increase in the minute from (16.1 ± 0.8) to (19.2 ± 1.0) l/min. And alveolar ventilation of the lungs from (11.2 ± 0.6) to (13.7 ± 0.8) l/min, $p < 0.05$ due to an increase in the depth of breathing (an increase in the tidal volume from (0.94 ± 0.05) to (1.09 ± 0.06) l, $p < 0.05$). Adaptation to physical exertion by increasing the respiratory rate is disrupted due to the inability of patients to shorten the expiration time due to bronchial obstruction. 30 % (16 of 53 patients) showed deterioration in pulmonary ventilation during exercise.

Conclusions: A possible cause of the alveolar ventilation worsening during physical exercise is static hyperinflation of the lungs (the correlation coefficient between the inspiratory capacity and the fraction of ventilation of the «dead» space in the respiratory volume $r = -0.74$, $p = 0.0048$) and dynamic hyperinflation (increase in the useless ventilation of the «dead» space per 1 liter per minute with the increase in the share of $VD \% VT$ by 3 %).

Key words: chronic obstructive pulmonary disease, bronchial asthma, lung ventilation, exercise testing.

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