

DIAGNOSTICS OF HYPERINFLATION AND EMPHYSEMA IN PATIENTS WITH ASTHMA AND COPD OVERLAP ON THE PRIMARY AND SPECIALIZED LEVELS OF MEDICAL CARE

***Yu. I. Feschchenko, L. A. Iashyna, K. V. Nazarenko,
S. M. Moskalenko, S. G. Opimakh, N. M. Musienko***

Abstract

The standard method of diagnostics in patients with emphysema is computed tomography, which is difficult-to-perform and not always available method.

The *aim* was to improve the diagnostics of hyperinflation and emphysema in patients with asthma and COPD overlap (ACO).

Materials and methods. The study was performed among 37 patients with asthma, COPD and their combination. In 28 patients with ACO an emphysema was revealed. All these patients underwent spirometry, bodyplethysmography, respiratory muscles test, impulse oscillometry, capnography, blood count and serum IL-8 measurement.

Results. The index of pulmonary tissue density ranged from -856 to -999 HU. Centriolubular type of emphysema (16 cases) was more prevalent than paraseptal and mixed (5 cases), and panlobular (2 cases) types. An average pre- and post-bronchodilator FEV₁ values were 62.6 and 74.6 %, respectively. In all emphysema patients an "air-trap" index (RV/TLC) was increased. The respiratory muscle strength was reduced both at inspiration (51,4 ± 4,2) %, and expiration (77,2 ± 6,8) %. Neurorespiratory drive was increased to (141,2 ± 14,6) % of predicted value. Respiratory resistance (R5) was increased to (179,9 ± 24,3) % of predicted value) mainly due to distal airway obstruction. In majority of patients with emphysema a neutrophilic inflammation and higher interleukin-8 concentration were observed.

Conclusions. Emphysema is associated even with minimal bronchial obstruction. It is accompanied by "air traps", redistribution of total lung capacity and weakness of respiratory muscles, disorders of alveolar ventilation, increasing of total respiratory impedance. The neutrophilic inflammation is a predominant type of inflammation in patients with emphysema.

Key words: emphysema, lung hyperinflation, asthma-COPD overlap.