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**ANALYSIS OF THE RESPIRATORY TRACT INSTABILITY INDICES
IN CHILDREN SUFFERING FROM BRONCHIAL ASTHMA
AND EOSINOPHILIC CHARACTER OF BRONCHIAL INFLAMMATION**

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Bronchial hyperactivity is a fundamental characteristic of asthma which is considered to be an inherited component and associated with chronic allergic inflammation involving a number of effector cells, and eosinophils in particular. Instability of the bronchial tree, bronchospasm reverse and dilation of the spasmic respiratory tract are changed against the ground of chronic inflammation.

Objective of the study was to investigate bronchial instability in school-children suffering from eosinophilic bronchial asthma in a bronchial-provocative test with a dosed physical load and quick action β_2 -agonist inhalation.

At the Pulmonologic-Allergologic Department of Chernivtsi Regional Pediatric Clinical Hospital 94 school-children suffering from bronchial asthma were examined during attack-free period of the disease, and divided into two clinical groups of observation. The first (I) clinical group included 38 (40,4%) patients with non-eosinophil (neutrophil) character of bronchial inflammation associated with non-eosinophil/neutrophil phenotype of bronchial asthma (NPBA). The second (II) group of comparison included 56 children (59,6%) with eosinophil character of respiratory tract inflammation associated with eosinophil phenotype of bronchial asthma (EPBA). The groups of comparison were comparable by the main clinical signs. In I group intermittent course of NPBA was registered in 23,7% children, persisting – in 76,3% patients, and in II group of comparison – in 21,4% ($P>0,05$) and 78,6% ($P>0,05$) of observation respectively. According to the degree of severity in the I group mild course was found in 23,7%, moderate - in 63,2% and severe - in 13,1% of observations. In the group with EPBA the appropriate severity was registered in 30,4% ($P>0,05$), 41,1% ($P<0,05$) and 28,5% ($P>0,05$) cases respectively.

To determine peculiarities of instability of the respiratory tract defined by the total response of the bronchi to a dosed physical load and short action β_2 -agonist, the spirometry indices in children with alternative inflammatory phenotypes were analyzed.

More pronounced instability of the bronchi in patients with EPBA was determined, and the total response of the bronchi more than 47% was registered more often among the representatives of II group (28,0% against 12,0%; $P<0,05$). At the same time, more pronounced instability of the respiratory tract with EPBA was defined by an increased response of the bronchi of a moderate size: the total response of the bronchi more than 46% according to the data of MEF50 was found in 64,0% of children from II group against 52,0% of patients with NPBA ($P<0,05$).

The response occurring due to a dosed physical load was determined in 38% of children of II group, which is reliably more often (20,0% against 8,0%; $P<0,05$). In those patients more pronounced disobstructive effect of β_2 -agonist (Salbutamol) was found. Thus, inhalation of β_2 -agonist more than 16% was registered only in 24,0% representatives of I clinical group against 44,0% patients with EPBA ($P<0,05$), when bronchial dilation was determined on the level of the minor bronchi.

Therefore, more pronounced instability of the bronchi was found in children with eosinophil phenotype of BA determined by more increased response of the respiratory tract to the dosed physical load on the level of the middle size bronchi and more active dilation response to β_2 -agonist inhalation on the level of fine bronchi.