



second (II) group of comparison included 6 children with a moderate risk of respiratory remodeling ( $VEGF \geq 80$  ng/ml,  $MMP-9 \leq 5,2$  ng/ml or  $VEGF \leq 80$  ng/ml,  $MMP-9 \geq 5,2$  ng/ml), and the third one (III) – 3 patients with a low level of  $VEGF (\leq 80$  ng/ml) and  $MMP-9 (\leq 5,2$  ng/ml) and with a low risk of bronchial remodeling respectively. The clinical groups of comparison did not differ reliably by the main characteristics.

The frequency of indication of disobstructive medicines and the volume of the performed treatment of asthma attacks in children with bronchial instability less than 13% was not found to differ much: the patients of the I group received monotherapy with  $\beta_2$ -agonists and a comprehensive therapy with  $\beta_2$ -agonists and glucocorticoids more frequently, and the II and III groups received a comprehensive therapy with  $\beta_2$ -agonists and glucocorticoids as well as their combination with anticholinergic drugs. It should be noted that the treatment performed for the patients with a low bronchial instability was less effective in children with a high risk of bronchial remodeling. Thus, maintenance frequency of pronounced bronchial obstruction (more than 9 points) on the third day of treatment was found in the I group of patients in 71,4% cases, in the II group – in 50% and in the patients from the III group – in 33% of observation. In this respect bronchial disobstruction on the 3<sup>rd</sup> day of treatment was more pronounced in children with a high risk of remodeling. Thus, bronchial disobstruction on the 3<sup>rd</sup> day of treatment less than 3 points was found in the I group in 14,3% cases, in the II group – in 50% and in the III group – in 66,7% of observations ( $p$  I:III  $< 0,05$ ). The ratio of chance retention of bronchial obstruction clinical signs (more than 9 points) and their weak disobstruction (less than 3 points) in the I group of children concerning the III group were found to be 5,0 (95% RI: 2,74-9,12). While comparing the efficacy of treatment these indices in patients from the II group concerning the children from the III group were 2,0 (95% RI: 1,13-3,55).

Therefore, in children with a high probability of bronchial remodeling and a low level of their instability concerning the patients with a low risk of respiratory remodeling disobstructive therapy is accompanied by a high risk of maintenance of pronounced obstruction of the low respiratory tract with a higher level of their disobstruction.

**Bodnar O.B., Bodnar B.M.**

#### **DIAGNOSTICS AND SURGICAL TREATMENT OF CHRONIC CONSTIPATIONS OF CHILDREN WITH DOLICHOSIGMOID**

*Department of Pediatric Surgery and Otolaryngology  
Higher State Educational Establishment of Ukraine  
«Bukovinian State Medical University»*

At the present stage of development of the abdominal pediatric surgery the absolute indices for surgical treatment concerning dolichosigmoid are not worked out. Unsatisfied results and relapses of the disease range from 27,3% to 45,9%.

Objective of the study: to improve the methods of surgical treatment of chronic constipations in children with dolichosigmoid.

During the period from 2003 to 2013, 344 children aged from 6 months to 17 years with chronic constipations were examined at the Pediatric Surgical Clinic. Colonoscopy, irrigoscopy and irrigography examinations were made compulsory with barium mixture.

180 children were diagnosed to have dolichosigmoid. 29 children (16,11%), from 6 to 17 years, were operated on. According to X-ray examination it was found that 14 patients operated on dolichosigmoid had a high position of the colon left bend. In assessing the X-ray examinations and clinical symptomatology two groups of patients were singled out: 1 - isolated dolichosigmoid (15 children), 2 - dolichosigmoid combined with the colon left bend high position (14 children). During surgical treatment, children were divided into two groups: 1- resection of the sigmoid colon with dolichosigmoid by a traditional method; 2 - resection of the sigmoid colon with the formation of the upper sigmoid ligament based on our own methodology.

After resection of the sigmoid colon by a traditional method, periodical constipations after surgery was found in 18,75% of patients, abdominal pains - 37,5%, excrement smearing - 60%. In addition to operations with forming of the upper sigmoid ligament - constipations were absent; abdominal pains remained within 14,29 % of patients, excrement smearing - 16,67% as compared to the preoperative clinical manifestations.

48,28% of children operated on dolichosigmoid, had high position of the colon left bend that required additional dissection of the left phreno-colic ligament. Resection of the sigmoid colon with the formation of the upper sigmoid ligament can be a method of choice for surgical treatment of chronic constipations in children with dolichosigmoid.

**Bogutska N.K.**

#### **COMPARATIVE ANALYSIS OF THE ATOPIC COMPONENT OF DIFFERENT PHENOTYPES OF BRONCHIAL ASTHMA IN SCHOOL AGE CHILDREN**

**(results of cluster analysis)**

*Department of Pediatrics and Children Infectious Diseases  
Higher State Educational Establishment of Ukraine  
"Bukovinian State Medical University"*

The incidence of atopic bronchial asthma (BA) in children varies from 40% to 80% in the prevalence of this disease and depends on the conditions of performing the study. Well known association between BA and atopy was revealed long ago, but the exact mechanisms of this association are not fully defined.



The objective of the study was to compare the results of cluster analysis while researching atopic component in order to improve the diagnosis of different clinical phenotypes of BA in children. In order to achieve this goal a cohort of school age children was formed by a simple random sampling. Patients with persistent moderate and severe BA were included in alternative clinical groups: in particular, 38 children with atopic asthma phenotype (genealogical history with atopic pathology, realized with at least one positive intradermal skin test to nonbacterial allergens and relevant clinical manifestations of hypersensitivity) and 26 patients with the diagnosis of asthma without signs of atopy; 25 children with early onset of the disease (up to 3 years old) and 25 patients with late debut of BA (after 6 years old); 30 children with phenotype of BA, accompanied by exercise induced bronchoconstriction (EIB) (anamnestic bronchospasm after exercise and index of bronchospasm after graduated exercise at least 15%) and 30 patients with the diagnosis of asthma phenotype which is not characterized by these signs. According to the main characteristics (sex, age and place of residence) the groups of comparison were comparable. Hierarchical probabilistic approach and cluster analysis (CA) with the K-means method were used for statistical analysis.

The analysis of clinical and paraclinical characteristics of the phenotypes of atopic and nonatopic asthma in school-age children demonstrated that only positive allergic anamnesis of mothers' pedigree and elevated above 0.25 units of spontaneous cytochemical coefficient functional activity of the blood eosinophilic granulocytes statistically significantly increased the likelihood of atopic asthma. In the cohort of patients with atopic phenotype of asthma by hierarchical CA two clinical subphenotypes were formed: first subphenotype of asthma as compared to the second one, in general, was characterized by statistically significantly more evident manifestations of the disease, such as earlier debut, greater sensitization to pollen allergens, more often concomitant allergic disorders, including skin manifestation under the age of 1 year. Formed clusters from the whole cohort and subphenotypes of atopic and nonatopic BA did not differ by the signs of skin sensitization to domestic and epidermal allergens and serum total IgE level in children.

Diagnostic markers of the early debut of BA were the parameters which were indicative of more pronounced clinical symptoms of the disease: the manifestations of allergic rhinitis available during asthma exacerbation and child's polysensitization. Asthma phenotype of the late onset was more subjected to exogenous environmental factors impact, including passive smoking and higher infectious index. By the results of CA the phenotype of early onset asthma was distributed into two subgroups almost equal by number, reliable differences between them were more evident signs of atopic reactivity (significantly more frequent manifestations of allergic skin injury at an early age, more essential blood eosinophilia and sensitization to domestic allergens according to available skin allergic tests). By the result of CA of the late onset of BA in childhood two groups were formed: the first included children with significantly more often atopic BA, and the second included children who had higher weight at birth and more frequent mixed variant of the disease. The analysis of the diagnostic value of clinical and paraclinical parameters and results of cluster analysis enabled to characterize the early onset BA phenotype as the overwhelming early implementation of atopic reactivity of the child's organism.

Integral assessment of the diagnostic value of the investigated clinical and paraclinical parameters indicated a small number of reliable markers of asthma phenotype accompanied by EIB as compared to alternative phenotype. The characteristics which significantly increased the chances of diagnosing of EIB asthma phenotype were as follows: severe phenotype, allergic positive anamnesis exclusively in father's pedigree; peripheral blood eosinophilia higher than 4%. BA with EIB was associated with more severe signs of the disease (more severe, longer duration), atopic reactivity (atopic form of asthma, presence of concomitant allergic rhinitis and / or dermatitis and allergic skin injury at an early age in anamnesis; greater than 15 mm skin papules to house dust allergen). The analysis of the diagnostic value of clinical and paraclinical indicators and the results of CA of the phenotypes of childhood asthma with / without EIB enabled to state the similarity of these two alternative variants of the disease by the majority of the characteristics studied, but more evident manifestations of asthma, symptoms of atopic reactivity and more intensive treatment of asthma were associated primarily with the phenotype of the disease, accompanied by exercise induced bronchoconstriction.

Thus, further studies are required to establish the relationship between atopy and different phenotypes of childhood asthma, as the results of CA cohorts of pediatric patients with alternative phenotypes of the disease according to availability of atopy itself, the debut of the disease and the exercise induced bronchoconstriction, were indicative of significant clinical similarities of clinical subclusters by the markers of atopic reactivity and rather quantitative than qualitative differences of atopy.

**Garas M.N.**

#### **TREATMENT EFFICACY OF CHILDREN SUFFERED FROM LATE-ONSET BRONCHIAL ASTHMA DEPENDING ON PHENOTYPIC HETEROGENEITY**

*Department of Pediatrics and Children Infectious Diseases*

*Higher Educational Establishment of Ukraine*

*«Bukovinian State Medical University»*

The objective of this work was to determine the efficacy of relieving and basic therapy in children suffered from late-onset asthma phenotype depending on the rate of acetylation mechanisms.

On the basis of Pulmonological Department of the Regional Clinical Hospital (Chernivtsi) 72 children suffered from late-onset asthma phenotype were examined. Clinical groups were formed according to the acetylation rate. The type of acetylation was determined by means of Prebstyng-Gavrilova's method in Tymofeyeva's modification. Efficacy indices of therapy were analyzed in each group. The basic therapy efficacy was determined by assessing the disease