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## **ACHIEVEMENT OF ASTHMA CONTROL IN CHILDREN DEPENDING ON THE PHENOTYPE OF THE DISEASE ONSET**

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Bronchial asthma is a heterogeneous chronic inflammatory disorder of the lower respiratory tract. Diseases pathophysiology is characterized by variable airway obstruction with hyperresponsiveness and clinical symptoms like episodes of wheezing and breathlessness. Asthma pathogenesis depends on numerous factors, including genetic predisposition and environmental agents (allergens, infections, and air pollutants etc.). It can be classified into different phenotypes and endotypes, which further complicates diagnosis in the absence of fully effective standard basic treatment.

The aim of investigation was evaluated of clinical-anamnestic efficacy of standard preventive therapy in children with early and late onset of persistent bronchial asthma.

On the base of the Chernivtsi Regional Children Clinical Hospital retrospectively were examined 65 children who are afflicted with bronchial asthma. According to the age of asthma symptoms manifestation two groups of monitoring have been formed. The first (I) group included 34 patients whose first episode of disease started before three years old, the second (II) clinical group formed 31 patients, in which the appearance of asthma symptoms was observed after six years of the life. No significant differences by sex, age, place of residence and severity of asthma have been shown that indicates a clinical groups comparison were formed correctly.

The «Asthma control test» (ACT) was used to determine the level of control. The total amount of scores exceeding 20 was evidence of well controlled, from 16 to 19 points reveal about partly controlled, 15 or less points testify about the uncontrolled bronchial asthma.

The patients were examined twice with an interval of three months during which the children received basic antiinflammatory therapy.

According to the results of the initial ACT the average value of the scores was 16,7 (95% confidential interval (CI) 13,4-18,3) in patients with early-onset versus 15,1 (95% CI 12,5-17,8) in the II clinical group ( $P>0,05$ ). As well as finally survey investigation showed the positive dynamic in both group. ACT level increased in I group up to 18,1 (95% CI 14,8-19,7) and to 16,3 with 95% CI 13,1-18,4 in group of children with late-onset asthma ( $P>0,05$ ).

In spite the patients of both groups have taken prophylactic treatment the frequency of uncontrolled and partly-control bronchial asthma according the ACT results was higher in children of II clinical group (frequency of uncontrolled asthma was  $16,1\pm 7,4\%$  versus  $2,9\pm 2,4\%$  ( $P\varphi<0,05$ ), and partly control –  $58,1\pm 11,4\%$  versus  $52,9\pm 11,7\%$  ( $P\varphi>0,05$ ).

The attributive risk of uncontrolled variant of disease in children with late-onset asthma phenotype compare the patients of I clinical group was 13,2%, relative risk – 1,2 (95% CI 0,2-4,0) and odds ratio – 6,3 (95% CI 0,7-15,5).

To the patients with late-onset bronchial asthma the daily dosage of antiinflammatory drugs from the step-up position phenotype and / or consider the individual target treatment like monoclonal antibody based on the results of endotype variants is reasonable to be given.

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## **LOCAL APPLICATION OF $\beta$ -ADRENOBLOCKERS IN THE TREATMENT OF SUPERFICIAL INFANTILE HEMANGIOMA IN CHILDREN**

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Hemangiomas are the most common benign tumors of vascular origin, occurring in 1.5-3% of newborns and 10-12% of children in the first year of life. Hemangiomas are characterized by rapid growth in the neonatal period with subsequent reduction and involution after the first year of life. During the first 3 months of the child's life we note the fastest growth of the tumor, in



premature children – by 2-3 times faster. Most often hemangiomas are localized in the head and neck areas, torso and external genitalia, which explains their cosmetic defect.

To analyze the effectiveness of local application of non-selective blocker of  $\beta_1$  and  $\beta_2$ -adrenoceptors (Timolol) in the treatment of local infantile superficial hemangiomas (LISH) in children of Chernivtsi region.

An analysis of the effectiveness of treatment of 67 sick children (54 girls and 13 boys) aged from one to 18 months with LISH who were treated at the Chernivtsi City Children's Clinical Hospital was carried out. In 32 children (47.8%), tumors were localized on head and neck, in 15 patients (22.4%) on hands and feet, in 9 (13.4%) on external genitalia, 17 patients (25.4%) had three or more hemangiomas. All children received local application of Timolol 5% in the form of compress and constant humectation of the formation. Treatment completed after a satisfactory clinical response and after the end of the proliferation phase.

Determination of treatment effectiveness was performed by reduce of tumor color intensity (fading), the level of elevation above the skin, size reduce until complete disappearance. Positive signs of treatment were observed during the first days of life and were recorded at the first follow-up visits (2 weeks from the start of treatment). Treatment was performed in the proliferative phase of tumor growth and continued until 12-18 months of age. There was a positive effect in 58 patients (86.6%). Two children (2.98%) had local allergic reaction with reversible effects (increased redness, volume). Due to the local action of the drug (low dose of absorption) control of cardiovascular activity and glycaemia was not performed.

The non-selective blocker of  $\beta_1$  and  $\beta_2$ -adrenoceptors (Timolol) is quite effective and, due to the low level of absorption when applied locally, is a safe drug in the local treatment of infantile hemangiomas in children.

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### **BIOMARKERS OF EXHALED AIR CONDENSATE IN CHILDREN IN THE COMORBID COURSE OF PNEUMONIA WITH BRONCHOBSTRUCTIVE SYNDROME**

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An assessment of biomarkers of inflammatory activity was done to improve the diagnosis of acute infectious-inflammatory diseases of the respiratory system in schoolchildren.

A comprehensive examination of 172 school-age patients who were treated in the Department of Pulmoallergy of the Regional Children's Clinical Hospital in Chernivtsi was organized. Forty-three patients were diagnosed with community-acquired uncomplicated pneumonia (clinical group I, the average age of patients was  $9.2 \pm 0.80$  years, including  $65.8 \pm 6.28\%$  of boys,  $65.1 \pm 7.35\%$  of rural residents); in 19 schoolchildren (clinical group II, the average age of patients was  $7.5 \pm 0.83$  years, including  $52.6 \pm 7.69\%$  of boys,  $57.9 \pm 11.64\%$  of rural residents) community-acquired pneumonia was manifested against the background of bronchoobstructive syndrome (apparently caused by viral pathogens). Group III was formed by 110 peer-aged children with clinical signs of acute non-obstructive or obstructive uncomplicated bronchitis (average age of patients  $8.5 \pm 0.30$  years, including  $62.7 \pm 3.14\%$  of boys,  $59.1 \pm 4.71\%$  of residents rural areas). The general characteristics of the created comparison groups indicated their comparability by gender, age, and place of residence (in all cases  $p > 0.05$ ).

According to the results of the microbiological examination of sputum of patients from clinical groups of comparison, bacterial flora was found in 83.9% of children in group I; 72.7% of patients in group II and 52.6% of representatives of group III ( $p < 0.05$  at I: III). Fungal flora was found in 1.4% of children of group III, and cases of fungal-bacterial association in 9.7% of patients in group I and 19.7% in group III. It worth mentioning, that according to the results of the microbiological examination of sputum, no pathogen was isolated in 6.4% of patients from group I; 27.3% in group II, and 26.3% in group III ( $p < 0.05$  for I: II, III). According to the results of the virological examination of patients from the comparison groups with negative results of the bacteriological examination of sputum, the respiratory syncytial virus was found in all such patients