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NEBULIZER THERAPY FOR ACUTE BRONCHIAL OBSTRUCTION IN CHILDREN.

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Abstract: Bronchial obstruction syndrome in children is a widespread pathological condition. Allergic inflammation of the mucous membrane of the respiratory tract with the participation of leukotrienes leads to the development of this syndrome in bronchial obstruction. It was found that blocking leukotriene receptors with the help of the drug decosan has a therapeutic effect, including in infants. The drugs are well tolerated, are able to prevent bronchospasm, and in some clinical situations can be used as an alternative to glucocorticoids.

Keywords: children, broncho-obstructive syndrome, allergic inflammation, leukotrienes, decosan.

Relevance. Broncho-obstructive syndrome (BOS) is one of the serious problems in young children due to its wide prevalence and steady growth among the child population. In childhood, acute bronchial obstruction is an urgent condition and requires emergency care. [1,4]. Particular difficulties arise in the diagnosis of obstructive bronchitis in young children with hypoxic-ischemic encephalopathy.

To date, prognostic criteria for the development and outcomes of obstructive bronchitis in children with hypoxic-ischemic encephalopathy have not been developed. Despite the obvious successes of modern medical science and practice aimed at reducing the frequency of lesions of the central nervous system in newborns and young children, improving the treatment and rehabilitation of patients, it can be stated that this pathology remains a complex and largely unresolved problem. [2,3,7].The pathogenetic role of the totality of environmental hazards in the development of obstructive bronchitis against the background of hypoxic-ischemic encephalopathy in these children and other negative premorbid factors requires clarification. [5,6,8]. In particular, a complex of ecopathobiological influences pathogenetically significant for these diseases, place of residence, negative technological working conditions with their adverse effects on immunity, metabolism for parents and their children. It is known that Uzbekistan is located in a region with its total environmental hazard for a child: a sharply continental climate, widespread use of pesticides in agriculture. The presence of a range of chemicals in food, water, air is far from the last place in aspects of the named problem. These factors can be associated not decreasing, but in some areas growing, the prevalence of lesions of the central nervous system in newborns and young children in general, including encephalopathy in children. [9]. At the same time, their severe cases and forms that are resistant to conventional pharmacotherapy, with subsequent complications of the disease, are becoming more frequent. Treatment of broncho-obstructive syndrome in children of different ages is often complex and requires clinical thinking and modern knowledge from the doctor.

The aim of the study was to evaluate the effectiveness of non-invasive therapy using nebulizer inhalation with decosan in children with acute bronchial obstruction.

Materials and research methods. 120 children aged 6 months to 3 years with broncho-obstructive syndrome, who were hospitalized in the departments of emergency pediatrics

and children's resuscitation of the SF RRCEM, were examined. Group 1 included 60 patients who received traditional therapy; patients received ambroxol orally as mucolytic therapy. Group II consisted of 60 patients who received nebulizer inhalations with decosan at a dose of 2 ml twice a day. The severity of bronchial obstruction was assessed in points according to the W. Tal table, depending on the severity of expiratory dyspnea and the severity of cyanosis. The clinical picture of respiratory failure (RD) was compared with the results of studies of PO2, PCO2, SaO2 (oxygen saturation) of capillary blood before and after nebulizer therapy with decosan.

Research results. The criteria for hospitalization of patients included: the patient's age up to 3 months, unfavorable premorbid background, the presence of concomitant diseases, an RDAI score of 2-4 points, a score of 5 points on the USO scale, the risk of developing a complicated course of the disease, ineffectiveness of treatment at home during the first rotten days. Patients were admitted to the department on the 2.8ë0.5 day of illness. Patients received nebulizer therapy with decosan from the first day of hospitalization until complete relief of biofeedback, inhalation therapy was carried out 2 times a day for 5-7 days.

In group I, on the 2nd day of hospitalization, BOS of severe degree (9-12, W.Tal points) persisted in 12.5% of patients, of moderate severity (5-8 points) - in 70.9% of children and mild (2-4 points) in 16.6% of cases. In group II, in patients receiving nebulizer therapy, already on the first day after the second inhalation, severe BOS was observed in 6.4% of children, moderate - in 68.6% of patients, and mild BOS was present in 25% of cases. In patients of group II, the positive dynamics of DN symptoms was more pronounced and stopped when using decosan nebulizer therapy. Upon admission, sputum came out heavily in children with varying degrees of cough severity, and starting from the 3rd day of mucolytic therapy, the majority (65.0%) of patients showed a positive trend in sputum discharge - the cough became "productive". The disappearance of the cough reflex in group II was observed, on average, a day earlier than in group 1. A comparative analysis of the groups showed a significant ($P<0.05$) advantage of nebulizer decosan over oral ambroxol, which manifested itself on average on the 3rd day of observation. Thus, a significant decrease in the intensity of coughing was observed from 3.7ë0.5 days of inpatient treatment. At the same time, the effectiveness of the use of inhalation nebulizer therapy with decosan in comparison with oral administration of ambroxol was reliably observed on the 3.5th day of the disease (in group 1 - points, in group II - 1.2+0.2 points; $P< 0.01$), and on day 4.9 and points, respectively. The study of the dynamics of the SSS indicators showed that patients of group II who received decosan through a nebulizer had a more pronounced clinical and laboratory effect, compared with patients of group 1. A significant difference in the improvement of clinical symptoms of respiratory failure and obstruction was observed on average from day 4 of therapy, reaching its peak on day 5 ($P<0.01$), which is due to the fact that decosan helps to reduce mucosal edema in the bronchi of medium and small caliber. The use of decosan as nebulizer inhalations in the complex of traditional treatment led to a significant reduction in the duration of oxygen therapy, a reduction in inpatient treatment of patients by an average of 0.9 bed-days in patients of group II compared with patients who received ambroxol orally. When using decosan, no adverse side effects were observed, which corresponded to a sufficient level of drug safety.

Findings. Nebulizer inhalations with decosan, being a modern non-invasive and effective method of complex therapy for acute bronchial obstruction in children, help to improve airway patency, reduce the intensity and duration of cough, reduce sputum viscosity, reduce the duration of oxygen therapy and the duration of inpatient treatment.

The introduction of the widespread use of nebulizer inhalations with decosan stops

bronchial obstruction and prevents the development of life-threatening conditions (respiratory failure), which will help practitioners to provide urgent and effective care to sick children.

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