

## NEW APPROACHES IN THE TREATMENT AND PREVENTION OF RECURRENT OBSTRUCTIVE BRONCHITIS

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### Annotation

In a study of children with recurrent obstructive bronchitis, the effectiveness of inhaled beclomethasone was established. 54 patients with recurrent obstructive bronchitis were examined. The study showed that patients receiving inhaled beclomethasone experienced statistically significant positive dynamics in clinical symptoms, improvement in E:I index starting from the 3rd day of treatment by an average of 0.24-0.37 ( $P < 0.05$ ;  $P < 0.01$ ) until the last days of observation in comparison with patients treated according to standard protocols. Inhaled use of beclomethasone at a dose of 100 mcg/day led to a significant decrease (2.4-3.6 times) in the incidence of relapses in patients with obstructive bronchitis within 12 months after taking the drug.

**Keywords:** beclomethasone, E:I index, recurrent obstructive bronchitis, children.

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### Annotation

The effectiveness of beclometasone inhalation was established in a study of children with recurrent obstructive bronchitis, 54 patients with recurrent obstructive bronchitis were examined. The study showed that patients received inhaled



beclometasone showed statistically significant positive dynamics in clinical symptoms, an improvement in E:I index starting from the 3<sup>rd</sup> day of treatment by an average of 0.24-0.37 ( $P < 0.05$ ;  $P < 0.01$ ) up to the last days of observation in comparison with patients treated according to treatment protocols. Inhalation of beclometasone at a dose of 100 mcg /day led to a significant decrease (2.4-3.6 times) in the frequency of relapse in patients with obstructive bronchitis within 12 months after taking the drug. Key words: beclometasone, E:I index, recurrent obstructive bronchitis, children.

## Introduction

Recurrent obstructive bronchitis is a multifactorial, eco-dependent disease, the leading pathogenetic link of which is recurrent inflammation of the mucous membrane of the bronchial tree, caused by a decrease in local protective factors and the general immunological resistance of the body, in response to infectious, allergic, toxic, physical and neurohumoral influences, forming hyperresponsiveness of the respiratory tract [ 1.3].

It is important to note that repeated episodes of broncho-obstructive syndrome accompanying respiratory viral infections, as a rule, form bronchial hyperreactivity, which determines the possibility of phenotypic implementation of bronchial asthma in young children [2,6]. Bronchial hyperreactivity is a key mechanism in the pathogenesis of bronchial asthma, but it is often detected in children with recurrent bronchitis and in frequently ill children [4,7]. The role of allergic mechanisms in the pathogenesis of recurrent obstructive bronchitis still remains not entirely clear [5]. In existing treatment and prophylactic protocols for recurrent bronchitis in children, the question of the main method of treatment remains open; in this regard, the relevance of this study is beyond doubt.

**Target.** To evaluate the effectiveness of beclomethasone inhalation in the treatment and prevention of recurrent obstructive bronchitis in children.

**Materials and methods of research.** The study included children aged 3 to 7 years with recurrent obstructive bronchitis who were hospitalized in the emergency pediatric and pediatric intensive care units of the SFRNTsEMP. Patients were hospitalized and selected for the study group according to the following criteria: RDAI score  $\geq 6$  points, E:I index score  $> 1.50$ , ineffective treatment at home for  $\geq 48$  hours, unfavorable background and concomitant diseases. The criteria for exclusion



from groups were chronic, severe diseases of the respiratory, central nervous, and cardiovascular systems.

The study involved 54 patients with recurrent obstructive bronchitis who met the inclusion criteria. The study design was consistent with a randomized controlled clinical trial. The patients were randomly divided into 2 groups. Group I (control) included 27 patients who received standard therapy according to accepted protocols for treating the disease. Group II included 27 patients who received inhaled beclomethasone in addition to standard therapy. Beclomethasone was used at a dosage of 100 mcg/day through a spacer. Beclomethasone inhalation was carried out once a day, in the morning, the course dose was prescribed for a period of 15-30 days, if necessary, inhalation was administered through a face mask.

To determine the effectiveness of the therapy, along with clinical and laboratory-instrumental research methods, the following were used: a scale of respiratory disorders - RDAI, a saturation method - SpO<sub>2</sub> and a modified bronchophonography using the E:I index method, which made it possible to objectively assess the severity of bronchial obstruction. The leading criteria for the effectiveness of the therapy were a reduction in the frequency of disease relapses at follow-up, a reduction in the duration of oxygen therapy and the length of hospitalization.

Patients were managed in accordance with the specifics of the Emergency Medical Care service, diagnostic and treatment standards (recommended deadlines for inpatient treatment of bronchopulmonary diseases were observed). The discharge criteria were: satisfactory condition, SpO<sub>2</sub> ≥ 95%, E:I index score < 1.20. The presence of cough and minor auscultatory pathological changes were not contraindications for discharge. Monitoring of patients continued until complete resolution of the main symptoms of the disease.

Statistical processing of the results obtained with the calculation of the arithmetic mean, its error and Student's test was carried out using the statistical software package "Statistica 6.0".

### **Research results**

After the study, the main indicators of patients in the compared groups upon admission to the clinic were analyzed and compared. The analysis showed that there was parity in the main clinical criteria; there were no statistically significant differences in the main clinical, laboratory and instrumental indicators. It was noted that the indicators given in Table 1 indicate the need for hospitalization and emergency treatment and diagnostic measures. The revealed relative equality of the



severity of the key clinical manifestations of recurrent obstructive bronchitis in both study groups emphasized the high objectivity of the selection of patients and the study as a whole.

Table 1 Main indicators of patients with recurrent obstructive bronchitis upon admission to hospital (M±m)

No.	Parameters (points)	Group I	II group	R
1	Cough	1.9±0.1	1.8±0.1	>0.5
2	Sputum	1.5±0.1	1.6±0.1	>0.5
3	Wheezing when inhaling	1.1±0.1	1.2±0.1	>0.5
4	Wheezing during exhalation	1.6±0.1	1.6±0.1	>0.5
5	Number of lung fields involved	1.7±0.1	1.8±0.1	>0.5
6	Retractions of the subclavian spaces	1.4±0.1	1.5±0.1	>0.5
7	Retractions of intercostal spaces	1.6±0.1	1.6±0.1	>0.5
8	Retractions of the subcostal spaces	1.4±0.1	1.5±0.1	>0.5
9	SpO2 (%)	93.9±1.4	93.8±1.3	>0.5

Note: P - significance of differences between groups I and II.

When comparing indicators of the clinical course of the disease in patients of groups I and II, it was noted that, in general, clinical symptoms resolved more quickly in patients who received beclomethasone inhalation in addition to standard therapy (Table 2).

Table 2. Dynamics of disappearance of the main clinical symptoms in patients of groups I and II (in days, M±m; P)

No.	Disappearance of the symptom	Disappearance time (in days)		P
		Group I	II group	
1.	Normalization of the condition	5.8±0.3	4.8±0.3	<0.01
2.	Elimination of cyanosis	4.2±0.2	3.4±0.2	<0.05
3.	Cough relief	6.5±0.3	5.5±0.3	<0.05
4.	Respiratory failure	4.5±0.2	3.1±0.2	<0.001
5.	Physical changes in the lungs	4.5±0.4	5.7±0.3	<0.01
6.	Tachypnea	3.8±0.2	4.9±0.3	<0.01
7.	Duration of hospitalization	5.2±0.4	6.5±0.4	<0.01

Note: P - significance of differences between groups I and II.

Thus, the general condition improved significantly faster on average by 1.0 days (P<0.01), cyanosis of the skin and mucous membranes disappeared 0.8 days



faster in patients of group I compared with group II ( $P<0.05$ ), which was apparently associated with a decrease in hypoxia against the background of a decrease in inflammation of the bronchial wall in patients receiving inhaled beclomethasone. Cough stopped significantly longer in patients with recurrent obstructive bronchitis who received standard therapy without inhalation of beclomethasone compared to patients in group II by an average of 1.0 days ( $P<0.05$ ). In our study, relief of respiratory failure with standard therapy in patients occurred on average 1.4 days slower in comparison with the indicators of group II and was significantly longer ( $P<0.001$ ).

Physical changes in the lungs, which best characterize the effectiveness of the proposed treatment, normalized statistically significantly faster by 1.2 days in patients receiving our proposed method of therapy in comparison with standard therapy ( $P<0.01$ ). Such an indicative criterion as the duration of inpatient treatment showed that on average, patients of group II spent 1.3 fewer bed days in the clinic compared to patients of group I ( $P<0.01$ ).

A study of the dynamics of the E:I index (Table 3) shows that patients receiving inhaled beclomethasone had earlier relief of expiratory dyspnea compared to patients in the control group. A significant difference in the exhalation-to-inhalation ratio began to be observed on average from the 3rd day of treatment until the end of observation.

Table 3. Dynamics of the E:I index in the study groups ( $M\pm m$ )

Observation groups	1 day	Day 2	Day 3	Day 4	Day 6
Group I	$1.71\pm 0.10$	$1.62\pm 0.09$	$1.53\pm 0.06$	$1.45\pm 0.05$	$1.27\pm 0.03$
II group	$1.74\pm 0.11$	$1.54\pm 0.08$	$1.31\pm 0.05^*$	$1.17\pm 0.04^{**}$	$1.07\pm 0.03^*$

Note: \* -  $P<0.05$  - significance of differences in group II compared with group I.

To determine the effectiveness of beclomethasone inhalations in the prevention and prevention of relapses of bronchial obstruction, we conducted a comparative follow-up observation of patients for 1 year after discharge from the hospital. The study showed (Table 4) that there was a significant decrease in the frequency of relapses in the group of patients receiving inhaled beclomethasone 100 mcg/day after discharge from the hospital, so during the first 3 months there was a more than twofold decrease in the frequency of relapses of the disease ( $P<0.001$ ). Similar dynamics persisted in subsequent time intervals.





Table 4. Comparative analysis of the frequency of disease relapses in groups I-II after treatment

Period of repeated follow-up examination after discharge from hospital	Relapse rate		P
	Group I (n for 12 months)	Group II (n for 12 months)	
First 3 months	0.76±0.08	0.32±0.02	<0.001
4-6 months	1.72±0.11	0.62±0.04	<0.001
7-9 months	2.95±0.15	0.82±0.04	<0.001
10-12 months	3.46±0.17	1.05±0.08	<0.001

Note: P - significance of differences between groups I and II.

The revealed effectiveness of inhaled corticosteroids in preventing second relapses of obstructive bronchitis is due to the pronounced anti-inflammatory, antiallergic properties of this group of drugs, which certainly helps to reduce the reactivity of the bronchi, bronchioles and the respiratory tract as a whole, which ultimately reduces the overall morbidity among this category of patients.

### Conclusion

Thus, inhaled use of beclomethasone for recurrent obstructive bronchitis in children contributes to significant progress in the dynamics of the disease and leads to a significant reduction in the severity of bronchial obstruction according to the E:I index. The use of the drug causes a decrease in repeated relapses of the disease within 12 months, which makes it possible to recommend the inhaled use of beclomethasone as a prophylactic drug to prevent the development of chronic broncho-obstructive syndrome and further transformation of the disease into bronchial asthma.

### Bibliography:

1. Shavazi N.M., Gaibullaev Zh. Sh., Lim M.V., Ruzikulov B.Sh., Kardzhavova G.A., Allanazarov A.B., Ibragimova M.F. Inhalation of acetylcysteine in the treatment of recurrent obstructive bronchitis in children // Questions of science and education. 2020. No. 29 (113).
2. Shavazi N.M., Lim M.V., and Karimova G.M. "The state of cardiac hemodynamics according to an echocardiographic study in young children with pneumonia complicated by infectious-toxic shock" Bulletin of Emergency Medicine, No. 3, 2013, pp. 289-290.
3. Lim MV, Shavazi NM "The combined use of acetylcysteine and 3% of sodium chloride in the nebulizer therapy of acute bronchiolitis" European science review,



no. 11-12, 2016, pp. 63-66.

4. Shavazi, N. M., et al. "The assessment of the degree of broncho-obstruction in acute bronchiolitis in infants." Materials of III conference of the Association of Doctors of Emergency Medical Care of Uzbekistan. 2015.
5. Shavazi N. M., Rustamov M. R., Lim M. V. E: I INDEX-Method for objective assessment of broncho-obstructive syndrome in children // Scientific and methodological journal ACADEMY. – 2019. – No. 10 (49). – P. 44.
6. Lim V.I., Nabieva Sh.M., Lim M.V. The influence of the etiological development factor on the course of hemolytic disease of newborns // Questions of science and education. 2020. No. 15 (99).
7. Lim V.I., Shavazi N.M., Garifulina L.M., Lim M.V., Saidvalieva S.A. Assessment of the frequency of metabolic syndrome among children and adolescents with obesity in the Samarkand region // Achievements of science and education. 2020. No. 9 (63).-
8. Shavazi N. M. et al. Assessment of the degree of bronchial obstruction in acute bronchiolitis in young children // Materials of the III Congress of the Association of Emergency Medical Doctors of Uzbekistan. – 2015. – P. 285.
9. Shavazi N.M., Gaibullaev Zh.Sh., Lim M.V., Ruzikulov B.Sh., Kardzhavova G.A., Allanazarov A.B., Ibragimova M.F. Inhalation of acetylcysteine in the treatment of recurrent obstructive bronchitis in children. Issues of science and education. 2020, 29 (113), pp. 16-20
10. LM Garifulina, ZE Kholmuradova, MV Lim, VI Lim. The Psychological status and eating behavior in children with obesity. 2020, Issues of science and education, 26, P.110
11. Shavazi N.M., Lim M.V., Lim V.I., Ruzikulov B.Sh., Azimova K.T. The use of inhalations of 10% acetylcysteine in children with acute obstructive bronchitis. 2020, Journal of Issues of Science and Education, Number 35 (119), Pages 14-18.
12. Zakirova B.I., Lim M.V., Shavazi N.M. et al. Broncho-obstructive syndrome: prognostic significance of intestinal dysbiosis in its development. 2020, Journal of Achievements in Science and Education. Number 10 (64). Pages 83-85.
13. Shavazi N.M., Lim M.V., Allanazarov A.B., Shavazi R.N., Azimova K.T., Ataeva M.S. Clinical and diagnostic aspects of obstructive bronchitis in children. Achievements of science and education. 14 (68). Page 79-81.
14. Shavazi N.M., Lim M.V., Allanazarov A.B., Shavazi R.N., Azimova K.T., Ataeva M.S. Clinical and diagnostic aspects of obstructive bronchitis in children. Achievements of science and education. 14 (68). Page 79-81



15. Shavazi N.M., Allanazarov A.B., Lim M.V., Gaibullaev Zh.Sh., Shavazi R.N. Clinical and immunological characteristics of bronchial obstruction syndrome in children. *Issues of science and education*. 41 (125) Pages 77-80
16. N.Shavazi, A. Allanazarov, M. Ataeva, Zh. Gaibullaev. Modern views on the occurrence of obstructive pulmonary disease in children. *Journal of Cardiorespiratory Research*. Volume 2. 2021 Page. 40-43.
17. N.M. Shavazi, M.V. Lim, M.S. Ataeva, A.B. Allanazarov, R.N. Shawazi. Constipation in children as a factor in impaired growth and development of the body. *Achievements of science and education*. No. 17. Page 76-77
18. N.M. Shavazi, M.V. Lim, A.B. Allanazarov, M.S. Ataeva, G.A. Kardzhavova, M.F. Ibragimova, Zh.Sh. Gaibullaev. Evaluation of the effectiveness of desloratadine in the treatment of acute obstructive bronchitis against the background of atopic dermatitis. *Achievements of science and education*. 14 (68) 2020. Page. 76-78
19. N.M. Shawazi, J.S. Gaibullaev, M.V. Lim, A.B. Allanazarov, R.N. Shawazi. Risk factors for the development of broncho-obstructive syndrome in young children. *Achievements of science and education*. 18 (72). Page 59-61
20. B.I. Zakirova, M.V. Lim, N.M. Shawazi, M.R. Rustamov, M.S. Ataeva, A.B. Allanazarov, I.K. Mamarizaev. Broncho-obstructive syndrome: prognostic significance of intestinal dysbiosis in its development. *Achievements of science and education*. 10 (64). Page 83-85
21. Lim MV, Kardjavova GA, Gaybullaev J.Sh., Allanazarov AB Evaluation Of The Effectiveness Of Montelukast In Children With Recurrent Obstructive Bronchitis. *European Journal of Molecular & Clinical Medicine* vol. 7. no. 3. p. 2507-2515
22. N Shavazi, M Lim, L Isaeva, M Shuleshko, A Allanazarov. Broncho-obstructive syndrome in young children: Formation factors, causes. *Journal of the Doctor's Bulletin* Volume 1. No. 3. Page 41-45.

