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DIAGNOSIS AND THERAPY OF ATOPIC BRONCHIAL ASTHMA IN COMBINATION WITH ALLERGIC RHINOSINUSITES IN CHILDREN Ferghana branch of the Tashkent Medical Academy

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ABSTRACT: Bronchial asthma is also a common allergic disease in children and adults [1, 5]. Cases of diseases with a more severe clinical course are becoming more frequent. In recent years, there has been an upward trend in fatal cases [4]. The reasons for this phenomenon, obviously, are many. Among them, in our opinion, an increase in the incidence of bronchial asthma combined with other somatic and allergic diseases is important. In this regard, the study of bronchial asthma combined with allergic rhinosinusitis (ARS) is of particular interest. It was established that the pathology of the ENT organs negatively affects the clinical course and outcome of bronchial asthma [2, 12].

KEYWORDS: Atopic bronchial asthma, Rhinosinusitis, Laser puncture, Sensitization, Immunological reactivity.

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I. INTRODUCTION

At present, the problem of bronchial asthma (BA) in children is very relevant. There is a widespread increase in the incidence of children, including young children. An increase in the course of asthma is noted, forms appear that are highly resistant to the pharmacotherapy of seizures [1, 2]. An increase in the incidence of children is associated with urbanization, pollution of soil, water, and the air with industrial and household waste products, the widespread use of medicines, a reduction in the natural feeding of children, and the growth of bad habits among young people (smoking, addiction to toxic substances, alcohol abuse, etc.) [2, 3] Despite the successes in the development of modern aspects of the pathogenesis, diagnosis and treatment of this suffering, there are still frequent cases of delayed diagnosis, underestimation of the severity of the condition of children during the attack, abuse of aerosol sympathomimetics, corticosteroid drugs, lack of knowledge of rehabilitation issues and methods of specific and non-specific therapy. The morphological basis of BA is the inflammatory process of the bronchial mucosa, which ultimately enhances bronchial hyperreactivity and obstruction. This process is due to two main mechanisms: immunological (allergic) and non-immune (pseudo-allergic), therefore, the therapy of such children should be comprehensive with the moments of adequate exposure to all links of this disease. In this regard, it is advisable to widely develop in pediatrics modern approaches to the diagnosis and treatment of BA in children and the rehabilitation of children with BA [4, 5].

BA development depends on external and internal causes. Therefore, the factors affecting its prevalence are diverse [6,7]. A significant prevalence of BA in children (from 10% to 30% or more) is observed in our country in regions with high humidity. Marked increased humidity, on the one hand, contributes to repeated respiratory diseases, on the other hand, the accumulation of mold spores in the air, antigens of which can have a powerful sensitizing effect on the child's body [8]. Relatively rarely recorded bronchial asthma in the Far North, as the harsh climate of these latitudes prevents the accumulation of pollen, fungal allergens in the environment and, thus, the possibility of sensitization to them sharply decreases. A different distribution of BA in regions with a

hot and dry climate, where its atopic form predominates [10]. The influence of the environment on the prevalence of BA in children is clearly visible when comparing the incidence of asthma in children living in the city and in the countryside. A higher incidence rate is observed among the children's population of cities. The number of cases of asthma disease is recorded more among the population of industrial areas of cities in comparison with green areas, and at the same time in the industrial zone there is a more severe course of the disease, resistance to therapy, which is explained by the presence in the air of more toxic and allergenic substances [2, 11]. By the time of the birth of the child, the influence on the occurrence of asthma of the age, profession and social group of the parents, material and living conditions, the impact of household allergic factors, attendance of kindergartens was revealed. Children attending a children's team experience a more diverse effect of allergenic antigens of respiratory infections [3, 6]. The incidence of BA in different age periods is also not the same, which is the result of age-related anatomophysiological characteristics and the severity of hereditary factors expressed differently in these periods [8]. The rhythm of physiological functions and metabolic processes during the year is affected by changes in the state of the surface layer of the atmosphere. The frequency of attacks of bronchial asthma depends on physical factors, solar activity 9, Earth's magnetic field, atmospheric pressure, air temperature, its fluctuations, humidity, oxygen content, ozone, sulfur compounds of carbon, ultraviolet activity. A complex of chemicals and other factors influencing physiological mechanisms forms a nonspecific increased reactivity, while in children there is an increase in sensitization to food products, medicines, vaccines and serums [9].

II. PURPOSE OF THE STUDY

Establish a specific diagnosis and develop optimal therapy for atopic asthma combined with ARS in children.

III.MATERIAL AND RESEARCH METHODS

Under the supervision were 150 children aged 7-14 years: boys - 98 (65.3 ± 3.8%), and girls 52 (34.7 ± 3.8). 120 of them suffer from atopic bronchial asthma and 30 are practically healthy (control). The diagnosis of underlying and concomitant diseases was made on the basis of comprehensive clinical, allergological, rhinological, functional, laboratory, radiological studies. The function of external respiration, respiratory function of the nose, some indicators of humoral and cellular immunity were determined [12].

For the treatment of patients, 30 children each were divided into 2 groups. One group of children, against the background of the basic, that is, traditional treatment, received laser puncture. For this purpose, an LG-78 helium-neon laser with a wavelength of 0.63 μm and an irradiation power of 2мВт/$см^2$ was used. The exposure time is 10-15 seconds on one auricular point. The total exposure time is not more than 2 minutes to corporate points and no more than 20 seconds to auricular points. The treatment was carried out daily. The course of treatment is 5-12 procedures with 2 week breaks. For laser puncture, acupuncture points were selected that reduce hypersensitivity (sensitization), increase immunological reactivity, and also have anti-inflammatory and antispasmodic effects: corporal (P7, P8, E36, E41, VB20, V12, RF9, F8, VB 41); auricular (AT12, AT13, AT15, AT22, AT31, AT33, AT60, AT78, AT109) [2, 10, 12]. The second group of sick children (control) received only basic treatment, which consisted of the appointment of anti-inflammatory (intal, tayled), bronchodilators (short-acting inhaled B2-agonists), mucolytics, vitamins [8, 10].

The effectiveness of treatment was evaluated by comparing the clinical condition of patients and clinical, allergological, laboratory and immunological parameters before and after treatment, after 2-4 weeks and then after 1-2 years. The treatment was considered to be excellent when the symptoms of the underlying and concomitant diseases completely disappeared, the functional, radiological, laboratory and immunological studies improved (conditionally 5 points); good when part of the painful symptoms of the underlying and concomitant diseases disappeared, while the intensity of others was significantly weakened, clinical and laboratory tests improved partially (4 points), satisfactory, when the symptoms persisted, but their intensity was significantly weakened (3 points); ineffective when the condition of the patients remained unchanged (2 points).

Digital data was processed by the method of variation statistics. Numerical differences were considered significant provided that when $t \geq 2$, a $P < 0.05$.

IV.RESULTS AND DISCUSSION

We examined 120 children suffering from typical atopic bronchial asthma, and in 60 the main disease was combined with ARS, while in others 60 it was not combined with ARS. The duration of the disease ranged from 6 months to 10 years. The severity of the clinical course was different and depended on a combination of

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bronchial asthma with ARS. Among children suffering from atopic bronchial asthma combined with ARS, patients with a more severe clinical course predominated (Table 1).

In the formation and development of atopic bronchial asthma, combined and not combined with ARS, predisposing and contributing risk factors were of equal importance. So, accordingly, the serum IgE content is 850.5 and 615.5 IU / ml, bronchial hyperreactivity is 100% and 100%, hereditary burden - 75.0 ± 5.5% and 70.0 ± 9.9%, allergic diathesis 55.0 ± 6.4 and 62.5 ± 9.6%, pregnancy toxicosis in mothers of sick children -68.3 ± 7.2% and 60.0 ± 10.0%, and the pathology of pregnancy and childbirth is 26.7 ± 11.0 - 38.3 ± 10.1 and 15.0 ± 14.5 - 32.5 ± 12.9 ± 12.9%, artificial or early mixed feeding - 65.0 ± 6.1% and 55.0 ± 10.6%, combination with allergic diathesis - 59.8 ± 8.2% and 45.0 ± 9.5% (P> 0.5).

Table 1: The Severity of Bronchial Asthma in Children (M ± m%)

№	Clinical course	Atopic bronchial asthma	
		Combined with ARS	Not combined with ARS
1	Lung	21(35,0±10,4)	40(66,7±6,0)
2	Moderate	27(45,0±10,9)	20(33,3±6,0)
3	Heavy	12(20,0±11,9)	
4	Total:	60(100)	60(100)

ARS were of great importance in the formation and development of atopic bronchial asthma. In most patients (93.3%), ARS was preceded by the onset of bronchial asthma or their symptoms appeared simultaneously with signs of bronchial asthma. At least the following mechanisms of this phenomenon are distinguished: 1) the development of inflammatory processes in the lungs when various allergenic substances get into them from pathologically altered sinuses; 2) increased blockade of β-adrenergic receptors, leading to increased irritability of the bronchial tree; 3) reflex bronchospasm due to increased excitation of the parasympathetic nervous system [2. 3. 12].

In the development of sensitization of the organism of sick children, regional allergens of Uzbekistan were of great importance: household (household dust) -20.0 ± 5.1 - 23.3 ± 5.4% and micro-mites of house dust (D.pteronissinus, D.farinae) – 23,3±5,4 – 30,0±5,9%, as well as pollen (wormwood, quinoa, aylanthus, etc.)– 16,7±4,8 – 20,0±5,1%, epidermal (wool cats, dogs)– 21,7±5,3 -26,7±5,7%, food– 8,3±3,5 – 11,7±4,1%.

Analysis of clinical and laboratory data showed the presence of significant distinctive features of atopic bronchial asthma combined with ARS: the prevalence of severe cases, pronounced meteorolability, significant inhibition of the function of external respiration, rhinometry, and others (table. 2).

Table 2: Clinical and Laboratory Indicators for Atopic Asthma in Children

№	Indicators	Bronchial asthma		Almost healthy
		Combined with ARS	Not Combined with ARS	
1	Allergic history	Positive	Positive	Negative
2	Meteolability	Clearly expressed	Less pronounced	Absent
3	Psychological state	Broken	Weakly broken	Normal
4	Forced protrusion (l / s)	1,56±0,45+	2,53±0,52	3,85±0,56
5	Threshold sensitivity of bronchial receptors (mcg%) to: histamine, acetylcholine.	400+ 1200+	600 2500	1000 3000
6	Allergic rhinitis (%)	100+	-	-
7	Allergic sinusitis (%)	45,0+	-	-
8	Polyps of the nose (%)	3,3	-	-
9	Rhinometry (mm.water.st.): Right half, left half.	16,8±3,1+ 18,4±3,2+	8,6±0,3 8,6±0,3	8,7±0,3
10	Eosinophilia (%)	10-15+	6-8+	
11	Eosinophils in smears of imprints of the nasal mucosa (%)	16,2±4,7+	8-10+	
12	Phagocytic number (%)	44,6±5,1+	58,6±5,3	75,5±4,5
13	Phagocytic index	3,5±0,4+	5,6±0,5	7,4±0,5
14	The power of phagocytosis	156,1±10,3+	328,1±15,5	558,7±16,2

15	Clinical course	Often heavy	Often heavy and medium heavy	-

With the combination of basic treatment with laser puncture, there was a significant improvement in the clinical condition of patients, indicators of the humoral and cellular links of immunity: a decrease in IgE levels by 1.5 times, an increase in IgG content - 1.7 times, IgA by 1.3 times, CD3 - by 1, 7 times, CD4 - 1.8 times, CD8 - 1.8 times CD22 - 1.4 times ($P < 0.05$). In children who received only basic treatment, such patterns were not observed. Over the next 1-2 years, children who received laser puncture on the basis of basic therapy showed an improvement in the timing of remission, and relapses of bronchial obstruction became less frequent. Most patients showed a tendency to complete recovery. It should be emphasized that the favorable positive therapeutic effect is greater in children with mild and moderate severity of the clinical course. In general, excellent and good results (on average 4 points) prevailed with laser puncture, and with only basic therapy, good and satisfactory results (average 3 points).

The positive therapeutic effect of laser puncture is obviously associated with the weakening and further elimination of the inflammatory process in the nose, sinuses and lungs, the stabilization of the functional state of the immune system, and a decrease in IgE synthesis, which is weak or not observed with only basic treatment.

V. CONCLUSION

1. The specific diagnosis of atopic bronchial asthma combined with allergic rhinosinusitis should be carried out on the basis of serological studies, with the obligatory identification of the causes of sensitization of the body, that is, allergens.
2. Laser puncture performed on the background of basic therapy has a positive therapeutic effect in mild to moderate clinical course of atopic bronchial asthma, combined with allergic rhinosinusitis.

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