

## The Problem of Rehabilitation of Patients with Bronchial Asthma

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Currently, research continues on various aspects of pathogenesis, clinical manifestations and treatment of patients with bronchial asthma at various stages of its course. This pathology is considered as one of the central problems of medicine and rehabilitology, to which theorists of medical science, clinicians and rehabilitologists pay considerable attention. Despite this, the steady increase in the prevalence of this disease continues. There is an increase in the number of severe, drug-resistant forms of the disease. It becomes clear that for taking control of bronchial asthma, it is necessary to pay special attention to improving the applied approaches to the rehabilitation of this category of patients with the help of non-medicinal drugs. Today there is a fairly extensive list of traditional and modern methods of rehabilitation for diseases of the respiratory system. It becomes clear that the central place in these methods for the rehabilitation of patients with bronchial asthma should be physical exercises. To date, they are recognized as very effective in terms of recovery of patients with this pathology. They are used in the rehabilitation system for bronchial asthma is most often justified in the form of physiotherapy exercises. To enhance the rehabilitation effect of physical exertion, they should be combined in such patients with physiotherapy, climatotherapy and massage. This complex of rehabilitation has proved itself to be quite effective in terms of eliminating bronchospasm and normalizing the functional state of the respiratory system. Proper conduct of complex physical rehabilitation in bronchial asthma in most cases can stabilize the course of the disease and bring it into a state of stable remission.

**Keywords:** Rehabilitation, Bronchial asthma, Lungs, Pathology, Physical activity.

The development of the organism implies the preservation of the optimum of its main regulatory systems<sup>1,2</sup>. However, under unfavorable environmental conditions, the development of organ dysfunctions is possible<sup>3,4</sup>, and then their pathologies<sup>5,6</sup>. The heart<sup>7</sup>, the vascular system<sup>8,9</sup> and especially the bronchopulmonary system<sup>10</sup> are very vulnerable in this regard. One of the most common diseases of the bronchi and lungs is bronchial asthma<sup>11</sup>. At the present stage of development of medicine, it is one of its central problems,

to which theorists of medicine and clinicians pay great attention<sup>12</sup>. Currently, it is recognized that bronchial asthma is a chronic inflammatory disease of the respiratory tract, characterized by reversible bronchial obstruction and bronchial hyperreactivity<sup>13,14</sup>. The inflammatory reaction in them is caused by specific and non-specific factors that influence the morphological changes in the walls of the bronchi, contribute to its infiltration with leukocytes, destroy the cilia of the ciliated epithelium, disorganize the main substance, cause hyperplasia and hypertrophy of the goblet cells.

Broncho-obstructive effect can be caused by various allergens, changes in meteorological conditions, exercise, inhalation of cold air, hyperventilation. Environmental factors (animal, plant and food allergens, house dust, drugs, tobacco smoke, physical and meteorological factors), infectious agents (viruses, bacteria, fungi), neuropsychiatric and stress effects are most often significant for patients with bronchial asthma and lead to inflammatory changes in the bronchi, impaired bronchial patency and the occurrence of seizures<sup>15</sup>.

Currently, very active studies are underway on the treatment and rehabilitation of patients with bronchial asthma at different stages of its course. However, despite the diversity of drugs and methods of recovery in bronchial asthma, the steady increase in the prevalence of this disease continues. In particular, the number of severe, drug-resistant forms of the disease is increasing<sup>13</sup>. It becomes clear that rehabilitation in case of bronchial asthma should be especially actively carried out with the help of non-medicinal means - physical exercises, which are now recognized as very effective in terms of rehabilitation in various pathologies and are the basis of a healthy lifestyle.

Considering all that has been said, the goal is set in the work: to consider the health potential of physical exercises in case of bronchial asthma.

#### **Etiopathogenesis of bronchial asthma**

The variety of manifestations of bronchial asthma depends on a large number of damaging environmental factors and internal dysfunctions<sup>15</sup>.

A significant role in the implementation of these factors is played by the functional state of the nervous and endocrine systems, the human psyche, tolerance to physical activity, the state of the mechanisms of regulation of the respiratory function. Deep respiratory dysfunction during bronchial obstruction leads to severe hypoxemia, accumulation in the oxidized metabolic products in the tissues, blood and urine<sup>16</sup>.

Bronchial obstruction is diffuse in nature and is caused by spasm of smooth muscles of the bronchi, hypersecretion of mucus, edema, infiltration of the mucous membrane of the bronchi and their morphological alteration. The situation worsens dramatically in the case of an increase in respiratory failure due to chronic bronchial obstruction<sup>17</sup>.

In bronchial asthma, the lumen of the bronchial tree narrows. This leads to a decrease in the flow of air entering the lungs<sup>18</sup>.

Severe choking can become an asthmatic condition. An asthmatic condition can be anaphylactic, caused by immunological or pseudo-allergic reactions, which cause an acute asthma attack and metabolic, which results from excessive consumption of sympathomimetics during respiratory tract infection, lack of corticosteroids, and under adverse weather conditions<sup>15</sup>.

Increased readiness of the muscles of the bronchi to reduce in patients with bronchial asthma is called bronchial hyperreactivity. This increased irritability is a typical symptom of this disease and can be detected using special research methods<sup>19</sup>.

Among the inflammatory cells characteristic of bronchial asthma, so-called mast cells play an important role. These cells contain a large number of various biologically active substances that are contained in the intracellular granules. During filling, as well as under the influence of various external agents, the mantle cell membrane becomes permeable, the so-called degranulation process takes place, and the content of granules is released from the cells into the surrounding tissues<sup>20</sup>.

Thus, the vicious circle closes and the inflammation becomes autonomous - it ceases to depend on the initial reason that caused it. A specific feature of inflammation in bronchial asthma is the high activity of eosinophils, lymphocytes and mast cells<sup>21</sup>.

In the development of bronchial obstruction in bronchial asthma, the parasympathetic nervous system plays an important role. Stimulation of the vagus nerve leads to the release of acetylcholine, which activates the muscarinic receptors of smooth muscles and goblet cells of the airways, motivating bronchial obstruction and hypersecretion of mucus. Cholinergic innervation is most common at the level of the bronchi and to a lesser extent at the level of the peripheral bronchi<sup>11</sup>.

Chronic inflammation in the bronchi with bronchial asthma goes through several stages and is characterized by variable obstruction. There are a number of types of obstruction:

1. Acute type of obstruction - due to spasm of smooth muscles of the bronchi.
2. Subacute type of obstruction - swelling of the

mucous membrane of the respiratory tract.

3. Chronic type - the formation of a viscous secretion that occludes the terminal sections of the respiratory tract.

4. The progressive type of obstruction is an irreversible process that is caused by sclerotic changes in the wall of the bronchi.

It is possible to prevent the progression of bronchial asthma with the help of timely prevention, treatment and rehabilitation at any stage of medical care<sup>22</sup>. Late and improper treatment contributes to the progression of the disease, causes impaired gas exchange, pulmonary insufficiency, hypoxemia and, as a result, cardiopulmonary insufficiency<sup>23</sup>.

Considering various aspects of the etiology and pathogenesis of bronchial asthma, these patients undergo etiological, pathogenetic, comprehensive rehabilitation. It includes measures to eliminate non-specific factors (cooling, smoking, dust and gas pollution of the room); antibacterial therapy, restoration of bronchial patency (bronchodilators and expectorants, postural drainage), improvement of gas exchange (aerotherapy, oxygen therapy, therapeutic physical culture), rehabilitation of foci of chronic infection in the nasopharyngeal area, physiotherapy, body conditioning, climate therapy<sup>24,25</sup>. Despite the steady development of these approaches, the problem of the rehabilitation of these patients is quite acute<sup>26</sup>. This is due to the fact that it is in these patients that the greatest decrease in exercise tolerance of the body is observed, and the effect of rehabilitation is not always high<sup>27,28</sup>.

Thus, bronchial asthma is one of the common diseases of the respiratory tract and attracts the attention of a large number of specialists to the study of this problem, as well as the search for new effective methods of rehabilitation of this nosology.

#### **Characteristics of physical rehabilitation in bronchial asthma**

There is a fairly extensive list of traditional and modern methods of rehabilitation for diseases of the respiratory system<sup>29</sup>.

Bronchial asthma acquires enormous social significance and requires a multidisciplinary approach. Many issues of theoretical and practical importance should be re-reviewed as a result of updating new research in the field of rehabilitation practice<sup>30,31</sup>.

The means and forms of physical rehabilitation constitute an important and necessary part in the complex therapy of bronchial asthma<sup>32,33</sup>, help reduce the bronchial obstruction syndrome, improve the condition of the cardiovascular system, increase tolerance to physical stress<sup>34</sup>.

Analysis of the known information showed that the use of physical therapeutic factors, pelodeterapii has a positive effect on the psycho-emotional status and function of the cardiovascular and respiratory systems in patients with bronchial asthma<sup>15</sup>.

Methods of rehabilitation treatment (Terrenkur, medical physical culture, sanatorium treatment, rational diet) contribute to the improvement of the chronic inflammatory process<sup>35,36</sup>.

Balneotherapy in patients with bronchial asthma helps reduce allergization and inflammatory activity, normalizes indicators of nonspecific resistance and immunological reactivity of the body. Therapeutic water procedures improve the function of external respiration in these patients<sup>37</sup>.

Spa treatment occupies a leading place in the rehabilitation of patients with respiratory diseases. Its advantage lies in the fact that natural factors are adequate stimuli for the body and they do not have adverse negative effects, unlike medicines<sup>38,39</sup>.

Climatotherapy and climate prophylaxis are used as methods of natural correction of the state of the internal environment of the body, aimed at increasing nonspecific resistance. This also contributes to the purity of air, the absence of pollutants, high ionization, and the like. Therapeutic baths have a temperature and tonic effect, cause a reaction response from various functional systems, aimed at normalizing their activities. The therapeutic effect is largely determined by the mineral composition of the water. Sulfate waters have anti-inflammatory effects, sodium chloride helps to normalize the formation of biologically active substances, carbon dioxide baths cause the regulation of blood circulation and an increase in bronchial patency. Physical and chemical properties of seawater are similar to sodium chloride and magnesium sulphate mineral waters<sup>40,41</sup>.

Apparatus physiotherapy occupies an important place in the complex of rehabilitation

activities. Electromagnetic therapy with anti-inflammatory, vasodilator and secretory effects is successfully applied. Local galvanization and galvanization of reflex-segmental zones contributes to the activation of neurotrophic processes in the lungs, its effectiveness increases with the electrophoresis of drugs and biologically active drugs. Electrical activation of the diaphragm is used to activate diaphragmatic abdominal breathing<sup>42</sup>.

Considering that in the pathogenesis of bronchial asthma in children, the work of the nervous system is of great importance, to improve the functional state and the regulating role of the central nervous system and its vegetative section, impulse currents are shown<sup>43,44</sup>.

In order to influence the centers of vegetative regulation, reduce bronchial obstruction, sinusoidal modulated currents are used, which reduce cough, shortness of breath and frequency of attacks<sup>45</sup>.

Due to the high neurotropic nature of the sinusoidal modulated current, it is indicated for neuropsychiatric reactions, increased irritability, and autonomic dysfunctions in order to enhance the processes of inhibition and the formation of sedation<sup>46,47</sup>.

In the acute period, it is allowed to use laser radiation, which stimulates metabolism, blood saturation with oxygen, microcirculatory processes and has an immunocorrective effect<sup>48</sup>.

The use of ultrasound has a pronounced analgesic, antispasmodic, anti-inflammatory effect, stimulates tissue trophism<sup>11</sup>.

Pulsed low-frequency electromagnetic field is applied at all stages of rehabilitation in bronchial asthma. Its pathogenetic effect is due to the regulatory effect on neurodynamics and hemodynamics. This method favorably affects the course of bronchial asthma, improves bronchial patency, the state of the immune system, has a positive effect on cerebral circulation and the nervous system, helps normalize the psycho-emotional status and eliminate vegetative dysfunction<sup>29</sup>.

Speleotherapy in salt caverns is recognized as a highly effective non-drug method of treating bronchial asthma, as it affects the mucolytic activity of the bronchi. Improving drainage function and reducing inflammation of the respiratory tract

contribute to a decrease in hyperresponsiveness and a decrease in the bronchospastic component of the obstruction<sup>2</sup>.

Among the physical rehabilitation tools used for bronchial asthma, massage occupies an important place. The mechanism of the therapeutic action of massage is based on irritation of the skin mechanoreceptors, which causes complex interdependent neurohumoral and neuroendocrine reflexes, regulated by the higher parts of the central nervous system. Under the influence of massage in people suffering from bronchial asthma, spasm of bronchial muscles is eliminated, the mobility of the diaphragm and chest increases, and sputum from the bronchi improves. The action of the massage causes a deepening of breathing, improving ventilation, reducing stress in the cardiorespiratory system<sup>49</sup>.

Apply separate techniques of classical massage, which should correspond to the age characteristics of the child and his capabilities. In the interictal period of the disease, it is recommended to perform a chest massage with the use of stroking, rubbing and vibration. The duration of the procedure is 8-12 minutes<sup>50</sup>.

Acupressure also refers to the means of physical rehabilitation to the number of alternative treatment methods. It is successfully used in individual rehabilitation programs with patients suffering from bronchial asthma. Acupressure is effectively combined with exercise, and also acts as an excellent complement to classical and segmental massage<sup>51,52</sup>.

Sedative version of acupressure is used with the limitations of the amplitude of movement, pain of various origins, muscle spasticity, circulatory disorders. The exposure time for one point is 1-2 minutes<sup>53</sup>.

The stimulating variant of acupressure is characterized by a more intense effect at each point, and it must be complemented by intensive rubbing and quick withdrawal of the finger after each use. So repeat 3-4 times. You can do and intermittent vibration. Toning massage is used before morning exercises to increase vitality. It is forbidden to apply massage techniques in the armpit, on the mammary glands, in the areas of the large vessels and lymph nodes<sup>49</sup>.

Thus, today there is a fairly extensive list of traditional and modern methods of rehabilitation

for diseases of the respiratory system. Physical therapy, physiotherapy, climatotherapy and massage play a special role in the elimination of bronchospasm and the normalization of the functional state of the respiratory system.

### **Therapeutic physical culture in physical rehabilitation in bronchial asthma**

Medical physical culture is a method of natural-biological content, which is based on movement. Therapeutic physical culture is one of the methods of treatment of patients with chronic bronchitis. The main task of therapeutic physical culture in violation of the function of external respiration is the restoration and development of full breathing, as well as the normal ratio between inhalation and exhalation. To do this, when compiling the breathing exercises, it is necessary to achieve a patient with a deep, rhythmic breathing with an emphasis on maximum exhalation<sup>13,54</sup>.

With regular performance of respiratory gymnastics in combination with tonic exercises, there appears the ability of hypoventilation of the lungs, prevention of the formation of mucous and purulent traffic jams<sup>53</sup>.

The main objectives of therapeutic physical culture in bronchial asthma: to reduce the spasm of the bronchi; strengthen the respiratory muscles to prevent the development of emphysema; increase neuropsychic tone; increase the adaptation of the body to increasing physical exertion; improve pulmonary ventilation; increase blood circulation; to improve the activation of tissue metabolism and redox processes in the body<sup>55,56</sup>.

In general, the features of the rehabilitation of children are as follows: early start of rehabilitation measures; the complexity of the methods and means of recovery; original stages of rehabilitation; a long-term planning system that includes a rehabilitation prognosis and a patient's recovery time; system of accurate dosing of exercises, operational monitoring and correction of physical activity<sup>57</sup>.

The therapeutic effect of physical exercises in bronchial asthma is due to the fact that the impulses from muscle receptors, entering the higher parts of the central nervous system, affect the strength, mobility and balance of the processes of excitation and inhibition in the cerebral cortex<sup>58</sup>.

The regulation of these processes helps to restore the proper functioning of the neuro-

regulatory mechanisms that control breathing. By arbitrarily changing breathing with the help of breathing exercises, it is possible to achieve a more coordinated work on the costal-diaphragmatic respiration mechanism with a large ventilation effect and with less energy expended on breathing work<sup>59</sup>.

Muscle activity and special breathing exercises strengthen the respiratory muscles, increase the mobility of the chest and diaphragm, contribute to the stretching of pleural adhesions, excretion of sputum, reduce congestion in the lungs, improve the mechanism of respiration, coordination of breathing and movements<sup>60</sup>.

Performing exercises of therapeutic physical culture contribute to the adaptation of the patient, his circulatory system and respiratory organs to physical exertion, increase its immunological reactivity with respect to viral and bacterial infections.

Systematic exercises in gymnastics contribute to the optimization of the state of excitation and inhibition processes in the central nervous system and the elimination of functional disorders on its part<sup>61</sup>.

The combination of exercise and proper breathing improves the mobility of the chest, reduces the lability of the bronchi, strengthens the respiratory muscles, normalizes the activity of neuroendocrine regulation, restores the rhythm and breathing mechanics, normalizes the activity of other internal organs<sup>62</sup>.

Of great importance are breathing exercises aimed at eliminating pathological changes on the part of the bronchopulmonary apparatus. Regular breathing exercises contribute to the development of respiratory muscles, improve the mobility of the chest, relaxes the smooth muscles of the bronchi<sup>14</sup>.

The antispasmodic effect of breathing exercises is primarily associated with the action of the nasolamic reflex. Breathing exercises through the inhalation of air through the nose cause irritation of the upper respiratory tract receptors, and reflexively cause an expansion of the bronchi and bronchioles, which leads to a weakening of the attack of suffocation.

Under the influence of physical exercises, the reserve capacity of respiration increases, the vital capacity of the lungs increases, the

oxygen-transport function of the blood circulation increases, the oxygen capacity of the blood increases, the mechanisms of tissue respiration are improved, the ability to continue physical exertion in pronounced hypoxemic and hypercapnic states increases with the formation of greater oxygen debt<sup>37,63</sup>.

Static, dynamic breathing exercises, and sound gymnastics are widely used in the rehabilitation of bronchial asthma. Yoga pays great attention to the system of breathing exercises, the so-called pranayama, which allows you to consciously influence tissue respiration. Yogis use all types of breathing - diaphragmatic, medium, costal<sup>64</sup>.

Exercise diaphragmatic breathing should be carried out from the starting position lying on your back, legs bent at the knees, one hand rests on the chest, the other - on the stomach. When inhaling, the abdominal wall rises up with the arm, the other arm on the chest remains stationary. On the exhale, the stomach retracts, the hand lying on it presses against the stomach. Inhale through the nose, and exhale through the lips, folded tube. Having mastered the three types of breathing, it is necessary to proceed to the learning of full breathing<sup>15</sup>.

At the beginning, the expiration time can be one and a half times longer than the inhalation. Gradually, you need to move to the correct rhythm: 2:1:4. This means that the pause after inhalation should be equal to half the inhalation, and the exhalation should be twice as long as the inhalation. The ratio between the lower, middle and upper respiration is 4:3:1. For example, if the lower respiration takes 4 seconds, then the duration of the middle and upper should be respectively 3 seconds and 1 second. After a full exhalation by inhaling the abdomen begins to inhale.

In case of bronchial asthma, sound gymnastics is used - pronouncing sounds and sound combinations on the exhale, which are performed in a specific set and in a strictly defined way. When the sounds are pronounced, vibration from the vocal cords of the folds is transmitted to the lungs, the trachea, the bronchi and from them to the rib cage and the spasmodic bronchi and the bronchioles relax.

Voiced consonants (b, d, d, c, h) are articulated with the participation of vocal folds,

which are tense and vibrate, sound exercises with their use act like vibratory massage. Sonants act in a similar way (m, n, l, p). The strength of the air jet developed during articulation, the greatest force is needed when pronouncing consonants (n, t, c, f, c), and hence the greatest tension of the muscles of the chest and diaphragm<sup>22,65</sup>.

The sound combination with the letter (p) is very effective for bronchial obstruction. When passing bronchospasm, the absence of persistent violations of pulmonary ventilation sound (p) is pronounced vigorously, loudly, in a long wave, and with persistent disorders and concomitant heart disease, it is pronounced softly, quietly and briefly. In addition to these consonants, sounds (c), (f), which are pronounced with compressed lips with other vowels and consonants, are also included. Those sound exercises that are recommended to be uttered in a whisper should include sounds (y) and (h), as well as sounds (v), (l), (m), (n). Among them, the sound (m), which is pronounced on the exhalation as (mm), is drawn out and long-lasting.

The following features of breathing are characteristic of sound gymnastics: inhale through the nose (1-2 s), pause (1 s), active exhalation through the mouth (2-4 s), pause (4-6 s). Exhalation should be twice as long as the breath. Usually at the beginning of classes, the inhalation to expiration ratio is 1:1. The purpose of classes is to normalize this ratio as 1: 2. All sound exercises should be performed slowly, calmly, without tension. Inhalation should be smooth, silent, even: it is carried out through the nose, and after a short pause, a slow exhalation through the mouth<sup>66</sup>.

After exhalation, there is also a pause, but more prolonged, since at a certain moment of exhalation there is a compression of the bronchi and the overlap of their lumen. This is a compensatory reaction aimed at preventing a decrease in functional residual capacity and prevention of gas exchange disorder. With a slow, quiet exhalation, a strong compression of the alveoli does not occur, which facilitates the release of air from them.

In recent years, the methods of physical therapy, which are unique in their effects on the body and, above all, on its respiratory system, have become part of the practice of recreational gymnastics.

In the process of performing breathing exercises, it is necessary to focus only on inhalations

and make sure that they are short, noisy and active, and on exhalation not to fix attention. It should start with 8 breaths in a row, and then only a pause. The basic unit is 32 breaths in 28-30 seconds, with a pause between breaths from 1 to 5 seconds.

Doing such a gymnastics should be twice a day (morning and evening), making 1200 breaths-movements for one lesson. According to the author, after a short time, a positive result is observed: metabolic processes, nasal breathing are activated, adhesive processes are eliminated, blood flow and lymph flow are normalized.

Training is carried out continuously, at least 3 hours a day. At rest, and then in motion, the patient will, by an effort of will, reduce the speed and depth of inhalation, and also develop a pause after a long, quiet exhalation<sup>68</sup>.

Each breath consists of inhalation and exhalation, as well as a respiratory pause. At rest and during exercise, you need to breathe only through the nose; inhale slow, 2-3 seconds, as superficial as possible, followed by a calm passive full exhale 3-4 seconds, then a pause 3-4 seconds and again inhale; respiratory rate should be 6-8 times per minute. Three times a day to do 2-3 maximum breath-hold after expiration, bringing their duration to 1 minute or more. The original position while sitting in a comfortable position and a relaxed position.

After a non-violent exhalation, you need to hold your nose with two fingers at the end of the exhalation and fix the time of the beginning and end of the pause until the feeling of extreme difficulty to hold your breath appears. Such breath holdings normalize the content of carbon dioxide in the blood, and promote healing.

The essence of physical techniques B.S.Tolkacheva is aimed at cleansing the bronchi and consists in compressing with great force the chest in the region of the lower ribs and diaphragm. Therefore, these techniques are called squeezing. Each squeezing should be done for at least 10-15 seconds, and it should be started strictly during the pause between inhalation and exhalation<sup>69</sup>.

It is obligatory to breathe through the nose, which in the tonic variant should be chest, and in the case of sedation - diaphragmatic. Toning breathing is used in the morning, as it gives an opportunity to get a significant bronchodilator

effect immediately after waking up and thereby improve the morning reorganization of the bronchi, as well as their drainage function. Sedative breathing is better to use in the evening, since this method allows to reduce the increased muscle tone and significantly improve sleep<sup>10</sup>.

Special studies have proven the high efficiency of systematic use of aerobic cyclical exercises (in particular, dosed running) for chronic bronchitis and other diseases of the respiratory system. One of the important points is the peculiarity of the adaptation course to the systematic application of this group of exercises.

Thus, long-term adaptation to training is characterized, in particular, by an increase in the activity of stress-limiting systems, helps to overcome the stress response to the disease, and establish the normal resistance of the organism to respiratory diseases. In the process of systematic exercises in therapeutic gymnastics, the neurohumoral regulation of respiration during muscular work is improved, better coordination of the work of breathing and exercises is provided; there is an increase in the economization process of the respiratory system and in conditions of rest, and during standard physical exertion.

## CONCLUSION

Currently, asthma is one of the central problems of medicine and rehabilitology, to which theorists, clinicians and rehabilitologists pay considerable attention. Despite the variety of drugs, methods of diagnosis and prevention of bronchial asthma, the steady growth of this disease continues. There is an increase in the number of severe, drug-resistant forms of disease. Today there is a fairly extensive list of traditional and modern methods of rehabilitation for diseases of the respiratory system. A special place in the rehabilitation system for bronchial asthma has physiotherapy exercises, which must be combined with physiotherapy, climatotherapy and massage. Their combination, as a rule, eliminates bronchospasm and normalizes the functional state of the external respiration system. Proper physical rehabilitation in bronchial asthma in most cases stabilizes the course of the disease and puts it in a state of stable remission.

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