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REHABILITATION AFTER PNEUMONIA

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Introduction: Community–acquired pneumonia is an acute lung disease that occurs in people who are out of hospital conditions, having both bacterial and viral etiology. The main mechanism of pathogen transmission is the aerosol mechanism, which is implemented by airborne droplets and airborne dust routes. Pneumonia as an independent disease is characterized by a rather severe course, a longer period of convalescence, and frequent subsequent the occurrence of pulmonary complications, up to a fatal outcome. Pneumonia is a significant health problem in Uzbekistan. According to the Ministry of Health, the publication of data on the incidence of pneumonia began on July 5, 2021. As of August 4, 2021, 559 people were diagnosed with pneumonia, of which 477 recovered, and 4 patients died. These data show that pneumonia continues to be a serious threat to public health. It is important to note that the Ministry of Health of Uzbekistan also publishes statistics on the incidence of pneumonia, along with data on new cases of coronavirus. In order to combat this pathology, a key role is assigned to modern treatment methods, including timely hospitalization, diagnosis and comprehensive treatment aimed at eliminating etiological, pathogenetic and symptomatic links. Due to the prevalence of the disease, its Measures for the prevention and rehabilitation of patients are urgent problems of contagiousness, as well as the frequency of complications after the disease.

Keywords: Community-acquired pneumonia, lung disease, rehabilitation, treatment, diagnosis, comprehensive treatment, prevention.

Pneumonia is an acute infectious disease characterized by the presence of a focal or disseminated lesion of the lung tissue with the obligatory presence of an exudative component inside the alveoli. According to the clinical classification, pneumonia is divided into community-acquired and nosocomial pneumonia, or nosocomial pneumonia.

The etiology of pneumonia is diverse, but most of the incidence is associated with a relatively small range of pathogens, among which the most common are: S.pneumoniae, M.pneumoniae, C.pneumoniae, H.influenzae. The viral etiology of pneumonia is also different: influenza viruses, respiratory syncytial virus, coronaviruses, human metapneumovirus, etc.

The pathogenesis of the disease is based on adhesion to the cells of the ciliated epithelium of the respiratory tract, further damage to the membrane of epithelial cells and the development of an immune response, accompanied by the release of cytokines by immune cells. Under the influence of biologically active substances, chemotaxis occurs against immunocompetent cells involved in an inflammatory reaction. The following stages of inflammation are caused by invasion and intracellular persistence of microorganisms, as well as endo- and exotoxins released by them. All of the above processes eventually lead to the appearance of an exudative component, resulting in inflammation of the alveoli and bronchioles.

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The so-called respiratory rehabilitation, carried out through special physical therapy exercises, is aimed at resolving the outcomes of acute and chronic diseases of the respiratory system, and also helps to accelerate reparative processes and normalize organ function. Physical therapy has a number of advantages: it is the most physiological, natural, non-invasive and extremely effective method of rehabilitation of patients with pathology of various organs and body systems. It is worth noting that physical therapy exercises have practically no restrictions among the contingent, the only exceptions are newborn children and patients in moderate to severe conditions.

All sets of exercises are developed and compiled by specialists and based on clear indications for the performance of these exercises. It is the physical therapy doctor who develops an individual treatment program for each individual patient according to the recommendations and prescribed therapy of the attending physician, taking into account the data of physical and instrumental studies. Sometimes the selection of exercises can be carried out by a physical therapy instructor together with the attending physician.

A specially designed program of physical therapy classes is aimed at achieving goals:

1. Restoration and improvement of normal functioning bronchopulmonary system;

2. Prevention of pulmonary and extrapulmonary complications;

3. Elimination of stagnation in the small circle of blood circulation, improvement of blood circulation;

4. Promoting the repair of pulmonary parenchyma;

5. Strengthening the elimination of toxic metabolic products by ensuring adequate lymph outflow;

6. Promoting adequate sputum discharge in order to cleanse the bronchial tree;

7. Restoration of normal gas exchange parameters in the alveoli by stimulating the resorption of accumulated inflammatory exudate;

8. Restoration of normal respiratory parameters;

9. Restorative effect on cardiovascular, musculoskeletal and other body systems;

10. Restoration of adequate immune reactivity.

1.1. Indications and contraindications.

The need and expediency of physical therapy for pneumonia, as well as during convalescence, is determined only by a pulmonologist. It is worth considering that physical therapy techniques should be applied only after the end of full-fledged medical treatment

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and the fulfillment of all prescribed doctor's recommendations. Indications for the appointment of physical therapy include, mainly, residual phenomena of the inflammatory process, the duration of which can significantly increase over time due to weakened immunity, prolonged intoxication of the body, etc.

Among the indications are:

1. Limitation of respiratory movements, inability to take a deep breath;

2. Paroxysmal residual cough without intoxication and acute inflammation;

3. Difficult sputum separation and excretion;

4. Mild residual shortness of breath.

However, there are also a number of contraindications when performing breathing exercises is prohibited:

1. General weakness, exhaustion of the patient;

2. Concomitant cardiovascular diseases with severe hemodynamic disorders;

3. Fever and any of its periods;

4. Acute respiratory failure;

5. High risk of pulmonary hemorrhage;

6. Severe forms of pneumonia with secondary infection, complicated course of pneumonia;

7. Pregnancy.

Physical therapy should begin with exercises that help improve the drainage function of the bronchi. Based on the conducted instrumental studies, it is possible to establish the localization of the pathological focus and its prevalence. Knowing these data, the patient needs to be given the appropriate starting position of the chest during exercise. When reaching the optimal starting position, it is recommended to carry out special physical exercises and motor activity, when performing which zone of the pathological process is located above the bronchus draining it. As a result of these manipulative actions, the drainage function of the bronchi improves, which contributes to a better discharge of sputum.

Taking into account the prevalence of the process, the side on which the exercise should be initially performed is also chosen. For example, if pneumonia is unilateral, then breathing exercises should be performed lying down on the affected side, which will help reduce the volume of movement of the affected lung and reduce unpleasant sensations.

For drainage of the lower parts of the lungs, the advantage is given to the position of the patient "lying" on his stomach or on his back on a plane located at an angle.

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To drain the middle sections of the lungs, exercises are performed in a "reclining" position on one of the sides with the head tilted backwards and with the legs pressed against the chest.

The "sitting" and "standing" positions are especially effective for drainage of the upper parts of the lungs.

A set of breathing exercises can be performed already on the 5th -7th day of recovery, taking into account indications and contraindications, as well as the permission of the attending physician. It is necessary to start with 5-10 repetitions of exercises, without haste and excessive tension, in the future, as you adapt, the number of repetitions can be increased. Movements should be carried out smoothly, without jerks, maintaining deep and even breathing.

An example of an initial course of breathing exercises:

Exercise 1 – Chest opening. The starting position is lying or sitting on the bed. The hands are locked and raised up. On inhalation, it is necessary to turn the palms outward, on exhalation – return to the starting position, i.e. close the lock again. 5-10 repetitions.

Exercise 2 – Rotation of the body. The starting position is sitting on a chair, back straight, arms outstretched. When inhaling, it is necessary to turn the body to the right, at the same time smoothly describing a large semicircle with the right hand. On exhaling, also describing a semicircle with your hand, return to the starting position. 5-10 repetitions.

Exercise 3 – Smooth twisting of the body. Starting position – sitting on a chair, arms wrap around the shoulder girdle (palms on the shoulders, elbows on the chest area). On exhalation, a smooth tilt of the body forward is performed, the chin is pressed against the chest. When inhaling, straighten up and spread your arms to the sides, freeing your chest. This is one repeat 5-10 repetitions.

Exercise 4 – Lifting the arms. The starting position is sitting or lying on the bed, arms along the trunk. When inhaling, it is necessary to lift alternately hands up, putting them behind your head. On exhalation, return to the starting position.

Exercise 5 – Body tilts while standing. The starting position is standing, facing the wall at a distance of 20-25 cm from it. The arms are stretched up, tightly pressed against the wall with the palms of the hands. The body is slightly tilted forward, the lower back is relaxed. On inspiration, a smooth tilt of the body to the left is performed, bending the left arm, and the right, straightened, describes a semicircle along the wall. On exhale, return to the starting position. Then, the tilt to the right is also smoothly performed, bending the right arm and describing a semicircle along the wall with the left 5-10 repetitions.

Gymnastics should be completed with an intensive cycle of deep breathing (up to 20-30 times).

Physical therapy, as the most well-known and effective method of physical rehabilitation, recommends itself at all stages of providing medical care to patients with pneumonia of various etiologies. The ongoing respiratory rehabilitation makes it possible to achieve

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important therapeutic goals, among which the most important is the restoration of the normal functioning of the bronchopulmonary system. A regularly performed complex of respiratory gymnastics allows you to increase exercise tolerance, improve blood and lymph circulation, and increase the patient's endurance index during compared to the initial level. In addition, as a result of timely and correctly selected methods of physical therapy for lung diseases in combination with full-fledged medical treatment, the frequency and duration of hospitalization of patients decreases, and the effectiveness of the entire therapy as a whole significantly increases. The development and improvement of physical rehabilitation methods can provide high performance indicators in the treatment and even prevention of diseases of the respiratory system. It is worth noting that adverse outcomes, various complications diseases, prolonged course of the disease, etc. can be effectively stopped and eliminated only with a comprehensive and individual approach to each patient, and full-fledged therapy must necessarily be supplemented with exercise therapy complexes.

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