

Physiologically Significant Rehabilitation Measures for Acute Respiratory Viral Infection

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Many viruses have been studied that can cause this pathology. Having overcome a disease caused by one virus, a person can be immediately infected with other viruses of this group and again suffer an acute respiratory viral infection. The annual economic damage from acute respiratory viral infection in Russia reaches 40 billion rubles, which is 80% of the damage from all infectious diseases. Now research on various aspects of acute respiratory viral infection is ongoing. The aim of the present study was to consider the basics of physiologically based physical rehabilitation after acute respiratory viral infection. This leads to improved methods for diagnosing viral and bacterial infections in the very early stages of the disease and to the development of effective antiviral drugs. The development of various effective options for physical rehabilitation after acute respiratory viral infection to accelerate the functional recovery of an ill person's body is also actively ongoing. It is recognized that the correction of a person's condition in acute respiratory viral infections should begin when the first signs of the disease appear. It should provide a warning of the further development of the pathological process, exclude the development of complications, their relief. Much attention is now being paid to etiotropic drugs, which are considered as first-line defense and have an inhibitory effect on the reproduction of viruses. The rehabilitation of those who have been ill for the first 7-10 days is based on static breathing exercises, and then dynamic ones. Over the course of the subsequent rehabilitation period, general strengthening exercises are added. To prevent complications, systematic hardening of the body is recommended.

Keywords: Acute Respiratory Viral Infection; Health; Rehabilitation; Viruses.

Acute respiratory viral infections are currently common diseases worldwide.¹ Now there are many viruses that can cause acute respiratory viral infection.² Having overcome a disease caused

by one virus, a person can be infected with other viruses of this group and again suffer an acute respiratory viral infection.³ On average, over one year in the world, one adult suffers 3-4 times with

an acute respiratory viral infection. Children per year are ill with it from 6 to 9 times⁴. The total economic damage from acute respiratory viral infection in Russia reaches 40 billion rubles, which is 80% of the damage from all infectious diseases.⁵

Influenza occupies a special place in the group of acute respiratory viral infections, since the influenza virus is most infectious and can cause mass diseases.⁶ In addition, specific antiviral drugs were created against influenza, which is not yet available for other pathogens of acute respiratory viral infections.⁷

The relevance of serious research on aspects of acute respiratory viral infection is now undeniable. Improvement of diagnostic methods for viral and bacterial infections in the early stages of the disease and the development of effective antiviral drugs against the most significant pathogens are required.⁸ It also requires the development of effective options for physical rehabilitation after acute respiratory viral infection, which helps the speedy functional recovery of the human body.⁹

The aim of the present study was to consider the basics of physiologically based physical rehabilitation after acute respiratory viral infection.

The Basics of the Pathogenesis of Acute Respiratory Viral Infection

Acute respiratory viral infection is a diverse group of infectious diseases of the respiratory tract, which have similar development mechanisms and clinical characteristics.¹⁰ This group of diseases is characterized by high

contagiousness, rapid spread and a significant number of complications.¹¹

Acute respiratory viral infections are currently a very common pathology worldwide. Many viruses are known to cause acute respiratory viral infection.¹² Having overcome a disease caused by one virus, a person can be infected with other viruses of this group and again suffer an acute respiratory viral infection.¹³ On average, over one year in the world, one adult suffers 3-4 times with an acute respiratory viral infection. Children suffer from it from 6 to 9 times a year. The total economic damage from acute respiratory viral infection in Russia reaches 40 billion rubles, which is 80% of the damage from all infectious diseases.¹⁴

Acute respiratory viral infections are a group of diseases characterized by a short incubation period, short fever, intoxication and damage to various parts of the respiratory tract.¹⁵ Viruses that cause acute respiratory viral infection have a tropism for the epithelial cells of the respiratory tract, where they multiply. The source of infection is patients with obvious, erased or asymptomatic forms of the disease.¹⁶ The spread of infection occurs by airborne droplets, transmission of the virus by contact through the household is possible. The virus enters the body through the nasopharynx (Figure 1).

Then the virus enters the bloodstream and spreads throughout the body.¹⁸ This is accompanied by intoxication, which is manifested by a pronounced general breakdown, severe migraine, severe pain in the back, lower back and limbs. The immune system is gradually increasing

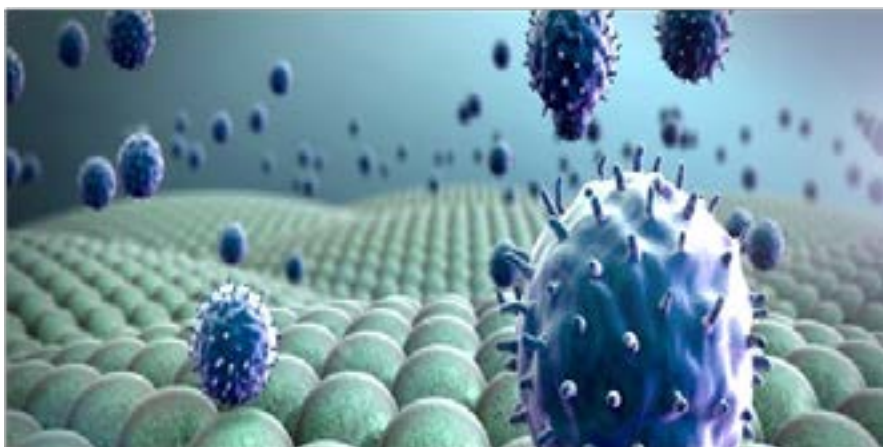


Fig. 1. The beginning of the penetration of influenza virus into the cell¹⁷

the production of antibodies against viruses in the blood, which cleanses the body of them. Against this background, the symptoms of the disease gradually disappear.¹⁹

The Basics of Physical Rehabilitation for Acute Respiratory Infections

Correction of a person's condition in acute respiratory viral infection should begin after the first signs of the disease appear. In the course of its implementation, a number of requirements must be taken into account – the prevention of further development of the pathological process, the development of complications, their relief, and the exclusion of chronicity of the process. Of great importance are etiotropic drugs, which are first-line defense and have an inhibitory effect on the reproduction of viruses.²⁰

Antiviral therapy is especially effective in the first 48 hours from the onset of the disease. The criteria for its effectiveness are a decrease in intoxication syndrome, a decrease in body temperature and respiratory disorders. These drugs are conditionally divided into two groups²¹:

Preparations with proven antiviral activity and a studied mechanism of action: inhibitor of the virus exit from the cell (oseltamivir), inhibitor of the virus exit from the endosome (adamantane), inhibitor of the virus entry into the cell (umifenovir).

Drugs with antiviral activity based on a complex effect on the virus and on the body's immune mechanisms (interferon-type drugs, inducers of endogenous interferon synthesis).

Correction of the condition in acute respiratory viral infection consists of measures of a general strengthening character (heavy drinking, aeration of the premises, limitation of physical activity, vitamin therapy) and symptomatic medicines (antipyretic, painkillers, antihistamines, vitamins).²²

Physical therapy is one of the most important methods of treating acute respiratory viral infection. Therapeutic exercises in acute respiratory viral infections, especially protracted ones, should be used especially widely. It is especially indicated immediately after a decrease in body temperature to normal or the establishment of a stable subfebrile temperature in a satisfactory general condition. Prescribing physiotherapy exercises, they seek to accelerate the treatment of foci of pneumonia, increase blood circulation in the pulmonary circulation and prevent complications²³ (Figure 2).

It is necessary to create a comfortable position of the patient in a bed with a raised headboard and often change his position in bed. When sputum appears for 2-5 minutes, it is given a drainage position with a raised lower body and



Fig. 2. Therapeutic exercises with patients with acute respiratory viral disease²⁴

a lowered head and chest. To activate breathing in the affected parts of the lung, it is advisable to use the starting position on a healthy side.

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Depending on the general condition of the patient, therapeutic exercises are carried out while lying in bed, sitting and standing. Lying provide training in proper breathing (without forcing inspiration), perform exercises in the distal extremities for small muscle groups. The arms are bent at the elbow and shoulder, legs – at the knee and hip joints. Lying on their sides, they straighten their arms upward and lower them, raise their ribcage and protrude it with support on arms bent at the elbows, draw legs (one and together), bent at the knee joints, to the chest and straighten them.²⁶

Standing legs together, the patient should raise his arms up, his fingers are twisted, turn his palms up, stretch and return to its original position, squat on the back of a chair and bed. Apply exercises with a gymnastic stick, torso to

the sides, exercises with the ball, exercises on the gymnastic wall, dosed walking and running. In addition to classes in physiotherapy, other forms of physiotherapy should be prescribed in a timely manner: hygienic gymnastics, independent classes in standard sets of exercises, wet wipes.²⁷

Exercise is especially widely used to improve respiratory function and prevent complications. The following exercises are examples of this:

Starting position – lying on one side. Lowering the hand, tightly pressing it to the side and front surface of the chest (exhale), and then raising it up (inhale).

Starting position – lying on the back, arms along the body. Raising hands to the head, sliding along the surface of the table (breathing in), returning to the starting position, without tearing them off the surface of the table (breathing out).

The starting position is the same. Raising hands through the sides up (inhale), lower and press the bent arms to the front of the chest (exhale).

Starting position – lying on your back. Simultaneous bending of the legs and bringing them to the stomach (exhalation is done), extension of the legs (inhalation is done).²⁸

Repeat each exercise 2-4 times. All exercises can be combined with massage techniques. The duration of the lesson depends on the general condition of the patient. The weaker it is, the less busy it is (2-6 minutes). The number of lessons should be 6-10 times a day. As the general condition improves, more complex exercises are applied. The duration of the lesson can be increased to 10-25 minutes, and the number of repetitions of them during the day is reduced to 2-3 times.

Acute respiratory viral infection is not at all dangerous for those regularly involved in physical education.

In the presence of a dry cough, stroking and rubbing the chest and intercostal spaces, vibration techniques on the chest and back are performed to relieve bronchospasm. Rubbing the feet and lower legs is also carried out as a distraction therapy. After the appearance of a wet cough and sputum, a massage is carried out in a drainage position by stroking, rubbing, kneading and strumming. All these techniques in the drainage position contribute to the discharge of sputum.²⁹

CONCLUSION

Currently, many viruses are known to cause acute respiratory viral infections. Their antigenic composition is very different and having been ill with a disease caused by one virus, a person can be infected with other viruses of this group and get sick again. The economic damage from acute respiratory viral infection in Russia is 80% of the damage from all infectious diseases. Continuous scientific research has provided improved methods for diagnosing viral infections in the early stages of the disease and helped develop effective antiviral drugs for the most significant pathogens. Actively developing various effective options for physical rehabilitation after acute respiratory viral infection. It is determined that the correction of a person's condition in such an acute infection should begin when the initial symptoms of the disease appear. With its help, the further development of the pathological process, the development of complications should be prevented and stopped. The focus here is on etiotropic drugs, which are very effective because they inhibit the reproduction of viruses. In the first 7-10 days, patients are recommended static breathing exercises, followed by dynamic exercises. Over the next period, a set of general strengthening physical exercises is added. To prevent complications, systematic hardening of the body is recommended, in the form of pouring water with a gradual decrease in its temperature from 22 to 16-13°C, skiing and ice skating, swimming, jogging in the fresh air. All hardening measures should be carried out no earlier than a month after the end of the acute period of the disease.

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