



TUBERCULOSIS DISEASE, SYMPTOMS AND TREATMENT METHODS

Baimuratova Zarina Gaybullayevna

Abdiyeva Miyua Japakovna

Mendibayeva Akmaral Sabitovna

Djarimbetova Shinar Nizimbetovna

Tanirberginova Tazagul Kuralbaevna

Public health in the name of Khujayli Abu Ali ibn Sina

technical school teachers of special subjects

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ANNOTATION: This article is written about tuberculosis disease, symptoms, treatment and what to pay attention to in order to prevent it, as well as the main ways of transmission of the disease, what should be done in practice to prevent it.

KEYWORDS: Tuberculosis, main ways of transmission, treatment, prevention.

Tuberculosis, tuberculosis (Lot. *tuberculum* is a common infectious disease caused by *Mycobacterium tuberculosis* complex group of mycobacteria. The bacterium usually damages the lungs. The disease depends not only on health, but also on social status: people who have reduced immunity to the tuberculosis agent, are malnourished, do not follow hygiene standards, and live in poor social conditions are the most affected. However, tuberculosis poses a threat to the entire population, regardless of age and gender. The high death rate (about 3 million people per year) and the prevalence of the disease are influenced not only by social factors, but also by the long period of tuberculosis without any symptoms (latent). This period is the most favorable time for its treatment. To determine the presence of infection, the body is evaluated for the Mantoux test reaction.

The main way of transmission of tuberculosis is airborne. In rare cases, daily contacts and cases of transplacental transmission are reported. The bacterium enters the body through the respiratory tract. Then it passes to the mucous membrane of the bronchi and alveoli and spreads throughout the body through the blood.

Koch's bacillus is a foreign microorganism for the human body. Usually, when such bacteria enter the body and begin to develop, immune cells attack them and prevent them from multiplying and developing. However, there is a possibility of developing the disease in the following two cases:

1. If the immune system is weakened, the production of antibodies is disturbed, there is a state of immunodeficiency, the body's defense ability is weakened due to other diseases or it is not sufficiently formed due to other social or age factors;
2. If contact with the causative agent of the disease is long, continuous, if the carrier of the bacillus is undergoing an open form of the disease, and if appropriate treatment measures are not applied.

Among the factors that reduce specific immunity and contribute to the development of the disease, the following are distinguished:

- Smoking as a factor in the development of bronchopulmonary diseases (for example, chronic bronchitis);
- Excessive consumption of alcoholic beverages;
- All types of drug addiction;

- Tendency to respiratory diseases due to the presence of chronic inflammatory processes in the organs of the respiratory system;
- Chronic diseases, the presence of foci of inflammation in other organs and tissues;
- Diabetes is an endocrine disease;
- Malnutrition, lack of vitamins in the diet;
- Neurotic disorders, depressive situations;
- Pregnancy period;
- Negative social and living conditions.

Symptoms: Tuberculosis usually begins to appear gradually. Pathogenic bacteria do not manifest themselves in the patient's body for a very long time, often develop and multiply in lung tissues.

In the early stages of tuberculosis, no symptoms are observed. The initial stage is followed by a hidden or latent period of the disease, in which the following symptoms can be observed:

Deterioration of general health;

- Fatigue, weakness, nervousness;
- Involuntary weight loss;
- Excessive sweating at night.

Cough, high body temperature are not typical for the first stage of the disease, such symptoms are observed in extensive damage to lung tissue. Since the early stages of the disease are not noticeable, diagnosis is made only with the help of tuberculosis tests (Diaskin-test, Mantoux test reaction, etc.) or PCR analysis of blood.

The next, latent (hidden) stage of the disease is characterized by "closed" form of tuberculosis. At this stage, the causative agent is not distributed to the external environment, and due to the slow development of the disease and the body's resistance, it almost does not harm health.

In the acute period of the disease, the symptoms are as follows:

Prolonged (more than three weeks) wet cough with sputum discharge;

- Presence of blood in sputum;
- Fever in the subfebrile range (37-38 °C);
- Decrease in body weight;
- Increased fatigue, malaise, weakness, restlessness, loss of appetite, deterioration of working capacity and other signs of general intoxication.

Cough is moist, clearly noticeable, frequent attacks, manifested by characteristic intensification in the morning. At this stage, people who smoke cigarettes usually develop "smoker's cough".

In the more aggressive development of the disease, the clinical picture can be supplemented by the following symptoms:

- Fever in febrile range (body temperature 38-39 °C);
- Pain in the shoulder area and abdomen;
- Pain during coughing;
- Dryness of cough, difficulty breathing.

Tuberculosis symptoms are similar to the clinical manifestations of other viral and bacterial diseases of the respiratory system. Differential diagnosis is performed only by a specialist.



Extrapulmonary symptoms: Koch bacillus can not only affect the lung tissue, but can multiply and cause inflammation in other organs. Tuberculosis of internal organs and systems is usually determined by eliminating other diseases and pathologies. The clinical presentation depends on the severity of the process and the location of the organ or tissue affected by the bacterium.

In the brain, it is manifested by an increase in body temperature, disturbances in the nervous system and sleep, excessive nervousness, tension and enlargement of the neck and neck muscles. A characteristic pain syndrome in the lumbar region is observed when stretching the legs, bending the back and head forward. The disease develops gradually. In the risk group - children of preschool age, people with diabetes and HIV;

- In the digestive system - regular disturbances of defecation, abdominal rest, pain in the intestinal area, signs of hemorrhagic bleeding (blood in feces), increase in body temperature up to 40 °C;
- In joints and bones - manifested by pain in the affected areas, joint mobility is limited. Due to the similarity of the symptoms with other diseases of the locomotor system, the diagnosis is relatively complicated;
- In the genitourinary system (urogenital tuberculosis) - it is usually detected in the kidneys and / or pelvic organs. Frequent urination, including blood in the urine and fever;
- On the skin - it is expressed in the form of rashes spreading over the skin, the rashes resemble nodules when palpated.

Other symptoms can be observed when different organs are injured. Entering the bloodstream, bacteria spread to all parts of the body. It can damage almost any organ, tissue or organ system. In such cases, the clinical symptoms of the disease do not differ from inflammatory processes of other etiologies.

The prognosis of extrapulmonary tuberculosis treatment depends on the time of diagnosis, the localization of the pathological process, its stage, the degree of damage to the organ, and the general health of the patient.

A number of tests are carried out to confirm or reject the diagnosis:

- Analysis of the Mantoux reaction or Pirke test is one of the most common research methods that determine the presence of tuberculosis. Tuberculin is placed on or under the skin. A tuberculin test allows the evaluation of contact with Koch's bacillus, but it does not confirm the diagnosis. This diagnostic method is criticized by tuberculosis specialists and other experts because it can also show contact with other types of mycobacteria. In addition, diagnosis by this method may lead to false results after vaccination with BCG (vaccine against tuberculosis). The Mantoux test is also used to detect allergic reactions to the main components before vaccination;
- Diaskin test is also a part of skin research and is aimed at improving the diagnosis of tuberculosis by the Mantou reaction method. This is a unique test that only reacts to tuberculosis mycobacteria;
- Quantiferon test or IFA is an enzyme immunodiagnostic test, recommended for people who are allergic to tuberculin. The research is carried out on biological materials (blood) and is the most reliable test (only 2% wrong answer, and 30% in the Mantoux test). It is recommended to identify hidden and non-pulmonary forms of the disease;

- Microscopic analysis — performed to look for pathogenic organisms in sputum produced by coughing. If Mycobacteria are detected through a microscope, the bacteria are grown and studied in artificial conditions;
- PCR — today's most accurate research methods allow to determine the presence of mycobacterial DNA in biological fluids;
- Histological examination of tissues obtained from biopsy is used to determine tuberculosis of bone tissue.
- X-ray and fluorography methods show the presence of foci of inflammation in lung tissue.

Treatment of the disease: Treatment of tuberculosis, especially its extrapulmonary forms, is a complex task that requires a lot of time and patience.

Today, the main method of treatment is polycomponent anti-tuberculosis chemotherapy. In addition to this, great attention should be paid to intensive, high-quality and varied nutrition of the patient, to gain weight if he has lost weight, to correct hypovitaminosis, anemia, leukopenia.

According to specific instructions, patients taking immunosuppressive drugs should, if possible, try to reduce their dose as much as possible or completely limit it. HIV-infected patients are prescribed special anti-HIV therapy, and the use of rifampicin is contraindicated.

Treatment is based on antibacterial drugs, anti-tuberculosis agents, immunomodulators, immunostimulants, probiotics and vitamins and is long-term, comprehensive. A mandatory part of the therapeutic course is a diet and physical activity.

In the treatment of tuberculosis, glucocorticoids are used in very limited quantities, because they have a strong immunosuppressive effect. The main indications for the appointment of glucocorticoids are strong, acute inflammation, significant intoxication, etc. In this case, they are prescribed for a very short period, in minimal doses and against the background of strong (5-component) chemotherapy.

Sanatorium-resort treatment also plays an important role among the treatment measures. It has long been known that mycobacterium tuberculosis does not like good oxygenation. Increased oxygenation, which is observed in the intensification of breathing when breathing air of low density in mountain resorts, slows down the growth and reproduction of mycobacteria. Hyperbaric oxygenation is sometimes used for these purposes (to create hyperoxygenation conditions in places where mycobacteria accumulate).

In the active stage of the disease, treatment is carried out in a tuberculosis dispensary to reduce the possibility of transmission to others. The length of stay in the dispensary can be extended from several months to a year or more, depending on the type and stage of the process. Arbitrary treatment and an attempt to stop the disease can often lead to the recurrence or development of the disease, the development of severe complications, and even death.

In severe cases, there is a possibility that artificial pneumothorax and pneumoperitoneum, removal of the damaged lung or a part of it, drainage of cavernous, pleural empyema will be required through surgical intervention.

Prevention. The probability of recovery from this disease is calculated based on the stage of the disease, the area of damage, and the general health of the patient. Diagnosis in the initial stages allows to determine the effective course of treatment of the disease.

The development of the disease depends on the level of immunity, so the main preventive measure is to follow a healthy lifestyle. Immunization of children, regular examinations and tests to detect the disease in its early stages also play an important role.

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