

PHARMACOTHERAPY OF TUBERCULOSIS

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Tuberculosis (TB) is an infectious disease caused by a pathogen - *Mycobacterium tuberculosis*, which is characterized by the formation of specific granulomas in various organs and tissues in combination with nonspecific reactions and polymorphic clinical picture, depending on the shape, phase, location and prevalence of pathological process.

The problem of TB disease is very important in our world now, because it's one of the most common diseases. According to statistics, every third person is infected; TB mortality is 20% of the morbidity. There are two forms of TB: pulmonary and extrapulmonary tuberculosis.

The goals of TB treatment are to shorten the clinical course of TB, prevent complications, prevent the development of latency and/or subsequent recurrences, and decrease the likelihood of TB transmission. In patients with latent TB, the goal of therapy is to prevent disease progression. The development of new drugs and methods of treatments will allow treat the latent, active and multidrug-resistant forms of tuberculosis.

Currently TB treatment is equally possible as inpatient and outpatient. Treatment starts with causal treatment of the anti-TB drugs of first line, which are the most effective.

New cases are initially treated with four drugs: isoniazid, rifampin, pyrazinamide, and either ethambutol or streptomycin. After 2 months, they are then treated with a continuation phase of 4 months with isoniazid and rifampin. Patients requiring retreatment should initially receive at least 5 drugs, including isoniazid, rifampin, pyrazinamide, and at least 2 (preferably 3) new drugs to which the patient has not been exposed.

To improve the effectiveness of treatment initially conduct intensive treatment during 2 months of therapy, every day: isoniazid - 5 mg/kg PO, no more than 300 mg for day; rifampicin - 10 mg/kg/day PO or 10 mg/kg PO twice weekly; pyrazinamide - 25 mg/kg PO. According to foreign sources in the intensive phase of treatment also

taking ethambutol - 15 mg/kg, no more than 2g or streptomycin - 25 mg/kg, no more than 2g. Then conduct continuation phase, which lasts for 4 months by taking of isoniazid and rifampicin.

Combined use of antibacterial drugs explained by improvement bactericidal action to reduce the possibility of development of resistance of mycobacteria.

To the convenience of treatment were created the combined drugs, which already contain the necessary doses of isoniazid, rifampicin, ethambutol, pyrazinamide.

Treatment of patients with tuberculosis should be accompanied by a test for sensitivity to drugs. Susceptibilities should be repeated if cultures remain positive after 2 months, even when initial susceptibilities have not revealed any resistance.

When the drugs of first line are not effective, we use drugs of second line: ethionamide or prothionamide: every day 15-20mg /kg no more than 1g for day; amikacin, kanamycin or capreomycin daily for 15-20 mg/kg no more than 1 g; cycloserine daily 10-15 mg/kg no more than 1g; ofloxacin or levofloxacin 15-20 mg/kg and 10 mg/kg, respectively; terizidone daily 10-15 mg/kg, no more than 0.9 g; para-aminosalicylic acid daily 150 mg/kg no more than 12g; rifabutin 5 mg/kg 3 times per week; ftivazide daily 1-2g.

The new drugs for the treatment of multidrug-resistant tuberculosis are bedaquiline and delamanid. Bedaquiline are taking for 1-2 weeks for 400 mg per day, then 3-24 weeks for 200 mg 3 times a week. Delamanid are taking for 100 mg twice a day simultaneously with optimized standard regimen.

New drugs can reduce the treatment, but they have a number of side effects. Therefore, their use is possible under certain conditions, proper selection of patients, informed consent, careful monitoring of treatment, choice of treatment regimen and active pharmacovigilance.

Patients diagnosed with active TB should undergo sputum analysis for Mycobacterium tuberculosis weekly until sputum conversion is documented. Monitoring for toxicity includes baseline and periodic liver enzymes, complete blood cell (CBC) count, and serum creatinine.

In the course of studies were systematized principles of therapy TB according to national regulatory documentation and foreign articles.