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DIAGNOSTICS OF DRUG RESISTANCE IN TUBERCULOSIS LUNG IN YOUNG PATIENTS AND CAUSES OF ITS FORMATIONS

Jumaev Mukhtor Fatullaevich
Bukhara State Medical Institute

Summary*: An analysis of survey data of 152 patients with drug-resistant forms of tuberculosis who received inpatient treatment at the Bukhara Regional Center for Phthisiology and Pulmonology in the period 2016-2019 was carried out. The state of drug-resistant tuberculosis of the respiratory organs among the age of the patients ranged from 19 to 39 years, with a mean age of 62.8 years. The influence of mono- and polyresistance , as well as multidrug resistance, on the effectiveness of treatment, including in acutely progressive forms of tuberculosis, was assessed.*

Keywords: *polyresistance , drug-resistant pulmonary tuberculosis, diagnosis, treatment.*

Relevance. A high level of MDR-TB has a significant impact on the spread of tuberculosis due to the accumulation of sources of infection due to the low effectiveness of treatment. The prevalence of MDR-tuberculosis over the past 14 years has increased by 5.9 times [1, 7, 8, and 9]. A serious problem for the anti-tuberculosis service, only in a quarter of the newly detected bacterial secretions, due to poor laboratory equipment, the presence of Mycobacterium tuberculosis in the diagnostic material was determined by the culture method, which means that in 3/4 of the newly detected bacterial secretions there is no way to determine the drug of the susceptibility of the pathogen, and such patients are treated without determining sensitivity to anti-tuberculosis drugs. Great concern is caused not only by the worsening of the epidemic situation, but by the increase in the number of patients excreting Mycobacterium tuberculosis (MBT), including those with resistance to anti-tuberculosis drugs (ATPs) [1, 8, 7, 17]. The existence of the problem of chemo resistant tuberculosis is a generally recognized fact, and the need to determine drug resistance (DR) of MBT due to the importance of such data for successful treatment is beyond doubt. However, the maximum information content of the results of this survey can be only if the following conditions are met: timeliness, dynamism, reliability and continuity [5, 9, 13]. The groups with an increased risk of tuberculosis traditionally include persons who are socially maladjusted, who are in places of deprivation of liberty, and migrants. However, studies in recent years have shown that an increase in the reservoir of tuberculosis infection in general, including drug-resistant ones, has led to a significant increase in the risk of tuberculosis in socially adapted young people [6]. We have studied the state of the incidence of tuberculosis in the Bukhara region for 2019-2021, the age structure, clinical forms of respiratory tuberculosis, and the presence of bacterial excretion, LU and the effectiveness of treatment. When assessing the age structure of __ tuberculosis patients, attention is drawn to the increase in the incidence among people of the most able-bodied age - from 19 to 36 years. At this age, there is a large number of bacterial excretions, including those determined by bacterioscopy. Of the total number of diseases in this age category, active respiratory tuberculosis predominated, mainly in males. In the structure of clinical forms of tuberculosis of the respiratory organs, infiltrative tuberculosis was in first place, and disseminated pulmonary tuberculosis was in second place. Attention is drawn to the increase in the number of patients with acutely progressive forms of tuberculosis, such as caseous pneumonia and miliary tuberculosis [22, 25,

19].

Material and methods. Compared to 2019, the number of patients with newly diagnosed caseous pneumonia in 2021 more than doubled. More often the disease occurred in the rural population in 110 (72.4%) cases, and in the urban population - in 42 (27.6%). In 23 (15.1%) cases, the patients were secondary. In 3 (2.0%) cases, it was diagnosed - focal, in 143 (94.0%) - infiltrative, in 3 (2.0%) - disseminated and in 3 (2.0%) - fibrous-cavernous pulmonary tuberculosis. . . All patients underwent a comprehensive laboratory study (general clinical and bacteriological), instrumental (lung x-ray, MSCT, ultrasound, spirometry) and a 6-minute walk test. In the clinical course, cough with sputum production was observed in all patients, severe intoxication syndrome - in 134 (88.2%), hemoptysis - in 32 (21.1%), in 14 (9.2%) patients with periodic short-term attacks of suffocation. The duration of patients' complaints before diagnosis ranged from 0.8 to 6 months, with an average of 1.2 months. In the problem of treating patients with acutely progressive processes, including caseous pneumonia, the resistance of Mycobacterium tuberculosis to chemotherapy drugs is of great importance. Drug-resistant tuberculosis accounted for 45% of patients with respiratory tuberculosis, and primary drug resistance was registered in 12.4%, and secondary - in 32.6% of patients. When analyzing the DR data, it can be noted that multiple DR (MDR) is observed in 9%, monoresistant DR in 6%, multidrug DR in 30% (of which 13% to two drugs, 17% to three or more drugs). The highest DR is noted for streptomycin - 17%, isoniazid - 15%, ethambutol and prothionamide –n about 14%. In the main group, the results of treatment of TB patients largely depended on the nature of MBT drug resistance. Clinical cure with MBT monoresistance was achieved in 72.2% of patients, with MBT resistance to the combination of drugs isoniazid + rifampicin - in 35.3% and with multidrug -resistant DR - in 13.8%. At the same time, the effectiveness of treatment of patients with MBT monoresistance is significantly higher ($p<0.05$) than the effectiveness of treatment in patients with pulmonary tuberculosis with MBT resistance to two or more drugs. In addition, the effectiveness of treatment of the studied patients with acutely progressive tuberculosis, including patients with caseous pneumonia, was higher while maintaining MBT drug sensitivity or monoresistance . In patients with multiple MBT resistance progression differed in more than 90% of cases. The effectiveness of treatment in MBT polyresistance was 54% in patients with caseous pneumonia and 38% in patients with other acutely progressive forms. The data obtained reveal the presence of a pronounced correlation between the nature of MBT drug resistance and the effectiveness of treatment of acutely progressive forms. The progression of the disease in patients with preserved MBT sensitivity and monoresistance indicates a significant influence of __ other factors that determine the lack of effect from the therapy, including immunodeficiency and endotoxicosis . The effectiveness of treatment and the prognosis for patients with drug-resistant tuberculosis depend on the number of anti-TB drugs in the treatment regimen, to which MBT is still sensitive. The presence in the therapy regimen of at least three anti-TB drugs, to which MBT is sensitive, significantly improves the results of treatment and prognosis for these patients. Our data allow us to identify a number of reasons for the formation of MBT resistance to several anti-TB drugs: interruption of the main course of chemotherapy (unauthorized care, failure to reach a phthisiatrician after release from correctional institutions, allergic and toxic complications of treatment); - appointment by a medical worker of inadequate chemotherapy protocols in terms of the number and dosage of anti-TB drugs at the stage of the main course of treatment for objective (absence of the entire complex of basic anti-TB drugs) and subjective (improper management of the patient) reasons; - patient non-compliance with the treatment regimen (alcoholism, taking strong substances such as drugs during treatment, refusing to take several anti-drug drugs); - contact with TB patients excreting drug-resistant MBT, including in

prisons. All this leads to the formation of MDR and MBT multiresistance and, as a result, to the ineffectiveness of the main course of chemotherapy, the progression of the tuberculosis process, persistent bacterial excretion , disability and, in some cases, death.

Results . Work with contingents that are at high risk for the development of MDR and multidrug -resistant tuberculosis should be a set of preventive measures aimed at preventing the development of MBT drug resistance.

1. Appointment of approved chemotherapy protocols with individual selection of anti-TB drugs, with the exception of those that the patient received earlier. Correction of chemotherapy after receiving the results of the study of the spectrum of drug sensitivity of MBT to anti-TB drugs.
2. Monitoring drug sensitivity MBT.
3. Separation of flows of patients with tuberculosis, hospitalization of patients with MDR and multidrug -resistant MBT in specialized departments (wards), appointments with local TB specialists at a fixed time.
4. Sanitary and educational work among patients who violate the treatment regimen, bringing them to administrative and criminal liability in accordance with the articles of the civil and criminal codes, enshrined in the law of the Russian Federation on preventing the spread of tuberculosis.

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