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MODERN METHODS FOR DETERMINING TUBERCULOSIS IN HIV-INFECTED PATIENTS WITH NEGATIVE SPUTUM ANALYZES*Mavlyanov Ibragim Kamilovich**Andijan State Medical Institute**Department of Phthisiology and Pulmonology*

Annotation: Pulmonary tuberculosis remains one of the main causes of morbidity and mortality among HIV-infected patients. Given the suppressed immune response in this category of patients, the diagnosis of tuberculosis can be complicated, especially with negative sputum microscopy results. This paper examines modern approaches to improving the diagnosis of tuberculosis in HIV-positive patients. It is proposed to introduce molecular genetic methods, such as PCR, for early detection of the pathogen in various biological samples. Immunodiagnostic tests, such as interferon-gamma-releasing tests, can help in the diagnosis of latent tuberculosis. Attention is also focused on the need to use modern imaging techniques, including computed tomography, to identify atypical forms of the disease. The work highlights the importance of a multidisciplinary approach and regular clinical monitoring, as well as the study of biomarkers that can serve as indicators of active tuberculosis. The implementation of the proposed measures will significantly improve the effectiveness of diagnosis and improve treatment outcomes in HIV-infected patients with pulmonary tuberculosis.

Key words: HIV, PCR, tuberculosis, biomarkers, atypical forms.

Relevance. Optimistic forecasts about the elimination of tuberculosis as a mass disease by the year 2000 did not materialize. The prevalence of this infection has increased in recent years all over the world, including in developed countries, regardless of their economic status and social standard of living. An increase in drug-resistant tuberculosis and an increase in co-infection with tuberculosis and HIV have a particular impact on the tuberculosis situation [1]. HIV-infected patients currently represent a large risk group for developing tuberculosis. HIV infection increases the number of cases of tuberculosis with negative sputum smear, extrapulmonary and disseminated forms of it. Moreover, in most cases, *Mycobacterium tuberculosis* is not detected in the sputum, which makes it much more difficult to diagnose tuberculosis.

Radiological changes in the lungs characteristic of tuberculosis, the formation of decay cavities, are also found in other opportunistic infections: pneumocystis pneumonia, cytomegalovirus lung lesions, and others [2]. The variety of forms of tuberculosis, the recent rapid spread of extrapulmonary forms with an "erased" picture of the disease process, as well as a very individual reaction of the patient's body to it, pose a serious problem for the diagnosis of tuberculosis in general and for its early diagnosis, in particular. For the differential diagnosis of tuberculosis in HIV-infected people, in addition to traditional methods of clinical, laboratory and instrumental examination, specific antigens to *Mycobacterium tuberculosis* were determined by ELISA when pathology was detected on radiographs and in case of negative CD examination.

Serodiagnostic methods provide relatively wide opportunities for tuberculosis screening, among which tests based on the determination of antibodies to mycobacterium antigens are the most common. The intensive development of the ELISA method in the last 10-15 years has led to the fact that enzyme immunoassay systems, in terms of their characteristics, and primarily in terms of sensitivity, have become widely used in various laboratories.

The aim of the study was to study the effectiveness of serological methods for the diagnosis and differential treatment of tuberculosis in unclear cases in HIV-infected patients.

Materials and methods. The analysis of the results of the determination of Ig A, M, G to Mycobacterium tuberculosis in 142 patients with suspected tuberculosis referred to the immunological laboratory of the Central Research Institute of Andijan Medical Institute. The age of the subjects ranged from 5 to 42 years. There were 56 women; 86 men. The majority of the villagers were 93. These patients had symptoms indicating the possibility of tuberculosis etiology of the identified changes: ineffectiveness of previous antibiotic therapy in 45 of the studied, torpid course of the disease in 78. Cough in 96 (dry - 68; with sputum-28); fever in 75; weakness in 120; weight loss in 54, however, the same complaints are observed and for non-specific diseases, as well as for other opportunistic infections (herpes simplex, cytomegaloviruses, toxoplasmas, chlamydia and mycoplasmas). An objective study revealed: absence of auscultation signs in 87 (61.2%); single dry wheezes in 33 (23.2%); single wet in the lower parts in 13 (9.2%); multiple wet wheezes, mostly finely bubbly in 9 (6.4%). As can be seen, 61.2% of the auscultation changes were not detected in the majority of those studied. There were no changes in the hemogram in 70 (49.3%); 48 (33.8%) had low leukocytosis and a moderate increase in ESR; high leukocytosis, increased ESR in 24 (16.9%). The X-ray picture in 18 (children and adolescents) is an enlargement of the intrathoracic lymph nodes; 49 have focal shadows; 13 have dissemination syndrome, 35 have pneumonic foci; 7 have ring-shaped shadow; pleurisy in 20. No CD was detected in all those examined in sputum bacterioscopically.

Results and discussion. Of the 142 patients examined, only 34 (24.0%) had a positive result. The results obtained did not correspond to reality. It was assumed that in HIV-infected patients, especially with reduced immunity, the production of antibodies to Mycobacterium tuberculosis decreases sharply, and therefore ELISA in a standard dilution of 1:100 gives a negative result. Based on this situation, the serum of HIV-infected people was diluted less than 1:10 and 1:20. 108 patients who tested negative at a 1:100 serum dilution had a positive result of 1:10-42 (29.5%) and 34 (24.0%) at a 1:20 dilution, with a total positive result of 110 (77.4%). 32 (22.6%) had a negative result. Comparison of the clinic, X-ray data, and ELISA results in additional dilutions of 1:20 and 1:10 made it possible to exclude tuberculosis. In parallel, opportunistic infections were identified: herpes simplex in all 32 tested positive, cytomegaloviruses in 28; chlamydia and mycoplasma in 23, that is, from 2 to 3 opportunists were simultaneously detected in one patient.

Conclusions. The presented data allow us to conclude that the enzyme immunoassay method for the determination of mycobacterium tuberculosis immunoglobulins is justified in doubtful cases, especially when mycobacteria were not detected in sputum. For the differential diagnosis of tuberculosis in HIV-infected people, it is necessary to examine antibodies in serum dilutions of 1:10 and 1:20, which makes it possible to confirm tuberculosis in 77% of cases. In cases of exclusion of tuberculosis, 32 HIV-infected patients were prevented from unjustified hospitalization and waste of anti-tuberculosis drugs.

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