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ОРИГИНАЛЬНАЯ СТАТЬЯ

ОРИГИНАЛЬНЫЕ ИССЛЕДОВАНИЯ

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АНАЛИЗ ОСОБЕННОСТЕЙ ТЕЧЕНИЯ ТУБЕРКУЛЁЗА У ВИЧ-ИНФИЦИРОВАННЫХ БОЛЬНЫХ НА СТАДИИ ВТОРИЧНЫХ ЗАБОЛЕВАНИЙ МЕТОДАМИ КОРРЕЛЯЦИОННОЙ АДАПТОМЕТРИИ

Первый МГМУ имени И.М. Сеченова Минздрава России (Сеченовский Университет), 119991, г. Москва, Россия, Трубецкая ул., д. 8

На стадии вторичных заболеваний ВИЧ-инфекции туберкулёзный процесс утрачивает свою специфичность, что затрудняет диагностику и приводит к позднему назначению этиотропной терапии. Цель исследования -- изучение приоритетности и целесообразности проведения разнообразных лабораторных и инструментальных методов при диагностике туберкулёза у больных ВИЧ на стадии вторичных заболеваний. Проведён анализ историй болезней 113 больных ВИЧ-инфекцией на стадии вторичных заболеваний с применением статистической обработки.
Используя корреляционную адаптометрию было установлено, что у больных ВИЧ-инфекцией на стадии вторичных заболеваний нет существенных различий клинических проявлениях лёгочных и внелёгочных форм туберкулёза.

Ключевые слова: *ВИЧ-инфекция; туберкулез; диагностика.*

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Arutyunova D.D., Gerasimov A.N., Umbetova K.T., Maloletneva N.V., Belaya O.F., Allenov M.N., Volchkova E.V.

ANALYSIS OF THE CHARACTERISTICS OF TUBERCULOSIS IN HIV-INFECTED PATIENTS AT THE STAGE OF SECONDARY DISEASES USING CORRELATION ADAPTOMETRY

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At the stage of secondary HIV disease, the tuberculosis process often loses its specificity, which makes it difficult to diagnose timely, first of all, tuberculosis and leads to late appointment of etiotropic therapy. The purpose of our study was to study the characteristics of tuberculosis infection course in patients with HIV at the stage of secondary diseases using correlation adaptometry. The analysis of disease histories of 113 HIV infection patients at the stage of secondary diseases with the use of statistical processing was carried out. Using correlation adaptometry, it was established that HIV-infected patients do not have significant differences in the course and clinical manifestations of pulmonary and extrapulmonary forms of tuberculosis.

Keywords: HIV infection, tuberculosis, diagnostics.

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In Russia, tuberculosis is the most frequent disease that develops in patients at late stages of HIV infection, in more than 50% of cases [1]. In HIV-infected patients with immunodeficiency, the inflammatory process often loses its specificity, which makes it difficult to diagnose timely, first of all, tu-

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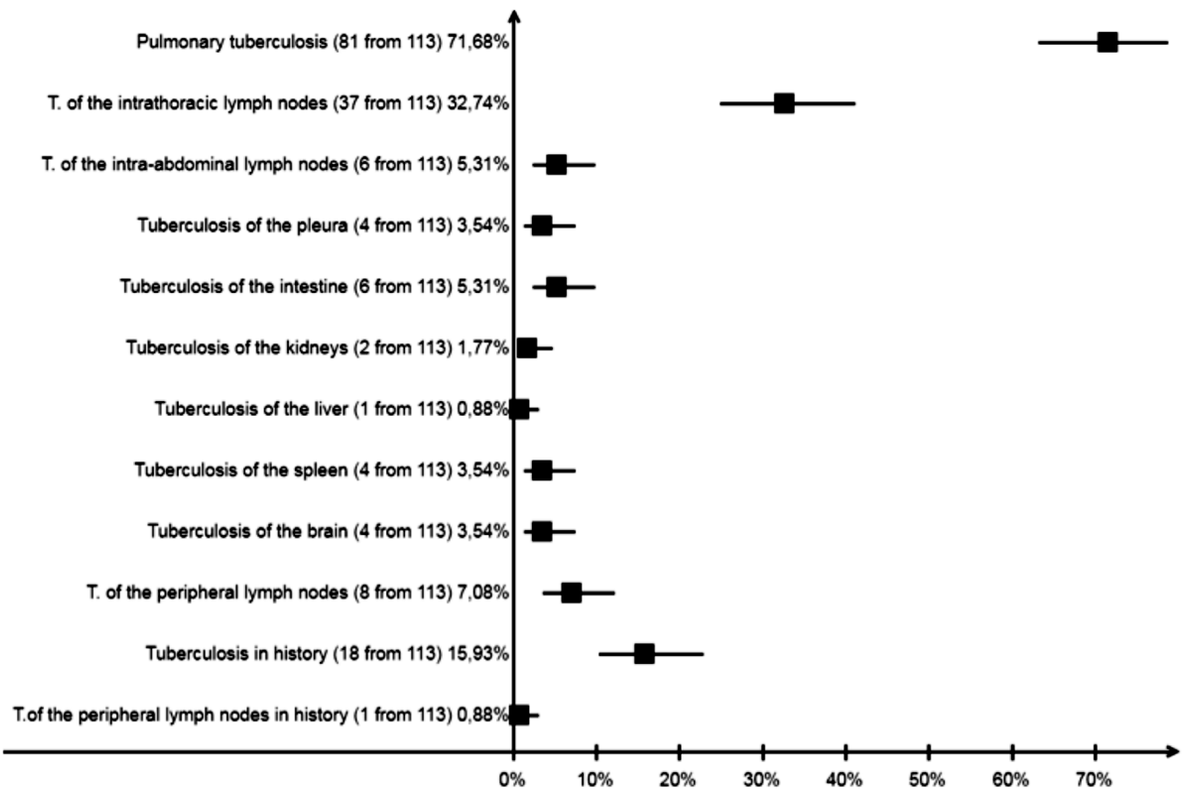
berculosis and leads to late appointment of etiotropic therapy. Many authors describe «atypical» clinical manifestations of tuberculosis in HIV-infected patients [2, 3]. As a rule, the clinical picture and course of tuberculosis in patients with HIV infection depend on the duration of the course of HIV infection and determined by the degree of loss of an adequate immune response. Characteristic clinical manifestations of tuberculosis in HIV-infected patients manifest with a significant reduction in the number of CD4-lymphocytes [4]. Over the past 15 years, the number of patients with active tuberculosis, combined with HIV infection, increased by 50 times, and the defeat of Mycobacterium tuberculosis of the respiratory system among patients with co-infection was 90% [5 – 8]. At the same time, in 58% of patients with co-pathology the leading cause of death is tuberculosis, and the death rate from tuberculosis of HIV-infected is more than 10 times higher than in the population [9, 10].

The following factors determine the deterioration in the incidence of tuberculosis among HIV patients: an increase in the proportion of patients with drug-resistant forms of tuberculosis, which in Russia has already reached about 25%; an increase in the proportion of people living with HIV who are sick with tuberculosis, which is about 25%; a decrease in the coverage of BCG vaccination due to an increase in the negative attitude to vaccination [11 – 13].

In this regard, it is of great practical and scientific interest to study the peculiarities of the course of tuberculosis infection in HIV-infected.

The case histories of 113 HIV-infected patients at the stage of secondary diseases (Classification of Pokrovsky V.I. with co-authors, 2006) are analyzed, with prevailing clinic of defeat of respiratory organs which were on stationary treatment in the Second Infectious Clinical Hospital of Moscow from 2013 to 2016: at a stage 4A-1 patient (0,88%), 4B – 28 (24,78%), 4C – 84 patients (74,34%). The study included 37 women and 76 men. The mean age of patients was 36.61 ± 6,3 years. The most affected age group are people aged 30-44 (69 out of 113), the proportion of women is about 1/3, which corresponds to the increase in the proportion of women among HIV-infected people as the HIV epidemic in Russia develops in 2017 among HIV-infected men continue to predominate - 62.9%, women - 37.6% [14].

Patients underwent complex examination in accordance with standards (The standard of medical care for people with HIV / AIDS (with specialized care): Approved by Order No. 475 of the Ministry of Health and Social Development of the Russian Federation on July 9, 2007) : radiography of respiratory organs, computed tomography of respiratory organs and abdominal cavity, bronchoscopy, ultrasound of the abdominal cavity organs, kidneys, adrenal glands, PCR diagnostics of blood plasma (CMV), BAL (Mycobacterium tuberculosis, CMV, VEB, HSV 1,2 type, HHV type 6, pneumocyst, Candida cryptocock fungi), ce-



Graph 1. The distribution of patients with HIV infection by TB localization.

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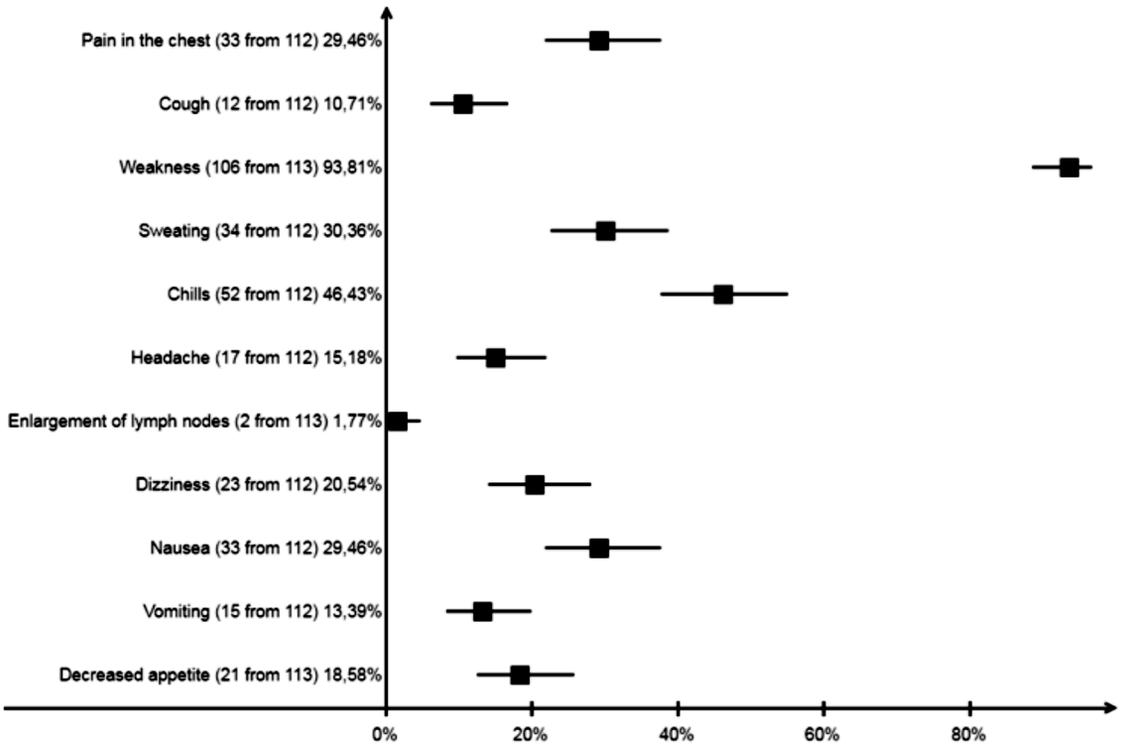
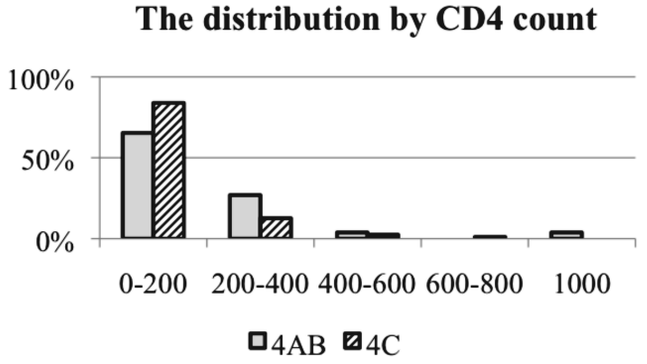
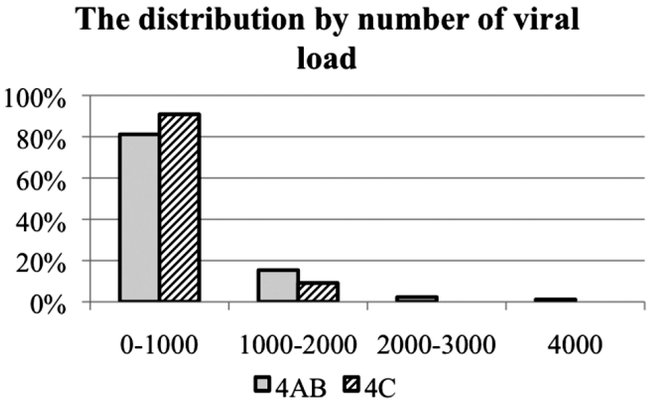


Graph 2. The frequency of complaints in patients with HIV infection at the stage of secondary diseases with the clinic of respiratory diseases.



Graph 3. The distribution of HIV-infected patients at the stage of secondary diseases by immunological indicators.



Graph 4. The distribution of HIV-infected patients at the stage of secondary diseases by immunological indicators.

rebrospinal fluid (Mycobacterium tuberculosis, CMV, VEB, HSV 1,2 type, HHV type 6, Candida, cryptocock fungi), sputum, bacteriological study of feces, urine, sputum, blood and bacterioscopy (analysis at acid-fast mycobacteria) examination of feces, urine, sputum.

In the study, the main group consisted of patients with tuberculosis, 87 (77%) out of 113 patients, with HIV were diagnosed with tuberculosis (TB): pulmonary tuberculosis in 36 (41,4%), multiple localization tuberculosis, including respiratory organs in 45 (51,7%) and 6 (6,9%) patients with extrapulmonary tuberculosis.

Tuberculosis with involvement of the lungs was detected in 71.68% (81) patients, tuberculosis of the intrathoracic lymph nodes (ITLN) - in 32.74% (37) patients, tuberculosis of intra-abdominal lymph nodes (IALN) in 6 (5,31%), tuberculosis of peripheral lymph nodes 8 (7,08%), pleural tuberculosis in 4 (3,54%) patients, intestinal tuberculosis in 6 (5,31%), cerebral tuberculosis in 4 (3,54%), kidney tuberculosis in 2 (1,77%), tuberculosis of the spleen in 4 (3,54%), liver tuberculosis in 1 (0,88%) of the patient (graph 1).

The sum of the lines in the presented graph exceeds 100%, because as a result of the development of generalized tuberculosis with multiple lesions of organs

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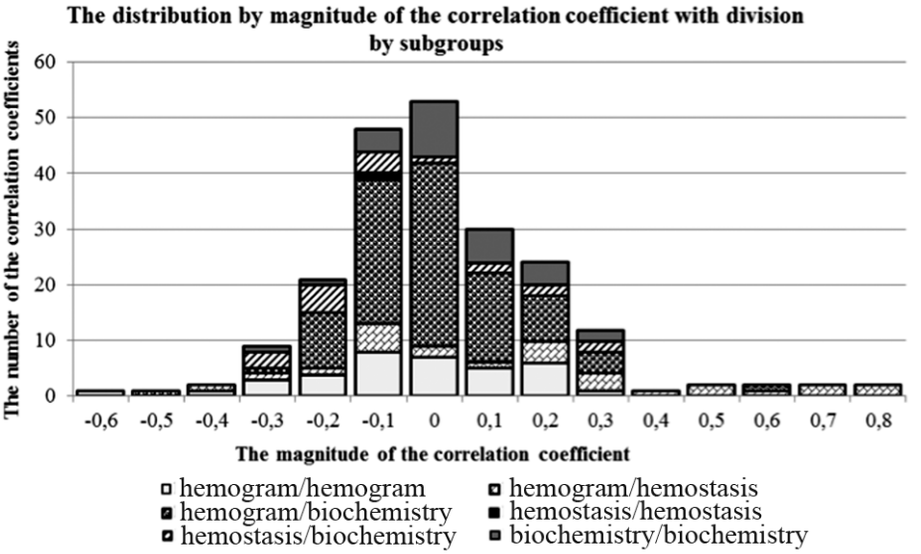

Graph 5. The distribution by magnitude of the correlation coefficient with division by subgroups.

and lymph nodes in the pathological process, one system involved several systems, which is reflected in the publications of other researchers [15].

Several systems were involved in the pathological process in 1 patient, due to which the sum of the lines in the presented graph exceeds 100%.

Most of the patients complained of weakness and chills (without a clear time dependence), while all complaints considered characteristic of TB patients, including chest pain, cough, sweating, were quite rare and cannot be considered specific to this group of patients, which makes it difficult to diagnose (graph 2).

The analysis of the data showed the absence of a significant correlation of clinical manifestations and complaints of patients with both the form of tuberculosis and with what disease they detected - a manifest cytomegalovirus infection or tuberculosis of different localization.

Similar results were also obtained from laboratory data. In the immune status, the average number of CD4-lymphocytes was 109.82 ± 15.3 cells / ml, the average value of viral load of HIV RNA is 905118.27 ± 163839.6. kop / ml (graph 3, 4).

This is most likely due to the fact that in patients with the progression of HIV infection immunosuppression becomes more pronounced.

To test the hypothesis that tuberculosis in HIV-infected patients does not have a typical clinical picture, characteristic for this disease, differing in localization of the process, we used the methods of correlation adaptometry.

When using it to analyze the state and dynamics of the infectious process there is the following common picture [16]:

In the midst of the disease, the forces of correlation increase, and the cure is accompanied by a decrease in the strength of connections;

In the groups of patients with severe course of the disease, there are more correlation correlations than in the groups of patients with mild course.

The numerical values used for correlation adaptometry were divided into three groups: General blood analysis (hemoglobin, ESR, number of erythrocytes, leukocytes, lymphocytes, monocytes, segmented neutrophils and eosinophils), hemostasis indices (prothrombin index, fibrinogen) and biochemical blood analysis indices (alkaline phosphatase, AST, ALT, GGT, total protein, total cholesterol, glucose, amylase, urea). All of these figures had a fairly compact distribution, which allowed them the use of methods of parametric statistics [17].

The following was obtained for correlation coefficients (with rounded step 0,1) numerical indicators at the time of hospitalization. (graph 5).

The studied parameters in all groups have weak correlation links (CL). Due to the low level of communication, in some cases the strength of communication even turned out to be negative. During the hospitalization, the level of correlation links did not practically decrease, which indicates the absence of positive dynamics in the patients' condition and corresponds to the dynamics of clinical manifestations.

Correlation links in patients with stage 4C more, than in patients with stage 4A and B, also in patients with pulmonary tuberculosis correlation links more, than in patients without tuberculosis.

In general, a high level of correlation links between biochemical parameters in patients with pulmonary tuberculosis is observed at a low level of CL.

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Thus, the picture obtained with the help of correlation adaptometry corresponds to the picture obtained in the analysis of clinical manifestations and confirms that patients with HIV infection do not have significant differences in the course and clinical manifestations of pulmonary and extra-pulmonary forms of tuberculosis.

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