Analysis Some Aspects of Tuberculosis Treatment

Khakimova Ruzikhon Abdurakhimovna

Docent of the Department of Phthisiatry and Pulmonology ASMI

ABSTRACT

The spread of infectious diseases has a significant impact not only on public health, but also on the economic well-being of countries and entire continents. Tuberculosis has accompanied human history for many hundreds of years, and to date it has not been possible to eradicate it, despite progress in the treatment of many diseases with a known infectious agent. Every year, about 10 million people worldwide become ill with tuberculosis and about 1.5 million die, including at least 250–300 thousand HIV-infected people. Among the causes of death from infectious diseases, tuberculosis still remains in the leading position. The purpose of the study is to study the current state of the problems of providing treatment to tuberculosis patients based on literature data and our own experience.

Keywords: tuberculosis, multidrug-resistant tuberculosis, HIV/tuberculosis co-infection, HIV infection, chemotherapy.

Introduction

Against the background of HIV infection, the course of tuberculosis is characterized by a tendency towards generalization of the process, multiple lesions of organs and systems. Statistical forms do not provide a complete picture of the real number of patients with extrapulmonary tuberculosis; its share in the overall morbidity structure does not exceed 2–4%, as in Andijan. According to Andijan tuberculosis monitoring data, among patients with HIV/tuberculosis co-infection, extrapulmonary forms occur in 41.3% [5].

Modern epidemiological patterns, features of the spread and course of tuberculosis, including those associated with HIV infection, determine inevitable problems in its treatment. Studying the history of the use of various methods aimed at curing tuberculosis reveals a complex thorny path, mainly associated with the characteristics of the causative agent of tuberculosis.

Materials And Methods

Until the middle of the 20th century. There were no effective antibacterial drugs against tuberculosis; treatment was based on climatotherapy, nutritional therapy, protective regimen, and very risky surgical methods [2]. After the discovery of streptomycin in the USA by Z. Waksman and A. Schatz in 1943, the era of chemotherapy for tuberculosis began, and the possibility of curing patients with tuberculosis arose. However, the first successes were quickly offset by the emergence and spread of MBT resistance to this drug. Soon in Sweden K.-G. Rosdahl synthesized para-aminosalicylic acid (PAS), the idea was suggested by the Danish physician J. Lehmann, who was the first to use a combination of streptomycin and PAS

to overcome MBT resistance [3]. The time has come to search for new anti-tuberculosis drugs, the basic principles of tuberculosis chemotherapy have been developed, and standard treatment regimens have been proposed [3]. The further invention and industrial synthesis of rifampicin led to changes in chemotherapy regimens, its effectiveness became quite high, the spread of tuberculosis infection in many countries by the end of the 1980s turned out to be minimal, and it seemed that a global victory over this was threatening. a new disease is "just around the corner" [4].

Diagnostic methods include radiation, as well as immunodiagnostic tests that can detect the presence of tuberculosis infection (tuberculin skin test, recombinant tuberculosis allergen test, tests based on fixation of interferon γ secreted by sensitized cells - IGRA tests) [5]. A special problem is the need for differential diagnosis of tuberculosis and non-tuberculous mycobacteriosis, which becomes possible only after the species identification of the pathogen [2].

Results And Discussion

The development of drug resistance of the tuberculosis pathogen significantly worsens the results of chemotherapy; in cases of MDR (at least to the two main anti-tuberculosis drugs - isoniazid and rifampicin), the effectiveness of treatment barely exceeds 50% [1]. The first cases of mass disease with MDR tuberculosis occurred in the United States in the late 1980s and early 1990s. These "outbreaks" of drug-resistant tuberculosis primarily affected HIV patients in hospitals or prisons [3]. Then similar incidents were registered in other countries [4]. These facts made it possible to later talk about the danger of a double epidemic of HIV/tuberculosis [4]. In modern conditions, two global problems do not allow us to achieve significant progress in the treatment of tuberculosis - HIV infection and MDR pathogen [5]. Current questions arise regarding the conduct of chemotherapy for tuberculosis depending on the drug resistance of the pathogen, the combination of tuberculosis with other infectious diseases and the presence of concomitant pathological conditions; the problems of prescribing drugs to prevent the disease have not been resolved.

The basis for the treatment of tuberculosis of any localization is a fairly long-term combination chemotherapy, which has its own characteristics depending on the presence of bacterial excretion in the patient, the clinical picture of the disease and the drug sensitivity of the pathogen. For ease of practical application, control over treatment and accounting for medications, the term "chemotherapy regimen" is used in phthisiology, which means a certain combination of anti-tuberculosis drugs, their dosages and treatment periods.

Currently, there are 5 chemotherapy regimens: regimen I is prescribed to patients with tuberculosis with bacterial excretion in the absence of MBT resistance, II – for resistance to isoniazid or multiresistance to anti-tuberculosis drugs, except for the combination of isoniazid and rifampicin, III – for patients without bacterial excretion, IV – for MDR to isoniazid in combination with rifampicin (MDR), V – for MDR with drug resistance to fluoroquinolones [4]. Chemotherapy for tuberculosis is divided into 2 phases: intensive therapy - aimed at suppressing the MBT population and eliminating the symptoms of the disease, the continuation phase of treatment for the complete elimination of MBT and recovery of the patient. Medicines used to treat tuberculosis are usually divided into primary and reserve, which are used to treat patients with drug-resistant MBT.

A fundamentally important aspect in the treatment of tuberculosis in HIV-infected persons is the provision of ART. Based on our own experience, if the level of CD4+ lymphocytes is above 350 cells/μl, the start of ART can be postponed until the end of the intensive chemotherapy phase, in the absence of other indications for its use. Low immune status, in which the level of CD4+ lymphocytes is below 350 cells/μl, in combination with tuberculosis, is an absolute indication for ART. Antiretroviral drugs should be started after the patient has fully adapted to anti-tuberculosis chemotherapy. It is also possible to initiate ART earlier if there are indications other than tuberculosis; as a rule, this is a life-threatening progression of other secondary diseases. In such a situation, ART should be added 2–4 weeks after the start of tuberculosis treatment. It should be noted that the risk of developing immune reconstitution syndrome with this prescription is extremely high, it is severe, and requires correction or discontinuation of both antiretroviral and anti-tuberculosis drugs. In any case, the decision to join ART requires a balanced, informed joint decision by an infectious disease specialist and a phthisiatrician.

Conclusion

Thus, no significant differences in the frequency of postoperative complications were found between patients with co-infection of HIV/tuberculosis and patients with tuberculosis without HIV infection. In patients with tuberculosis combined with HIV infection, out of 69 operations, a complicated course was observed after 6 (8.7%) [95% CI 3.3–18.0]. And in patients with tuberculosis without HIV infection, after 133 operations, complications developed in 10 (7.5%) [95% CI 3.7–13.4]; $p>0.05$. It has been established that surgical interventions for tuberculosis have a significant, but ambiguous effect on the number of CD4+ lymphocytes. 20 (29.9%) of 67 (95% CI 19.2–42.3) showed an increase in the level of CD4+ lymphocytes after surgery, 12 (17.9%) [95% CI 9.6–29.1] – decrease, and in 35 (52.2%) [95% CI 39.7–64.6] no significant changes were detected. The data obtained show the possibility of performing surgical interventions in people with HIV/tuberculosis co-infection without a significant risk of complications.

With the timely initiation of chemotherapy and the use of personalized approaches to drug administration, the effectiveness of tuberculosis treatment is very high and gives hope for further improvement of the epidemic situation in Uzbekistan and the world.

References

1. Socially significant diseases of the population in 2023. Statistical materials. Ministry of Health 2023 https://www.rosminzdrav.ru/ministry/61/22/stranitsa-979/statisticheskie-i-informatsionnye-materialy/statisticheskiy-sbornik-2023-god
2. Epidemiological situation of tuberculosis, 2018. TsNIIOIZ of the Ministry of Health of the, 2019 https://mednet.ru/images/materials/CMT/2018_god_tuberkulez_epidsituaciya.pdf
3. Anti-tuberculosis work in Moscow. Analytical review of statistical indicators on tuberculosis, 2018. Ed. EAT. Bogorodskaya, V.I. Litvinova, E.M. Belilovsky. M.: MNPTSBT, 2019
4. TB/HIV. Epidemiology, features of clinical manifestations and treatment results. Ed. S.A. Sterlikov. M.: RIO TsNIIOIZ, 2017
5. Sinitsyn M.V., Belilovsky E.M., Sokolina I.A. and others. Extrapulmonary localizations of tuberculosis in patients

with HIV infection. Tuberculosis and lung diseases. 2017;95(11):19-25.