**Antimicrobial resistance of *Mycobacterium tuberculosis* clinical isolates from patients with tuberculous spondylitis in Russian Federation**

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**Background**: As the prevalence of pulmonary tuberculosis decreases, the share of extrapulmonary forms of tuberculosis increases. Tuberculous spondylitis is a specific infectious lesion of the spine caused by mycobacteria of the tuberculosis complex. It is characterized by the formation of a specific granuloma and progressive destruction of the bone. Modern approaches to tuberculosis treatment determine the absolute necessity to establish the spectrum of drug resistance of mycobacteria before prescribing a chemotherapy regimen.

**Objective:** To study the spectrum of drug resistance of *Mycobacterium tuberculosis* complex isolated from bone surgical material of patients with tuberculous spondylitis.

**Methods:** 418 samples of operative bone material from 333 patients diagnosed with tuberculous spondylitis were examined. 96 cultures of Mycobacterium tuberculosis were obtained and their drug sensitivity was determined. Phenotypic testing of drug resistance was performed using the absolute concentration method on dense/liquid nutrient media. In 291 samples, there was sufficient mycobacterial DNA to identify mutations associated with MBT resistance to anti-TB drugs. These mutations were detected using the microarray method.

**Results:** 6.3% of isolated cultures were sensitive, 25% were MDR (resistant to R and H), 32.3% were pre-XDR (R, H and Km/Am/Cm or Lfx/Mfx), 35.4% were XDR (R, H and Km/Am/Cm and Lfx/Mfx). According to molecular genetic data, samples without mutations were 20.3%, those with mutations associated with MDR were 26%, pre-XDR were 29.5%, and XDR were 16.4%.

**Conclusion:** The etiologic agent of tuberculous spondylitis is highly drug resistant: 71.9% to 92.7% of specimens resistant to at least H and R. The difference between the proportion of XDR-TB samples obtained by phenotypic methods and molecular genetic methods is large. This is explained by the survival of the most resistant cultures in the case of phenotypic assessment of resistance. Molecular genetic methods do not require a live mycobacterium, but only its DNA.

**BIOGRAPHY** (100-150 words)

I, Lavrenchuk L. S., has been working in the field of tuberculosis diagnostics for 10 years. I have mastered both molecular genetic diagnostic methods and modern bacteriologic and bacterioscopic methods. In addition, I have experience in vivarium work, in experiments on treatment and necropsy of laboratory animals, as well as ex vivo isolation of cultures of alveolar macrophages from surgical material of tuberculosis patients. In addition to laboratory work, I am engaged in university teaching (courses "Microbiology", "Medical Microbiology and Virology", "Biochemical and ecological features of bacteria").

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* Research Interest: bacteriology, tuberculosis diagnostic