

European Respiratory Society Annual Congress 2012

Abstract Number: 265

Publication Number: P2646

Abstract Group: 10.2. Tuberculosis

Keyword 1: Tuberculosis - diagnosis **Keyword 2:** Mutation analysis **Keyword 3:** Monitoring

Title: Molecular characterization of mycobacterium tuberculosis resistant to fluoroquinolones, distributed in Saratov region

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Body: Aim: To study the spectrum of mutations of gena gyrA M. tuberculosis, coding for drug-resistance to fluoroquinolones, in the Saratov region. Methods: We examined 47 samples of sputum patients with active pulmonary tuberculosis. Detection of Mycobacterium tuberculosis (MBT) and determine their drug susceptibility to fluoroquinolones was performed using biological microchips. The results of the reaction were evaluated with the use of hardware-software complex "Chipdetektor-01". Technology research, a set of reagents and equipment were developed by staff of the Institute of Molecular Biology ("Biochip-IMB", Moscow). Results: DNA M. tuberculosis were found in 39 (83%) patients. Mutations in the gene gyrA were identified in 22 (56,4%) samples, of which - in 13 (59%) found the mutation in codon 95 Ser (AGC) -> Thr (ACC) due to the natural polymorphism of the gene and do not lead to the development of drug resistance. In 9 (41%) samples identified mutations in 91 (33,3%), 94 (44,4%), 90 (22,2%) codons that encode resistance to fluoroquinolones. Primary drug resistance is set in 5 (12,8%) patients. In 4 cases revealed secondary drug resistance in patients, which received 90-120 doses antibacterial drugs. Of these, 3 cases have double mutations in gyrA /Asp94->Gly + Ala90->Val /; /Asp94->Ala + Ala90->Gly_a; Asp94->Gly + Ala90>Val/and in 1 patient was found a combination of four mutations. Conclusion: In the Saratov region primary resistance to fluoroquinolones at the level of genetic mutations was set in 12,8% cases. Was found the increase in the number of mutations among MBT strains isolated from patients receiving prolonged treatment with anti-TB drugs.