CLASSICAL DRUG SUSCEPTIBILITY TESTING TO ANTITUBERCULOTICS VS MOLECULAR-GENETIC METHODS - ACTUAL SITUATION IN SLOVAKIA

Igor Porvaznik[1,2], Juraj Mokry[2], Ivan Solovic[1]

[1]National Institute of Tuberculosis, Lung Diseases and Thoracic Surgery, Vysne Hagy, Slovakia,

[2]Department of Pharmacology, Jessenius Faculty of Medicine, Comenius University, Martin, Slovakia

Tuberculosis currently belongs to rare respiratory diseases in Slovakia. However, the emergence and spread of multi-drug resistant tuberculosis (MDR-TB) and extensively drug-resistant tuberculosis (XDR-TB) are major challenges for global tuberculosis control, since the treatment of resistant forms is both medical and financial problem.

Since cultivation methods are time-consuming, many times exceeding the time of the initial phase of tuberculosis treatment onset, in presented study we have compared the standard procedures based on the cultivation of mycobacteria and subsequent drug susceptibility testing to antituberculotics with molecular-genetic methods using PCR diagnostic kits. The molecular-genetic testing enables direct and fast evidence of *Mycobacterium tuberculosis,* with genomic verification of resistance to the most important anti-tuberculosis drugs – isoniazid and rifampicin in MDR-TB, and ethambutol, aminoglycosides and fluoroquinolones in XDR-TB.

In 2012 and 2013, we have confirmed 19 cases of drug-resistant tuberculosis in Slovakia. The resistance to rifampicin was confirmed in all strains with both methods. In two cases the molecular-genetic testing has not shown the resistance to isoniazid, as confirmed by conventional cultivation. Furthermore, two strains demonstrating susceptibility in conventional microbiological testing to ethambutol and five strains to fluoroquinolons have been confirmed as resistant using the PCR method.

The rapid diagnosis and identification of MDR-TB or XDR-TB strains using molecular-genetic testing is an essential tool for a fast onset of appropriate drug treatment, preventing the further spread of drug resistant strains and amplification of resistance.