

DETECTION OF RESISTANCE TO ANTI-TUBERCULOTICS IN SLOVAKIA THROUGH CONVENTIONAL SUSCEPTIBILITY TESTING AND MOLECULAR GENETIC METHODS AND ITS CORRELATION WITH CLINICAL PARAMETERS

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The incidence of drug-resistant tuberculosis (TB) in some countries increases continuously. The emergence and spread of multidrug-resistant (MDR-TB), and extensively drug-resistant (XDR-TB) suggest the crucial role of pharmacotherapy protocol tailored to the respective patient with MDR-TB or XDR-TB (a personalized approach) and requirements for fast and precise diagnostics of resistance.

The aim of this study was to characterize a molecular basis of resistance to anti-tuberculotics (AT), and to identify the presence of the resistance using conventional susceptibility testing and molecular genetic methods using PCR tests in Slovakia during years 2009-2017. Furthermore, we focused on evaluation of the relationship between the level of resistance, the clinical status, and some laboratory markers of patients with drug-resistant TB.

Totally 1157 strains isolated from patients in 2009-2017 were tested for resistance using classical methods and in resistant strains, the molecular-genetic tests were performed. Increased incidence of recurrence, prolonged time required to culture conversion, increased mortality during treatment, plasma C-reactive protein concentrations and sedimentation rate, broader spectrum of AT used, as well as higher incidence of adverse effects (sufficiently controlled with symptomatic treatment) were observed with higher degree of resistance. Contrary, the number of patients who achieved remission decreased.

Rapid and precise identification of MDR-TB or XDR-TB strains using both classical and molecular-genetic testing is an essential tool for personalized drug treatment and prevention of resistance spread and worsening. Both tests should be used for correct diagnosis of resistant TB. Higher level of resistance required more aggressive therapeutic approach, associated with adverse effects and prolongation of the culture conversion time, as well as increased risk of relapse. Effective pharmacotherapy led to significant decrease of CRP levels in all groups of patients. The most frequent adverse effects of ATs – impairment of liver and kidney functions - were effectively managed by symptomatic treatment.

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