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The Role of Molecular-Genetic Assays in Diagnosis of Pulmonary Tuberculosis in the Republic of Moldova

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Abstract

The culture with the drug susceptibility testing are the gold standard in diagnosis of tuberculosis (TB). However the use of the new molecular genetic test for identification of Mycobacterial tuberculosis DNA based on polymerase chain reaction contributed to earlier diagnosis of TB, prompt start of the treatment according to the drug resistance profile and improvement of the clinical case-management. The aim of the study was to assess the role of molecular genetic tests in diagnosis of pulmonary TB in the Republic of Moldova. A selective, prospective and case-control study on 673 new cases diagnosed with pulmonary TB in 2022 was conducted. The patients were distributed in the main study group, which included 431 patients with positive molecular genetic test GeneXpert MTB/Rif (Xpert) assay, from which 304 were sensible and 127 resistant to Rifampicin, which were compared with the control group composed of 242 patients with negative Xpert assay. Based on the collected data the predictors for positive molecular genetic assays were extensive and severe forms of pulmonary TB, high expressiveness of the clinical complains and associated disease. The risk factors for acquiring the drug-resistance were TB contact, the history on incarceration and the comorbid state. Due to precocious diagnosis of the drug-resistance and adaption of the TB treatment to the drug-resistance results, the unfavorable treatment outcomes were in a significant lower proportion in patients diagnosed through the Xpert compared with those diagnosed through the conventional

culture methods. In conclusion, the molecular genetic assays improved the TB case-management due to precocious diagnosis and adequate therapeutic approach.

Keywords: pulmonary tuberculosis, molecular-genetic assays

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