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ABSTRACT BOOK

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PS-100553-13 Detection of *Mycobacterium tuberculosis* rifampicin resistance by polymerase chain reaction

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The goal of this research was detection of the rifampicin-resistance level of *Mycobacterium tuberculosis* infection in the Odesa region of Southwest Ukraine, investigation of the level of mutation at codons 516, 526, 531 in the *rpo*B gene that is contributing into rifampicin-resistance for *M. tuberculosis*, with polymerase chain reaction (PCR), and spread of these mutations in different groups of patients with tuberculosis. Primary and secondary (acquired) resistance to rifampicin of *M. tuberculosis* was 61% and 81% correspondently. Around 45% of DNA-isolates of *M. tuberculosis* had mutation in *kat*G gene. Out of all the mutated strains, 4.8% had a mutation at codon 516 in the *rpo*B gene; 14.3% had a mutation at codon 526, and in 80.9% a mutation at codon 531. Out of all isolates that carried any mutation at codons 516/526/531 in the *rpo*B gene, 93.8% were rifampicin-resistant according to the culture method. Of rifampicin-resistant strains, only 49.5% carried any mutation at codons 516/526/531 in the *rpo*B gene. So, the specificity of this method for rifampicin-resistance detection was 93.8%, and the sensitivity 49.5%. The patients who carried *M. tuberculosis* with the *rpo*B mutation had chronic TB 2.6 times more frequently than those with wild-type strains ($P < 0.05$). At discharge, the smears of patients with wild-type isolates were 1.9 times more frequently negative at microscopy than those of patients with a mutation in the *rpo*B gene of *M. tuberculosis* ($P < 0.05$). The patients who carried *M. tuberculosis* with a mutation in the *rpo*B gene were transferred for outpatient treatment 1.8 times less often than the patients who carried wild-type strains, and 1.9 times more frequently had aborted antituberculosis treatment than did the patients who carried wild-type strains. Our findings support high specifity of the proposed PCR method for rapid detection of *M. tuberculosis* that is resistant to drugs such as rifampicin and for prediction of the outcome of TB-treatment.

PS-100664-13 PCR direct in smear-negative, culture-positive samples in tuberculosis

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Introduction: The value of PCR is well accepted as a method for species characterization in smear positive samples. However, its diagnostic value in the diagnosis of tuberculosis in smear negative samples is still disputed.
Methods: We analysed all PCR direct results of smear negative but culture-positive (*M. tuberculosis*) samples that were collected by our institute of microbiology in the period 1/2008 to 10/2009.
Results: A total number of 62 samples were analysed. 38/62 samples (61%) were tested positive and 24/62 samples (39%) were tested negative on PCR direct. From all sputum samples ($n = 17$) and gastric juice samples ($n = 3$) the PCR direct was positive in 80%, from all materials obtained through bronchoscopic methods however only 55% were tested positive. In 52% of all extra pulmonary samples ($n = 23$; pleura, soft tissue, cerebrospinal fluid, lymph nodes, joints and bones) the result of PCR direct was positive.
Conclusions: PCR direct cannot be considered a reliable method for rapid diagnosis of TB cases with low bacterial load, because it is less sensitive compared to culture. However, its use as complementary method in the examination of sputum samples can be discussed.

PS-100666-13 The implementation of the GenoType MTBDRplus assay (HAIN Lifescience) in the Republic of Georgia

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Background: The emergence of multidrug-resistant (MDR) and extensively resistant (XDR)-TB in the country of Georgia contributes to an enormous public health problem. To enhance detection of drug resistant TB, the implementation of rapid molecular tests for drug resistance are needed. We sought to evaluate the performance of the commercially available Genotype MTBDRplus assay, when integrated into routine lab work, for the detection of resistance to rifampin (RMP) and isoniazid (INH).
Intervention: From June–December 2009, consecutive AFB smear (+) sputum specimens were obtained from TB suspects referred to the National TB Program. Conventional cultures and drug susceptibility testing (DST) using both an absolute concentration method on Löwenstein-Jensen media and broth-based method using the MGIT 960 system were compared to the Genotype MTBDRplus assay. All testing was carried out at the National TB Reference Laboratory in Tbilisi, Georgia.
Results: Among 146 AFB smear (+) sputum specimens, 139 had a positive culture for *M. tuberculosis*. As compared to specimens with a positive culture, the MTBDRplus assay detected any INH resistance in 35/41 (85.4%) isolates, and MDR-TB in 18/19