



DISTURBANCES OF THE ANTIOXIDANT SYSTEM IN PATIENTS WITH PULMONARY DRUG SUSCEPTIBLE AND MULTIDRUG-RESISTANT TUBERCULOSIS

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Introduction

The Biomarkers of thiol-disulfide metabolism (TDM) reflect the deficiencies of the antioxidant system (AOS) and the protective mechanisms against the oxidative stress (OS), which is a contributing factor in the development of multidrug-resistant tuberculosis (TB-MDR).

Keywords

Tuberculosis, thiol-disulfide metabolism, oxidative stress.

Purpose

To assess the disturbances of the activity of the TDM enzymes in the peripheral blood serum (PBS) of the patients with pulmonary drug susceptible and MDR-TB.

Material and methods

Indicators of the TDM: the level of total glutathione (tGSH), reduced glutathione (rGSH), oxidized glutathione (GSSG), rate rGSH/GSSG, activity of glutathione enzymes: glutathione-reductase (GR), glutathione-peroxidase (GPO), glutathion-S-transferase (GST), γ -glutamyl transpeptidase (γ -GTP) in 36 healthy individuals (control group-CG), 54 new cases with susceptible TB (1st study group-1st SG) and 56 new cases with MDR-TB (2nd study group-2nd SG)

Results

Indices of TDM: level of tGSH was statistically lower in both SG (1st SG and 2nd SG) compared with CG, lower in 1st SG (80%) and 2nd SG (85%); rGSH was moderately lower in both SGs. Concentration of GSSG was statistically diminished in SGs, lower in 1stSG (30%) vs 2ndSG (25%). The rate rGSH/GSSG was higher in 1stSG (1,19) vs 2ndSG (1,15). GST activity was decreased in 1stSG (33%) and increased in 2ndSG (30%). GR was moderately increased in both SGs. GPO was statistically increased in 1stSG (20%) and slightly increased in 2ndSG. γ -GTP was increased, with superior level in 2ndSG (83%) vs 1stSG (47%).

Conclusion. In susceptible TB and MDR-TB were established important deficiencies of the TDM, which permit development of programs for precocious diagnosis, prevention of complications and improvement of applied treatment.