

MANTOUX TUBERCULIN TEST AND THE LEVEL OF INTERFERON-GAMMA IN THE BLOOD

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Background: In Belarus, Tuberculin Skin Test is the main method of early detection of infection with *Mycobacterium tuberculosis* in children and adolescents. It is difficult to distinguish postinfectious allergic reaction from post-vaccination one in consequence of mass BCG vaccination. Sometimes, re-statement of Mantoux test is used, which can lead to false results ('accumulation effect'). To improve the diagnosis of latent infection and differentiation from post-vaccination reactions Test system based on measuring of the immune response of T-lymphocytes, express production of interferon-gamma (IFN-gamma) to mycobacterial antigens are used - QuantiFERON-TB, QuantiFERON-TB-GOLD, T- SPOT-TB.

Objective: The aim of the study is to mark the possible influence of tuberculin PPD-L on the level of IFN-gamma in the blood. Compare the sizes of skin induration at Mantoux test with indicators of IFN-gamma in the serum.

Material and Methods: In 2009 45 students were investigated. The level IFN-gamma in serum was determined. The first group was presented by 32 students which the standard Mantoux test was conducted before investigation of the level of IFN-gamma. The second group consisted of 13 students. Mantoux test was evaluated by standard criteria, the results were marked to educational journals. Statistical analysis was performed using STATISTICA 6.0 with nonparametric methods using. The significance of differences in the studied groups was analyzed by Mann-Whitney criteria.

Results: In the first group negative Mantoux test was noted in 31%, doubtful - 9%, positive - 57%, hyperergic one - 3%. Proportion of infected persons in the group was 69%. After the introduction of tuberculin the level of IFN-gamma in serum was significantly higher in students from the 1-st group than those surveyed in students from the second group. To determine the possible relationship between the results of Mantoux test and the level of IFN-gamma in the serum in the 1-st group three subgroups of students were determined: a) negative, b) doubtful and weak-positive with papula 5-11mm, c) expressed positive (more than 12mm) and hyperergic reaction. The highest content of IFN-gamma was observed in students with a negative Mantoux test. The level of IFN-gamma in students with the expressed positive and hyperergic reactions was 72% higher than that of students with doubtful and weak-positive reaction. A small number of cases does not allow to use for comparison the statistical criteria of differences between groups.

Conclusions: These results suggest inducing effect of tuberculin at the level of IFN-gamma in the serum. Differences in the content of IFN-gamma in serum depending on the result of Mantoux test are marked. The content of IFN-gamma was higher in persons with expressed positive and hyperergic reaction in comparison with students with doubtful and weak-positive reactions. The level IFN-gamma is higher in students with negative Mantoux test than that in infected persons.