

Cellular interferon-gamma based assay for diagnosis of pulmonary tuberculosis

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A major breakthrough in recent years has been the development of an in vitro assays that measure T-cell release of interferon gamma (IFN-gamma) in response to stimulation with antigens specific to *Mycobacterium tuberculosis* (MTB) such as early secreted antigenic target 6 (ESAT6) and culture filtrate protein 10 (CFP10). This study aimed at evaluating the diagnostic potential of IFN-gamma in vitro production assay for diagnosis of pulmonary tuberculosis. The study included 40 patients from Abbasia Chest Hospital, Cairo, Egypt. Thirty patients had the provisional clinical and radiological diagnosis of pulmonary tuberculosis (TB), twenty of them had positive acid fast (AF) sputum smears (group I), and ten had negative smears (group II). Bacteriological confirmation of TB was based on cultivation on L.J solid media (group I & II), and by BACTEC radiometric assay (group II). Ten patients with non tuberculous chest diseases were also included as a control group (group III). Effector T cells, within the peripheral blood mononuclear cells, which secrete IFN-gamma in response to stimulation by antigens specific for MTB (ESAT-6 and CFP-10) were analyzed in all subjects using a commercially available assay based on the enzyme linked immunospot technique. We demonstrated that 24 out of 30 (80%) suspected tuberculous patients were bacteriologically confirmed based on positive AF smears and/or culture. In vitro IFN-gamma release assay was positive in 22 of them giving a sensitivity of 91.7%. In the remaining 6 who were not confirmed bacteriologically, the assay showed positive results in 4 (66.7%) of them. Based on bacteriological diagnosis as the gold standard for diagnosis of pulmonary TB, the specificity of the assay was found to be 75%. However the assay results were negative in all non tuberculous patients (group III). It is concluded that the used in vitro IFN-gamma release assay has the potential to become a useful diagnostic tool for active tuberculosis.