

Correlation between Severity of Infection and Lymphocyte Subpopulations in Mycobacterium tuberculosis patients

Thesis

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Abstract

Tuberculosis is one of the three major killers among infectious diseases. Deciphering the interactions between *M. tuberculosis* and the innate and adaptive immune compartments of the host is critical for understanding the pathogenesis of tuberculosis and for designing effective immunotherapeutic interventions. (Vani et al, 2009)

The aim of the current study was to evaluate a panel of lymphocyte subsets (CD4⁺, CD8⁺ T cells, B lymphocytes, natural killer cells, T regulatory lymphocytes) and monocytes by flow cytometry in APTB patients compared to healthy controls (HCs) to elucidate their potential role in determining the immunity to infection, relation to disease severity and complications

EDTA anticoagulated peripheral blood samples were obtained from healthy donors and patients with pulmonary tuberculosis. These patients had clinical symptoms of pulmonary tuberculosis and positive tuberculin skin test results, acid-fast bacilli in sputum samples and *Mycobacterium tuberculosis* isolated from their sputum by automated BACTEC 960 TB culture system. Blood samples were collected after obtaining written informed consent, using protocols approved by our institutional ethics committee.

There was a significant decrease ($P < 0.01$) in hemoglobin level and the lymphocytic count, while the neutrophil count ($P < 0.001$) and ESR ($P < 0.0001$) were significantly higher in the APTB patients compared to HCs. The CD4⁺/CD8⁺ ratio was significantly lower ($P < 0.05$) and also the percentages of CD3⁻CD19⁺ cells were significantly lower ($P < 0.01$) in APTB patients than in HCs. The percentages of CD4⁺, CD8⁺, CD3⁻CD19⁺, CD14⁺, and CD3⁻CD(16+56)⁺ cells showed no significant differences in different groups of disease severity of APTB patients. However, there was a significant increase in the CD4⁺25⁺ cells in the group of APTB patients with advanced disease than in the mild disease severity group. ($P < 0.05$)

Key Words

Tuberculosis, Lymphocyte subpopulation, monocytes, disease severity