Immunophenotype and Th1/Th2 Cytokines in Patients with Adamantiades-Behçet’s Disease

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1. INTRODUCTION

Adamantiades-Behçet’s disease (ABD) is a chronic systemic inflammatory vasculitis, characterized by oral and genital ulcers and by cutaneous, ocular, arthritic and neurologic involvement¹. Although the aetiology of ABD remains unknown, genetic predisposition, immune dysfunction, infectious agents and environmental factors seem to contribute to the pathogenesis of this disease. On the other hand TCRγδ+ T-cells play a role in the innate immunity and are involved in inflammatory responses as well as in the pathogenesis of infectious diseases². Additionally, the immune response driven by the induction of specific type 1 or 2 cells is of critical importance in the pathogenesis of infectious, autoimmune and rheumatic diseases³. In the present study, the immunophenotype and Th1/Th2 cytokine profile in the peripheral blood lymphocytes were evaluated in patients with ABD.

2. PATIENTS AND METHODS

We studied 52 ABD patients, 34 males and 18 females, of age ranging from 17 to 60 years. All patients fulfilled the International Study Group
criteria. The patients were classified according to the disease activity in two groups: Twenty-eight patients with active disease (group A) and 24 patients in remission (group B). 45 healthy individuals, matched for age and sex served as normal controls (NC). Direct immunofluorescence in whole blood and analysis in an EPICS-XL (Beckman-Coulter) flow cytometer was used for determination of CD2+, CD3+, CD3+CD4+, CD3+CD8+, CD3-CD16/56+, CD19+, CD3+TCRγδ+, CD5+CD19+ lymphocyte subpopulations. The percentage of T-cells producing either IFN-γ and IL-2 (type 1 immune response Th1) or IL-4 and IL-10 (type 2 immune response Th2) was measured by flow cytometry after T-lymphocyte stimulation with PMA and ionomycin in short term cultures. Statistical analysis was performed with the non-parametric Wilcoxon signed-ranks test (SPSS).

3. RESULTS

The study showed a statistically significant increase of the percentage of T-lymphocytes expressing TCRγδ (5.7±5.0 vs 2.2±0.8, p=0.010) irrespective of disease activity (Fig. 1). It should be noted that a statistically significant high number of ABD patients (24/52, 46.3%) showed an increased percentage of TCRγδ T-cells (≥5%, where 5 equals the mean value + 2 SD of the mean value of the controls), whereas such a high percentage was not found in any control subject. No difference between ABD patients and NC was found in any other lymphocyte subpopulations (Fig. 2).

For ABD patients and in comparison to the controls a statistically significant increase of the percentage of T lymphocytes positive for IL-2 (20.5±10.3 vs 3.3±2.2, p<0.0001) for the patients with active disease and 11.0±1.8 vs 3.3±2.2 (p<0.0001) for the patients in remission was found, in comparison to normal controls. It should be noted that the percentage of IL2+CD3+ T-cells was significantly lower in the patients on remission in comparison to the patients with active disease (20.5±10.3 vs 11.0±1.8, p<0.0001). No significant differences were found between T-cells positive for IFN-γ, IL-4, IL-10 in ABD patients compared to NC (Fig. 3).