T- and B-Lymphocytes levels in children with Type 1 Diabetes in association with Candida infection

Stanimira Elkina, Svetla Blajeva, Irina Halvadzhiyan, Venetiya Botzova, Chayka Petrova
Department of Pediatric, Medical University of Pleven, Bulgaria

Introduction: Although type 1 diabetes (T1D) is most common autoimmune chronic metabolic disease in childhood, data about the role of T-Lymphocytes (T-Ly) and B-Lymphocytes (B-Ly) in children after the diabetes onset are still controversial. The impaired immune response in T1D is considered as a risk factor for candidal infections. Disorders of cell-mediated immunity in patients with T1D were already reported, but most of the studies are conducted in laboratory models and few are repeated in humans.

The aim of the study was to evaluate the serum levels of T- and B-Ly in children with T1D as a predisposing factor for genital candidiasis (GC).

Material:
We studied 71 children with T1D at the age of 6 to 18 years, divided into two groups – with and without GC and 30 age-matched healthy controls.

Methods:
A flow-cytometry immunophenotyping of T-Ly (CD3+), Ts (CD8+), Th (CD4+) and B-Ly (CD19+) was performed. Microbiological culture of genital discharge by the patients with T1D for diagnostic of GC was made. Glycated hemoglobin (HbA1c) for assessment of metabolic control of T1D was measured. HbA1c ≤ 7.5% was considered as a sign of good metabolic control. Statistical analysis with Statgraph and SPSS software was performed and as statistical significant a P-value < 0.05 was defined.

Results:
Positive cultures for candidal infection of genitilia had 24 (33.8%) of 71 studied diabetic patients. (Fig. 1)
Poor long term metabolic control in all researched T1D patients was found: HbA1c - 10.09±2.28%, significantly higher in the group with GC - 11.04±2.26% than those without infection - 9.39±2.18% (p=0.002).
(Fig. 2)
Serum levels of CD3+, CD4+ and CD8+ in all patients with T1D were found within the lower part of the normal reference range. No statistical significance with the healthy children was established (p>0.05).
(Tab. 1) Serum levels of B-Ly 11.02% in all diabetic children were significantly lower than those in healthy controls 14.52%, (p=0.001) (Fig. 3)
We found no significant differences between the researched T- and B-Ly levels in diabetic children with and without Candida. (Tab. 2)
No significant correlation between the immunological parameters and metabolic control (HbA1c) was found.

Discussion:
Our results consider poor long term metabolic control as a risk factor for genital candidiasis in children with T1D, which is consistent with literature data.

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