



Characterization of circulating CD4⁺ CD8⁺ double positive and CD4⁻ CD8⁻ double negative T-lymphocyte in children with β -thalassemia major

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Abstract:

Infectious complications represent the second most common cause of mortality and a major cause of morbidity in β -thalassemia major (BTM), with a prevalence of 12–13%. The data on unconventional T-lymphocyte subsets in BTM children are limited. The aim of the present study was to investigate and evaluate phenotypic alterations in CD4⁺CD8⁺ double positive (DP), CD4⁻ CD8⁻ double negative (DN), and natural killer T-lymphocytes (NKT) in BTM children in comparison to healthy controls. Our case control study included 80 children with BTM and 40 healthy children as controls. Assessment of unconventional T-lymphocyte populations was done using sensitive fourcolor flow cytometry (FACSCalibur). Our analysis of the data showed a significantly higher frequency CD4⁺ CD8⁺ (double-positive) T cells, CD4⁻ CD8⁻ (double negative) T cells, and natural killer T cells in the peripheral blood of both BTM groups (splenectomized and non-splenectomized) as compared to healthy controls, suggesting that these cells may play a role in the clinical course of BTM. The relationship of the unconventional T-lymphocytes to immune disorders in BTM children remains to be determined. Further longitudinal study with a larger sample size is warranted to elucidate the role these cells in BTM. UMIN-CTR study design: trial number UMIN000018950.

Keywords:

β -thalassemia major · CD4⁺ CD8⁺ · CD4⁻ CD8⁻ · NKT · T-lymphocytes

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