Conference Paper

Increased Iron in Pediatric β-Thalassaemia Major Associates with CD3+, Not γδ Lymphocytes

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Abstract

Iron in β-thalassaemia major can act as a double-edged sword. Inefficient erythropoiesis and repeated blood transfusion therapy undertaken by these patients contribute to accumulation of iron, where at the cellular level may cause danger since the rising rate of iron in its free form was very toxic to the cells and tissues. Severe infectious disease is the 2nd major cause of death in children with this genetic inheritance disease. Such a complication can be happened when impaired immune cells, burdened with siderophilic bacterial infection which still prevalence in Indonesia, can make β-thalassaemia major susceptible to the pathogen invasion. The γδ T cells and their Vδ2+ subset functioned as innate and adaptive immune also specifically recognizes pathogen. The purpose of this study was to characterize γδ T cells and Vδ2+ subset also investigate the correlation between iron level and percentage of lymphocyte, CD3+ T cells, γδ T cells, and Vδ2+ subset then expression of T-cell receptors, they are CD3 and γδ in pediatric β-thalassaemia major. Flow cytometry was used to characterized and measure the cells parameters. Cross sectional study was done involving 51 pediatric β-Thalassaemia major patients who visit thalassemia clinic. Respectively, there was significant positive correlation between increased serum iron and ferritin level and number of lymphocyte (r = 0.15, P = 0.005) also between number of CD3+ T cells subset and ferritin level (r = 0.42, P = 0.002). In conclusion, iron overload is related to alteration of lymphocyte population and CD3+ T cells subset in pediatric β-thalassaemia major patients.

Keywords: Iron, lymphocyte, γδ T cell, Vδ2+ T cell, thalassemia.

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