Leukocytes apoptosis and adipocytokines in children with beta thalassemia major

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Abstract:

β-Thalassemia is a significant public health problem in Egypt. Infectious complications represent the second most common cause of mortality and the major cause of morbidity in β-thalassemia major (BTM). The increased susceptibility of these patients to infectious diseases has been attributed to the abnormalities of the immune system, which is evident by systemic inflammation and immune deficiency. In a case control study, 35 patients with BTM were compared with 30 sex- and age-matched children who served as controls. Serum ferritin, high-sensitive CRP (hsCRP), leptin and adiponectin levels were determined in all subjects. Apoptosis of neutrophils and lymphocytes was measured by the Annexin V-fluoroisothiocyanate binding assay. Serum leptin was significantly lower in patients when compared to controls. In contrast, adiponectin and hsCRP levels were significantly higher in the patients than the controls. Positive correlation was found between adiponectin and hsCRP. BTM patients had significantly higher total leukocytes, neutrophils and lymphocytes compared with controls. BTM children exhibited a significantly increased apoptosis in T-lymphocytes; however, there was no significant difference in the percentage of apoptosis of B-lymphocytes and neutrophils between the patients and the controls. There was a significant negative correlation between serum leptin and the percentage of apoptotic T-lymphocytes. Our BTM patients had a high percentage of apoptotic T-lymphocyte in comparison with controls. In addition, they had disturbed serum levels of adipocytokines and inflammatory markers. These derangements could have a role in the immunological disturbance observed in thalassemic patients.

Keywords:

Adiponectin – Apoptosis – Leptin – Inflammatory markers – Thalassemia

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