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Serum Interlukin-8 and Immunomodulation in Beta Thalassemia Patients

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Abstract : Several immunologic defects can be found in patients with beta-thalassemia, among which the impairment of neutrophil phagocytic function is of utmost importance. Attention has been directed to the role of proinflammatory cytokines in neutrophil chemotaxis and phagocytosis. Interleukin-8 (IL-8) is an important chemotactic and activation peptide for neutrophils; changes in IL-8 level and potential correlation with neutrophil function can be relevant to immunomodulation pathophysiology in beta-thalassemia patients. This case-control study aimed to evaluate IL-8 level and to assess granulocyte recruitment, as markers of immunomodulation, in poly-transfused thalassemia patients attending Fayoum University Hospitals. The study was conducted on 50 patients with ß thalassemia and 32 age-matched controls. 21/50 patients were transfused more than ten times, and 29/50 were transfused in a lower frequency. Patients and controls were subjected to thorough history taking and clinical examination, measurement of IL-8 level using human IL-8 ELISA kit, and Rebuck skin window technique (RSWT) to assess granulocyte recruitment. Our data showed statistically significant higher levels of IL-8 in ß thalassemia patients compared to control with a much higher difference in patients transfused more than ten times. Neutrophil recruitment was significantly lower in ß thalassemia patients compared to control at 4 hours and 24 hours test time. Although IL-8, the main chemotactic pro-inflammatory cytokine showed a higher level in thalassemia patients, neutrophils recruitment was significantly lower, especially in those receiving more than ten transfusion times. Our findings suggest a possible role of other neutrophil chemotactic factors, defective neutrophil response, or increased IL-8 as compensation of abnormal function. We recommend the use of IL-8 and Rebuck skin window technique as useful markers of immunomodulation in thalassemia and further study for these biomarkers to assess their clinical implications and impact on the management of thalassemia patients.

Keywords : beta-thalassemia, Interleukin-8, Rebuck skin window technique, immunomodulation
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