

# Increased IL-17 and TGF- $\beta$ serum levels in peripheral blood of patients with $\beta$ -thalassemia major: implication for continual transfusions role in T helper 17-mediated proinflammatory responses

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**Abstract:** Background/aim: Recent studies have shown that IL-17-producing CD4<sup>+</sup> T helper (Th17) cells play an important role in proinflammatory processes. In this report we analyzed IL-17, IL-21, and TGF- $\beta$  serum levels in the peripheral blood of Iranian beta-thalassemia major patients that clinically exhibited splenectomy and iron overload. Materials and methods: Blood samples were collected from 43 beta-thalassemia patients and 43 healthy individuals with no history of malignancies or autoimmune disorders. Then serum levels of IL-17, IL-21, and TGF- $\beta$  were measured by enzyme linked immunosorbent assay (ELISA). Results: The levels of IL-17 ( $P = 0.005$ ) and TGF- $\beta$  ( $P < 0.001$ ) were significantly higher in the thalassemia patients compared to the healthy control. No significant differences in the level of serum IL-21 was observed between the patients and controls. There were no significant differences in serum levels of IL-17, IL-21, and TGF- $\beta$  between patients with high or low serum levels of ferritin. Conclusion: Multiple blood transfusions cause constant immune stimulation, as a result of repeated exposure to new alloantigens. This might have significant effects on the stimulation of cytokine producing cells in those patients and cytokine profile can be used as a related marker for assessing disease severity and consequently therapeutic intervention.

**Keywords:** Beta-thalassemia, interleukin-17, interleukin-21, transforming growth factor beta