**Abstract**

**Objective:** To evaluate local and systemic levels of interleukin-10 (IL-10), IL-33, and tumor necrosis factor alpha (TNF-α) in Thalassemia major (TM) in the presence of gingival inflammation.

**Materials & Methods:** 58 patients(TM, n=29 and systemically healthy controls, n=29) were included to the study. IL-10, IL-33, and TNF-α levels were evaluated in gingival crevicular fluid (GCF), saliva and serum. Clinical periodontal measurements were recorded.

**Results:** GCF IL-33 total amounts in TM and gingivitis group were elevated compared to systemically and periodontally healthy group (p=0.01). GCF IL-10, IL-33 and TNF-α concentrations were higher in TM and periodontally healthy group than the systemically healthy and gingivitis group (p=0.02, p=0.008, p=0.003). Serum IL-10 levels were elevated in TM and gingivitis compared to the systemically healthy and gingivitis (p=0.0009) and systemically and periodontally healthy (p=0.0007) groups. Serum IL-10 and TNF-α levels in TM and periodontally healthy group were higher than systemically and periodontally healthy group (p=0.01 and p=0.02).

**Conclusion:** TM may potentially alter circulating levels of IL-33 and IL-10 and therefore, may affect the degree of periodontal inflammation locally or vice versa. Yet, the underlying mechanism linking the hematologic condition is not clear and deserves further investigation.

**Key words:** Gingivitis,Thalassemia major, IL-10, IL-33, TNF-α