The presence of leptin (OB) and soluble OB receptor (s-OB-R) in gingival tissue extract and gingival crevicular fluid has led the studies investigating the relationship between OB and periodontal diseases. This study aims to investigate the levels of OB and s-OB-R in serum and their presence in gingiva of healthy controls (HC), gingivitis (G), aggressive periodontitis (AP), and chronic periodontitis (CP) patients; and whether correlations exist between clinical and serum parameters, OB and s-OB-R.

Seventy-seven subjects [HC (n = 20), G (n = 20), CP (n = 21), and AP (n = 16)] were included in this study.

After the clinical periodontal parameter recordings and venous blood sampling, gingival tissues obtained. Serum parameters' levels determined with enzyme linked immune sorbent assay; and OB and OB-R in gingiva immunohistochemically. No significant differences were observed
regarding the serum parameters [high sensitivity C-reactive protein (hs-CRP), lipids, OB, and s-OB-R] when the groups were compared ($P < 0.0125$). The serum OB has positive correlations with hs-CRP in the G group ($P < 0.05$), and s-OB-R has presented significant negative correlations with BOP in HC group ($P < 0.05$), with hs-CRP in G ($P < 0.05$), and AP groups ($P < 0.05$). The positive correlations were observed between the serum OB and HDL and body mass index in the CP group ($P < 0.05$). In
all of the tissue samples of all groups, there was positive OB and OB-R immunoreactivity in the gingival epithelium.

The gingival tissues contain both OB and OB-R. The serum levels of OB and s-OB-R do not vary between patients and with different periodontal conditions.