**ABSTRACT**

**Background:** The biological functions of periostin, a matricellular protein, include the importance of it for connective tissue integrity in both health and disease along with regulation in formation of bones. The purpose of this present study was to assess the levels of periostin in gingival crevicular fluid of patients with chronic periodontitis and aggressive periodontitis and to compare them with that of healthy subjects.

**Materials and methods:** A total of 39 individuals were enrolled in the study. Individuals were divided into three groups following clinical and radiographic examinations: the healthy group (n = 13), the chronic periodontitis group (n = 13) and the aggressive periodontitis group (n = 13). Gingival crevicular fluid samples were collected using microcapillary pipette and periostin levels were determined using the enzyme-linked immunosorbent assay.

**Results:** The mean levels of total periostin in gingival crevicular fluid were 182.41 pg/μl, 79.87 pg/μl and 49.28 pg/μl for the healthy, chronic periodontitis, aggressive periodontitis groups respectively. There was a statistically significant difference between the groups (p < 0.05). The mean levels of total periostin in gingival crevicular fluid were significantly lower in the chronic periodontitis and aggressive periodontitis groups than in the healthy controls. There was a statistically significant difference among healthy and chronic periodontitis groups (p < 0.05), among healthy and aggressive periodontitis groups (p < 0.05) and also among chronic periodontitis and aggressive periodontitis groups (p < 0.05). When all clinical groups were examined together, there were negative correlations between periostin levels in gingival crevicular fluid and age, mSBI, Plaque Index, CAL (r = -0.303, -0.788, -0.655, -0.691 respectively).
**Conclusion:** The periostin levels in gingival crevicular fluid decreased with increased severity of the periodontal disease. When the results in the present study are considered in conjunction with those of previous reports, it might be concluded that the periostin level in gingival crevicular fluid can be considered as a reliable marker in the diagnosis of periodontal diseases and disease activity.

**Key words:** Gingival crevicular fluid; ELISA; periostin; chronic periodontitis; aggressive periodontitis.