Objective: Interleukin (IL)-1β, IL-4, IL-6, and tumor necrosis factor (TNF-α) are forefront cytokines in the periodontitis pathogenesis. Therefore, this study aimed to test the hypothesis that overweight rats with periodontitis have higher pro-inflammatory cytokines and/or adipokines, and lower anti-inflammatory cytokines and/or adipokines in serum than normal weight rats. Material-Method: Thirty-two 4-month old male Wistar rats were divided into 4 groups: normal weight, periodontally healthy rats (NH, n = 8), normal weight rats with periodontitis (NP, n = 8), overweight, periodontally healthy rats (OH, n = 8); and overweight rats with periodontitis (OP, n = 8). Periodontitis was induced by ligature for 14 days. The serum cytokine’ and adipokine’ levels were investigated using ELISA. Results: IL-4 levels were higher in the NH and NP groups than their counterparts in the overweight rats (P < 0.01). The IL-6 level was significantly higher in the OP group than in the NP group (P < 0.01). The adiponectin level was significantly higher in the NH group than in the OH and OP groups (P < 0.01). Leptin and resistin levels didn’t differ significantly among the groups (P > 0.01).