

Display Settings: Abstract

J Periodontol. 2010 Oct 8. [Epub ahead of print]

The Effect of Low Level Laser Therapy as an Adjunct to Non-Surgical Periodontal Treatment.

Aykol G, Baser U, Maden I, Kazak Z, Onan U, Tanrikulu-Kucuk S, Ademoglu E, Issever H, Yalcin F.

Abstract

Background: The aim of this study was to evaluate the effect of low level laser therapy (LLLT) as an adjunct to non-surgical periodontal therapy of smoking and non smoking patients with moderate to advanced chronic periodontitis. **Methods:** All 36 systemically healthy patients who were included in our study, initially received non-surgical periodontal therapy. The LLLT group (n=18) received GaAlAs diode laser therapy as an adjunct to non surgical periodontal therapy. A diode laser with a wavelength of 808 nm was used for the low level laser therapy. Energy density of 4 J/cm² was applied to the gingival surface following the periodontal treatment on the 1(st), 2(nd) and 7(th) days. Each of the LLLT and control groups were divided into two groups as smoking and nonsmoking patients to investigate the effect of smoking on the treatment. GCF samples were collected from all patients and clinical parameters were recorded on baseline, the 1st, 3rd and 6th months after treatment. Matrix metalloproteinase (MMP)-1, tissue inhibitor matrix metalloproteinase (TIMP)-1, transforming growth factor (TGF)- β 1 and basic-fibroblast growth factor (b-FGF) levels in the collected gingival crevicular fluid (GCF) were measured. **Results:** The primary outcome variable was gingival bleeding and inflammation changes in this study. At all time points, the LLLT group showed significantly more improvement in SBI, CAL, PD levels when compared to the control group (p<0.001). There were clinically significant improvements in the laser applied smokers' PD and SBI levels when compared to smokers to whom laser was not applied, between the baseline and all time points (p<0.001). (SBI score; control group: 1.12, LLLT group: 1.49, PD; control group: 1.21mm, LLLT group: 1.46mm, between baseline and 6 months). TGF- β 1 levels and the ratio of MMP-1 to TIMP-1 decreased significantly in both groups in 1, 3 and 6 months after periodontal therapy (p<0.001). b-FGF levels significantly decreased in both groups at the 1(st) month after the treatment, then increased at the 3(rd) and 6(th) months (p<0.005). No marker level change showed significant differences between the groups (p<0.05). **Conclusion:** LLLT as an adjunctive therapy to nonsurgical periodontal treatment improves periodontal healing.

PMID: 20932157 [PubMed - as supplied by publisher]

LinkOut - more resources