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Effect of Low Level Laser Therapy on Gingival Inflammation in Patients undergoing Fixed Orthodontic Treatment. A Randomized Clinical Trial

By

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Abstract

Background: Gingival inflammation commonly occurs outstanding to microbial plaque especially in orthodontic patients. The aim of this study was to compare the effect of Low Level Laser Therapy (LLLT) with non-LLLT as an adjunct to mechanical debridement in patients who develop gingival inflammation during fixed orthodontic treatment. **Materials and Methods:** Thirty subjects undergoing comprehensive fixed orthodontic treatment were randomly allocated. Split mouth design was applied for each patient, where the four quadrants were randomly allocated to receive full mouth debridement. The test group (quadrant) received three laser sessions (days 1, 3 and 5) besides debridement while the control group (quadrant) received debridement only. Both bleeding index (BI) and plaque index (PI) were measured after 1 and 3 months. Samples of gingival crevicular fluid (GCF) using sterile paper points were collected before and after 2 weeks and 6 weeks of treatment to identify aerobic and anaerobic bacteria and the total colony forming units (CFU) were measured. **Results:** Clinical assessments (BI and PI) showed a statistically significant decrease at the first follow up (after 1 month) and a slight increase in the second (after 3 months), that didn't reach the base line. The total colony forming units (CFU) showed a significant decrease in both follow ups. **Conclusion:** Laser showed superior results in the treatment of gingival inflammation induced by fixed orthodontic appliances other than debridement only.