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Clinical Outcomes of Low-level Laser Therapy in Management of Advanced Implant Surgery Complications: A Comparative Clinical Study.

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Abstract

INTRODUCTION: Nowadays, implant insertion is accompanied by undesired consequences. As **surgery** techniques become more and more complex, an increase of intra- and post-op complications can be expected. Application of low-level **laser** (LLL) is one of the conservative approaches to control the complications with any side effects and low treatment costs. The present study aimed to evaluate the effect of 650 nm LLL irradiation on the reduction of complications after advanced implant surgeries.

MATERIALS AND METHODS: In this triple-blinded clinical trial, 30 patients aged between 25 to 65 years were in need of bone graft or sinus lift procedure for simultaneously implant insertion. In the LLL treatment group, the **surgical** site of each implant was treated with 650 nm **laser**. The same method and duration were applied in the placebo group. The pain levels, facial swelling, and wound

healing were evaluated.

RESULTS: This study indicated that pain levels were reduced in the **laser** group ($p < 0.05$). Also, facial swelling in the 3rd and 7th day after the **surgery** relieved more in **laser** group. Furthermore, investigation of the **surgical** site showed a higher level of wound healing in the **laser** group ($p < 0.05$).

CONCLUSION: Regarding the biological effects of advanced implant surgeries and accompanying complications, adjuvant treatment with a **laser** could significantly improve wound healing and reduce the severity and duration of pain and swelling.

CLINICAL SIGNIFICANCE: This clinical trial demonstrates reductions of the level of pain, facial swelling and improvements of wound healing are followed by the use of low-level **laser therapy**.

KEYWORDS: Dental implant; Edema; Low-level **laser therapy**; Pain control Wound healing.

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