

عنوان مقاله:

Combined Effect of Low-Level Laser Treatment and Levothyroxine on Wound Healing in Rats With Hypothyroidism

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خلاصه مقاله:

Abstract Introduction: Hypothyroidism delays wound healing by reducing the synthesis of keratinocytes, fibroblast cells, and collagen. Methods for enhancement of wound healing include laser therapy and hormone therapy. The current study evaluated the combined effect of laser and levothyroxine therapy to cure wounds in male rats with hypothyroidism. **Methods:** Sixty male Wistar rats were randomly divided into 5 groups: (1) healthy controls; (2) controls with hypothyroidism; (3) hypothyroidism + laser treatment; (4) hypothyroidism + levothyroxine treatment; (5) hypothyroidism + laser + levothyroxine treatment. Hypothyroidism was induced by dissolving 4 mg of methimazole in 100 mL of drinking water daily for 28 days. After hypothyroidism had been confirmed, a longitudinal incisional wound was created on the dorsal rib cages of the rats. The wounds that received laser treatment were divided into 12 sections and treated at 810 nm wavelength and 0.2 J/cm² of energy density for 200 seconds. Levothyroxine was administrated in doses of 20 µg/kg/d i.p. All groups were divided into 3 subgroups for testing on days 4, 7 and 14. Samples were collected in all the subgroups. **Results:** The results showed that hypothyroidism reduced fibrous tissue volume, fibroblasts, and basal cell numbers. The combined effect of laser and levothyroxine improved all parameters. **Conclusion:** Combined laser and levothyroxine treatment showed the best effect on wound healing and accelerated the closure of the wounds. **Keywords:** Hypothyroidism Wound healing Laser Levothyroxine histomorphological alteration

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