

Comparative analysis of coherent light action (laser) versus non-coherent light (light-emitting diode) for tissue repair in diabetic rats

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Lasers in Medical Science Volume 24, Number 6, 909-916, DOI: 10.1007/s10103-009-0648-5

Abstract

The already known benefits produced by the interaction of coherent light (laser) with biologic tissues determine its use as an adjuvant in the treatment of several complications associated with diabetes. Non-coherent light, such as that emitted by light emitting diodes (LEDs), becomes a promising alternative, because of its low cost and easy handling in these applications. Thirty-six rats were given surgical dorsum lesions. The lesions for the control group did not receive any supporting therapy. The other groups were irradiated only once, 30 min after the establishment of the lesion, with LED (640 nm with 40 nm full bandwidth at half maximum) or laser (660 nm). The histomorphological and histomorphometrical parameters were quantified. The coherent and non-coherent lights produced similar effects during a period of 168 h after the lesions had been made. For the group composed of diabetic animals, 72 h after creation of the lesion, it was observed that the therapy with LEDs had been more efficient than that with the laser in the reduction of the wounds' diameters.