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Program Book

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Immunohistochemical identification of heat shock proteins in experimentally induced ulcer treated with diode laser

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Heat shock proteins (HSPs) are present in cells under normal conditions and over-expressed in terms of stress and thermal shock. The diode laser has been used in various treatments in dentistry, to reduce symptoms and accelerate the repair of traumatic ulcers. The aim of this study was to verify, by means of immunohistochemical expression analysis of HSPs (Hsp27 and Hsp 47). After approval of USP animal's ethical committee, 56 rats, in which ulcers were induced on tongue's ventral surface, were divided into 4 groups: **GL**-group with ulcer and later laser irradiation (diode laser parameters: 0.5 W power, pulsed (10 Hz), for 40 seconds (defocused), 80J/cm² total power in area (0.25cm²) **GN**- group with ulcer and without any further processing; **CP**- control group without ulcer and with laser irradiation (same parameters as in GL); and **GN**-control group without ulcer and without any further processing. In the semi-quantitative analysis of immunohistochemical expression of Hsp27, greater expression of Hsp27 was shown in GL in comparison with the other groups in general. In quantitative analysis of Hsp47, there was a larger quantity of positive cells in GL, when compared with the other groups, particularly in the regions closest to irradiated surface. It was concluded that laser irradiation set off greater and different patterns of intensity of Hsp27 and Hsp47, in comparison with those of the other groups. This indicates that the irradiated tissue suffered higher cellular stress, with tissue response of intense migration and cell differentiation, as well as increased collagen synthesis.

Keywords: Diode laser, Heat shock protein, Oral ulcer, Hsp47, Hsp27.