

HE-NE LASER RADIATION EFFECTS ON MICE SKIN WOUND HEALING. A RADIOAUTOGRAPHIC STUDY

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The effects of low intensity s- and p-polarized He-Ne Laser radiation (1 632.8nm, $I = 5\text{mW/cm}^2$) on healing of skin wounds in mice were investigated by radioautography after ³H-proline administration to evaluate the rate of collagen synthesis in the dermis. Five experimental groups of 2 animals each were used. Two lesions about 6 mm in diameter were induced on the shaved skin of back of each mouse with liquid nitrogen during three consecutive days. One of the lesions was irradiated by either He-Ne s-polarized or p-polarized radiation and the lesion was not irradiated (control lesion). The irradiations were performed on the 3rd, 7th, 10th and 14th days after the beginning of the experiment. The last group was sacrificed on day 17. After each irradiation the animals were injected with ³H-proline and killed after 1h. Seventeen days post-wounding the skin of all groups was completely reepithelized. However, several differences were observed in the dermis. In the control group many inflammatory cells were present and the fibroblasts were large and had basophylic cytoplasm. s-irradiated dermis was composed by fibrocytes and thick collagen fibers. Small areas, however, still showed signals of regeneration. In the p-irradiated dermis, signs of tissue damage were no longer present. The curve of incorporation of ³H-proline showed that: a) both irradiated groups (i.g.) showed a very similar pattern of incorporation; b) the incorporation in s-polarized dermis was slightly higher than in p-polarized during the first 7 days; c) both groups showed a higher incorporation on day 3 than the control group (c.g.); d) in the i.g. groups, however, the incorporation decrease on day 7 and increase again up to a peak on day 14; e) the incorporation in c.g. starts lower but progressively increases up to day 10 when it decreases below the levels of i. g. On the 17th day, however, both control and irradiated dermis had similar levels of incorporation. These preliminary results indicate that laser radiation induces waves of proline incorporation which start earlier in the wounded dermis and thus which could be related with the improvement of wound healing.