

Effects of Helium-Neon Laser on Levels of Stress Protein and Arthritic Histopathology in Experimental Osteoarthritis

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Abstract

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Objective: To investigate the effect of low-power laser therapy on levels of stress proteins (SPs) in experimental arthritis and their relation to the bioeffects on arthritic cartilage repair.

Design: A total of 42 rats with similar degrees of induced arthritis evaluated by means of bone scan were divided randomly into two groups. In the treated group, 21 rats received helium-neon laser treatment; in the control group, 21 rats received sham laser treatment. The changes in chondrocytes of SPs were measured by electrophoresis of proteins extracted from chondrocytes of arthritic cartilage at various time periods. The histopathologic changes and the presence of SP of arthritic cartilage were identified by hematoxylin and eosin stain and by immunostains of SP72 antibody individually from frozen sections of arthritic cartilage.

Results: SP density increased markedly in rats after laser treatment and was closely related to the repair of arthritic cartilage. Furthermore, the pathohistology of arthritic cartilage improved significantly with the decline of SP levels in the follow-up period.

Conclusion: Helium-neon (632 nm) low-power laser can enhance SP production in arthritic chondrocytes. The extragenic production of SP is well correlated with the therapeutic effect of low-power laser in preserving chondrocytes and the **repair of arthritic cartilage in rats.**

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