عنوان مقاله:

The Combined Effects of Mesenchymal Stem Cell Conditioned Media and Low-Level Laser on Stereological and Biomechanical Parameter in Hypothyroidism Rat Model

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Abstract Introduction: Many studies have shown the positive effect of laser radiation and application of the mesenchymal stem cells (MSCs) and their secretion in stimulating bone regeneration. The aim of this study was determining effects of MSC conditioned media (CM) and low-level laser (LLL) on healing bone defects in the hypothyroid male rat.Methods: We assigned ۳۰ male Wistar rats randomly to ۳ groups: control, hypothyroidism, CM+LLL. Four weeks after surgery, the right tibia was removed. Biomechanical examination and histological examinations were performed immediately.Results: Our results showed significant increase in bending stiffness (۱۱۶.۰۹ ± ۱۸.۴۹), maximum force (۶۵.۴۱ ± ۸.۱۶), stress high load (۲۳.۳۰ ± ۷.۱۴), energy absorption (۳۴.۵۷ ± ۴.۱۰), trabecular bone volume (۱.۳۴ ± ۰.۳۸) and the number of osteocyte, osteoblast, and osteoclast (۱۲.۷۷ ± ۰.۵۴, ۶.۱۹ ± ۰.۸۰, ۱.۱۲ ± ۰.۱۶ respectively) in osteotomy site in the LLL + CM group compared to the hypothyroidism group (P < ۰.۰۵).Conclusion: The results indicated that using the LLL + CM may improve fracture regeneration and it may hasten bone healing in the hypothyroid rat. Keywords: Hypothyroidism low-level laser condition Media BMSC

کلمات کلیدی:

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