Effect of Polydeoxyribonucleotide on Tendon Healing and Fatty Degeneration in Arthroscopic Rotator Cuff Repair: A Randomized Controlled Trial

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Summary:
PDRN may have possibility to improve tendon healing and decrease fatty degeneration after arthroscopic repair of rotator cuff tear associated with growth factor.

Data:
Introduction: Polydeoxyribonucleotide (PDRN) has been recently used as a tissue regeneration activator. This study was performed to explore the effects of PDRN on tendon healing and reversal of fatty degeneration in arthroscopic rotator cuff repair. Materials and Methods: Sixty patients with rotator cuff tears who had undergone arthroscopic rotator cuff repair were enrolled in this single center, double-blinded randomized controlled trial study. Thirty patients were randomly allocated to group 1 and received PDRN injection to the repair site during the surgery. The other 30 patients were allocated to group 2 and underwent saline injection. In outpatient department, all the patients in the two groups were injected with the same materials to the repair site under ultrasonic guidance at 2 weeks after surgery. The Visual analog scale (VAS) for pain, American Shoulder and Elbow Surgeon’s score (ASES), Constant score, range of motion and muscle power were checked at preoperatively and until postoperative 1 year. Follow-up MRI was checked at postoperative 6 month. The mean plasma levels of vascular endothelial growth factor (VEGF), fibroblast growth factor (FGF) and insulin-like growth factor (IGF) were checked until postoperative 6 months. Results: In the two groups, the overall functional outcomes improved after surgery. Group 1 showed a significant decreased VAS score at 16 weeks after surgery compared with that in groups 2 (P=0.014). And group 1 showed a significant decreased fatty degeneration of supraspinatus and infraspinatus on follow-up MRI at 6 months after surgery (P=0.028 and P=0.030). On the follow-up MRI, group 2 showed higher retear rate than group 1, but this difference did not reach a statistical significance (G1 : G2 = 4 : 8, P=0.333). Group 1 showed a significantly higher mean plasma FGF level postoperative 1 hour and 6 weeks than group 2 (15.5±11.1; P=0.008, 7.9±6.0; P=0.001). Conclusion: PDRN may have possibility to improve tendon healing and decrease fatty degeneration after arthroscopic repair of rotator cuff tear associated with growth factor.

Category: Shoulder - Rotator Cuff

Photobiomodulation Home-Use Device Reduces Pain and Improves Quality of Life Post Arthroscopic Rotator Cuff Repair - A Double-Blind, Sham-Controlled, Randomized Clinical Trial

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Summary:
Self-applied photobiomodulation significantly accelerates reduction in pain and improvement in quality of life following rotator cuff arthroscopic repair.

Data:
Objective: The rehabilitation period following rotator cuff arthroscopic surgery (RCAS) is characterized with significant pain and reduced quality of life (QOL). The current study was designed to evaluate the efficacy of self-applied photobiomodulation (PBM), a non-ionizing, non-thermal red to near-infrared optical irradiation, during the first 6 months post-RCAS. Methods: This was a prospective, double-blind, sham-controlled, randomized, clinical trial (NCT04593342). Patients (n=50, Age 55±7yo, Male:Female 29:21) that underwent primary RCAS were randomized to receive active (n=22) or sham (n=28) B-Cure Laser PBM devices (Erica Carmel, Haifa, Israel) and to self-apply the treatments (808nm, 15minutes, 16.5J/cm2) at home additionally to standard care. Outcomes

Category: Shoulder - Rotator Cuff