The Management of Facial Hypertrophic Scars By Using Fractional CO2 Laser, Adipose-Derived Stem Cells, Regenerative Epithelial Suspension and Lipoinjection Combination

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INTRODUCTION: Facial burns often get an inextricable situation in terms of healing and long-term morbidity. Many different procedures were used to overcome these challenging topics. Although results were more promising in terms of surgeons, is inadequate for patients. We present the efficiency of fractional CO2 laser(FL), Adipose-Derived stem cells(ADSC), Regenerative Epithelial Suspension(Recell®) and lipoinjection combination treatment on facial hypertrophic scars due to burns(FS).

MATERIAL AND METHODS: 20 patients(M: 12,F: 8) among the ages of 18-38 years(Mean:25.6) between 2012-2016 were included. Skin thickness and perfusion were assassed by using ultrasonography, Vectra® computer simulation was performed to obtain symmetric lipoinjection, skin biopsies were performed, hematoxylin-eosin, and Movat pentachrome staining were carried out on preoperative and postoperative 12. months. ADSC-enriched lipoinjection and FL was performed, Recell® was administered following. All of the patients underwent a satisfaction questionnaire.

RESULTS: Mean follow-up was 18(14-24) months. A significant improvement in skin softness, thickness, elasticity, color and symmetry was obtained in all patients. An increase in Keratinocyte, type 1 collagen; a decrease in nodular type 3 collagen and elastin, epidermal rete ridges, proteoglycan, fibronectin, neurofilament, T cells, macrophages and mast cells was observed in the histopathological studies. A significant reduction in skin thickness, scar microcirculation and an increase in fatty tissue rates were obtained from USG, and all patients had higher scores in questionnaire.

CONCLUSION: FL has an active role on smoothing and regression of FS. ADSC-enriched lipoinjection is effective in the long term management of facial asymmetry. The Recell® application increases the amount of keratinocytes and provides significant skin quality.

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