Efficacy of stem cell-conditioned medium vs. platelet-rich plasma as an adjuvant to ablative fractional CO2 laser resurfacing for atrophic post-acne scars: a split-face clinical trial.

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Abstract:

Objectives: To explore the impact of using topical stem cell-conditioned medium (SC-CM) after fractional carbon dioxide laser (FCL) vs. combined FCL and platelet-rich plasma (PRP) or FCL alone in treatment of atrophic acne scars. Methods: Thirty-three patients were randomly divided into two split-face groups. Group I (n = 17) received FCL plus topical SC-CM on one side or FCL plus saline on the other. Group II (n = 16) received FCL plus topical PRP or SC-CM. All patients had three monthly sessions. Clinical assessment was done at each visit, with a final assessment after 3 months. Skin biopsies were obtained for histological and quantitative molecular analysis after treatment. Results: No significant difference in clinical improvement of acne scars was observed between the FCL/SC-CM and FCL only sides (p = .63), while better and faster improvement was detected on FCL/PRP side compared to FCL/SC-CM side (p = .006). There was no significant difference in downtime or adverse effects between the treated sides in either group. Dermal collagen was increased and procollagen type I gene was upregulated in both FCL/PRP and FCL/SC-CM sides compared to FCL only sides (p = .001 and p = .041, respectively). Conclusions: Topical SC-CM could potentially enhance the efficacy of FCL. However, PRP seems to be a better alternative.

Keywords:

Atrophic acne scars; fractional carbon dioxide laser; platelet-rich plasma; stem cell-conditioned medium

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