



Combined superficial & deep fractional skin treatment for photodamaged skin--a prospective clinical trial.

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Abstract

BACKGROUND AND OBJECTIVES: Deep microthermal zones targeted by Fractional CO(2) lasers stimulate fibroblast activity, whereas superficial microthermal zones target the epidermal layer pigment. The new combination modality enables targeting both deep and superficial disorders. The study is designed to evaluate the improvement in photodamage and determine downtime.

MATERIALS AND METHODS: This IRB approved study was aimed to evaluate histology phenotype of combined deep and superficial skin resurfacing. A 120-micron, focused CO(2) laser beam was used to create both deep and superficial fractional skin resurfacing using ultrapulse and continuous wave laser modes, respectively. Fifteen patients (skin types II-V) underwent combined treatment and returned for assessment at 1 week, 1 and 3 months to evaluate the clinical outcome. Additional histological analysis of human tissue was performed to elucidate the combined impact on tissue.

RESULTS: Pre-clinical histologies demonstrated the ability to achieve fractional discrete 1.3-mm-diameter spots of superficial ablation with a uniform shallow and narrow area of coagulation while maintaining the deep, fractional 120-micron-ablation spot capabilities. Histologies of the human tissue confirmed the ability to control both superficial and deep fractional treatment using a single handpiece. Pigmentation was greatly reduced at the 1 month follow-up with significant textural improvement. No unexpected AEs or SAEs were reported.

CONCLUSION: The new modality enables combined superficial and deep fractional impact and improvements that are demonstrated at both the phenotype and tissue level.

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