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Digital ultraviolet reflectance photography can be used to quantify improvements in photodamage

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KEYWORDS

erbium:YAG laser • photodamage • ultraviolet reflectance

Objective Increasing attention has focused on the treatment and reversal of ultraviolet- induced photodamage. This study was designed to determine whether ultraviolet reflectance photography could quantify the clinical effects of erbium:YAG laser resurfacing on photoaged skin.

Methods Twenty patients (ages 46–67) with moderate to severe photodamage underwent dual-mode variable pulsed erbium:YAG laser facial resurfacing. Pretreatment and post-treatment evaluations at 3 and 6 months were performed clinically and photographically with white and ultraviolet reflectance photography.

Results Image conversion of the ultraviolet reflectance imaging data demonstrated an average of 36% and 42% reduction in photodamage at 3 and 6 months, respectively. This correlated well with the wrinkle reduction and correction of dyspigmentation observed in all patients following laser resurfacing. Histologic examination confirmed a thicker, more orderly epidermis and dermal collagen remodeling after treatment.

Conclusion Reduction in photodamage using the dual-mode variable pulsed erbium:YAG laser can be quantitatively measured with ultraviolet reflectance photography using digital imaging. This model should prove useful in developing treatment regimens for photodamage.

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