

Clinical trial of a novel non-thermal LED array for reversal of photoaging: clinical, histologic, and surface profilometric results.

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RESULTS:

Digital imaging data showed a reduction of signs of photoaging in 90% of subjects with smoother texture, reduction of peri-orbital rhytids, and reduction of erythema and pigmentation. Optical profilometry showed a 10% improvement by surface topographical measurements. Histologic data showed markedly increased collagen in the papillary dermis of 100% of post-treatment specimens (N = 10). Staining with anti-collagen I antibodies demonstrated a 28% (range: 10%-70%) average increase in density while staining with anti-matrixmetalloproteinase (MMP)-1 showed an average reduction of 4% (range: 2%-40%). No side effects or pain were noted.

CONCLUSIONS:

Photomodulation to reverse photoaging is possible with a specific array of LEDs with a specific fluence using a precise pulsing or "code" sequence. Skin textural improvement by digital imaging and surface profilometry is accompanied by increased collagen I deposition with reduced MMP-1 (collagenase) activity in the papillary dermis. This technique is a safe and effective non-painful non-ablative modality for improvement of photoaging.