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Multisource, Phase-controlled Radiofrequency for Treatment of Skin Laxity: Correlation Between Clinical and In-vivo Confocal Microscopy Results and Real-Time Thermal Changes


ABSTRACT

OBJECTIVE: The objective of this study was to analyze the correlation between degrees of clinical improvement and microscopic changes detected using confocal microscopy at the temperature gradients reached in patients treated for skin laxity with a phase-controlled, multisource radiofrequency system.

Design and setting: Patients with skin laxity in the abdominal area were treated in six sessions with radiofrequency (the first 4 sessions were held at 2-week intervals and the 2 remaining sessions at 3-week intervals). Patients attended monitoring at 6, 9, and 12 months. Participants: 33 patients (all women).

MEASUREMENTS: The authors recorded the following: variations in weight, measurements of the contour of the treated area and control area, evaluation of clinical improvement by the clinician and by the patient, images taken using an infrared camera, temperature (before, immediately after, and 20 minutes after the procedure), and confocal microscopy images (before treatment and at 6, 9, and 12 months).

The degree of clinical improvement was contrasted by two external observers (clinicians). The procedure was performed using a new phase-controlled, multipolar radiofrequency system.

RESULTS: The results reveal a greater degree of clinical improvement in patients with surface temperature increases greater than 11.5°C at the end of the procedure and remaining greater than 4.5°C 20 minutes later.

These changes induced by radiofrequency were contrasted with the structural improvements observed at the dermal-epidermal junction using confocal microscopy.

Changes are more intense and are statistically correlated with patients who show a greater degree of improvement and have higher temperature gradients at the end of the procedure and 20 minutes later.
CONCLUSION: Monitoring and the use of parameters to evaluate end-point values in skin quality treatment by multisource, phased-controlled radiofrequency can help optimize aesthetic outcome.