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ORIGINAL ARTICLE

A novel fractional micro-plasma radio-frequency technology for the treatment of facial scars and rhytids: A pilot study

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Abstract

Introduction: Fractional ablative and non-ablative lasers have gained popularity in the treatment of acne scars and rhytids due to their efficacy and improved tolerability. Plasma and radio frequency (RF) have also emerged as methods for ablative or non-ablative energy delivery. We report preliminary experience with a novel fractional micro-plasma RF device for the treatment of facial acne scars and rhytids. *Methods*: Sixteen patients with facial acne scars or rhytids were treated at 4-week intervals. Treatment parameters were titrated to an immediate end point of moderate erythema. The clinical end point for cessation of treatment was the attainment of satisfactory clinical results. Results were monitored photographically up to 3 months after treatment. *Results*: Acne scars showed marked improvement after two to four treatments. Facial rhytids demonstrated reduced depth after two treatments and marked improvement after four treatments. Treatment was well tolerated by all participants, with transient erythema and short downtime. These results provide initial evidence for the safety and effectiveness of fractional micro-plasma RF as a low-downtime and well-tolerated modality for the treatment of acne scars and facial rhytids.

Key Words: *Acne, fractional, plasma, radio frequency, scars, skin resurfacing*

Introduction

Fractional skin resurfacing, primarily with erbium and carbon dioxide (CO_2) lasers, has emerged as an effective therapeutic approach with an attractive efficacy-to-downtime ratio (1–4). By limiting energy to a grid of small foci within a treatment field, high energies can be delivered, while undamaged skin surrounding each focus of ablation provides the basis for rapid re-epithelialization. Fractional lasers have been applied to the treatment of acne scars and facial

The Pixel RF device (Alma Lasers, Israel) was developed as a minimally ablative fractional technology, which uses unipolar RF technology to provoke plasma sparks, creating multiple controlled micro-perforations on the skin. The handpieces give rise to a series of closely spaced spicules, which contact the skin and provide a thin air gap between the skin surface and the roof of the electrode (Figure 1). The discharge of RF energy at a small distance from the skin forms plasma, a gas-like state in which a portion of the