

Analysis of Histologic and Clinical Changes Associated With Polaris WR Treatment of Facial Wrinkles

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Background: The Polaris WR is a device that combines laser energy with radiofrequency (RF) treatment to provide more focused RF energy on the skin to reduce wrinkles and/or tighten skin. Clinical results have varied from highly visible to no obvious reduction in wrinkles.

Objective: This prospective study investigated whether there was any corollary between clinical results, standardized VISIA (Canfield Imaging Systems, Fairfield, NJ) and digital photographs, and skin biopsy analysis after the treatment of facial wrinkles with the Polaris WR device.

Methods: Fifteen patients received four full-face treatments. Biopsy of the treated skin was performed before and 1 and 3 months after their last treatment. A VISIA computer analysis of facial wrinkle density and depth was performed before any treatment and then 3 months after the last treatment. Digital photographs were reviewed by four surgeons to evaluate wrinkle reduction at 3 and 6 months after the four treatments.

Results: Physicians' ratings of these digital images revealed that 58% of the patients were improved at 3 months after treatment, and 42% were still improved at 6 months. The patient questionnaire responses revealed that 75% of patients felt that they looked better at 3 months, and 67% felt that they remained improved 6 months after their last treatment. VISIA photographic analysis demonstrated that 67% of the patients had fewer and/or shallower wrinkles at their 3-month visit. The average degree of improvement with VISIA analysis was 30%. Biopsy specimens in the group of patients that were defined as improved by VISIA assessment showed a greater dermal thickness and interfibrillar spacing ($P < .024$). Two patients received superficial second-degree burns that did not require corrective treatment.

Conclusions: Improvement in skin wrinkling after Polaris WR therapy was confirmed in patients at 3 months after treatment by physician assessment, VISIA analysis, and patient assessment, with a lower rate of improvement at 6 months after treatment. VISIA analysis tended to confirm patient assessments. Physician assessments of improvement tended to be lower. (Aesthetic Surg J 2007;27:32-46.)

Radiofrequency (RF) treatment of the skin has been demonstrated to reduce wrinkles and/or tighten skin.¹⁻⁵ The Polaris WR (Syneron, Toronto, Ontario, Canada) is a device that combines radiofrequency and laser energy (900 nm) with the goal of focusing RF energy into the dermis and perhaps the fat layer without damaging the epidermis. Clinical results vary considerably from highly visible to no obvious reduction in wrinkles. Possible explanations for this range include the treatment parameters, protocol, patient selection/response, operator experience, methods of evaluation, and, perhaps, device variance. This study was

designed to determine whether a corollary exists between posttreatment histologic study, clinical results, and a form of standardized photography.

Methods

Fifteen patients were enrolled in this study. Exclusion criteria included a history of diabetes, recent aesthetic facial surgery, hypersensitivity to sunlight, recent Accutane or anticoagulant use (warfarin [Coumadin], aspirin, nonsteroidal antiinflammatory agent), patients taking medications associated with photosensitivity, and presence of an internal pacemaker or defibrillator. In

