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Use of a Serum with the Infinite Glow® Device Improves Signs of Facial Aging: a Split-face Case Report Using VISIA Analysis

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Abstract

An increase in wrinkles, laxity, and dyschromia characterizes facial-skin aging. The skin is a natural barrier that prevents or limits the entry of external therapeutic compounds to the body. Enhancing the efficacy of transdermal delivery of anti-aging compounds is a key therapeutic strategy. To evaluate the efficacy and safety of a combined therapy consisting of a topical anti-aging serum and a multi-technology facial device designed to improve transdermal absorption.A 41-year-old woman with moderate facial aging was treated using a split-face design for 12 weeks. Every day, the left hemiface received a hyaluronic acid-niacinami de-Matrixyl serum. In contrast, the right hemiface received the same serum plus application of a multi-therapy device that delivered red light (630 nm), galvanic current, micro-vibration, and controlled heat. Skin changes were assessed using the VISIA Skin Analysis System at baseline, 6, and 12 weeks. Both hemifaces showed improvement in skin quality parameters (wrinkles, texture, and UV spots). TruSkin Age decreased by 5 years on the treated side with device + serum and by 1 year on the serum-only side. Greater improvement in wrinkle reduction was observed on the device-treated side. No adverse events were reported. Combined therapy using a topical serum and a multimodal device appears safe and attenuates aging effects, particularly in reducing wrinkles. Further studies are needed to confirm these findings.

Categories: Other, Oral Medicine, Dermatology
Keywords: anti-aging medicine, device development, facial cosmetic, skin ageing, split-face

Introduction

Skin aging is influenced by multiple key factors that may accelerate its natural progression, including hormonal changes, genetic alterations, cellular oxidative stress, and exposure to UV radiation. These factors contribute to structural and functional changes in the skin, resulting in clinically visible features such as wrinkles, laxity, reduced elasticity, and depigmentation. The facial skin is particularly susceptible to aging-related changes, which has driven the development of a wide range of cosmetic and therapeutic interventions aimed at attenuating the effects of the aging process [1].

Transdermal drug absorption is a complex process primarily governed by the barrier function of the stratum corneum, the outer layer of the skin. The absorption efficiency depends on the drug's physicochemical properties [2]. A key factor in non-invasive (injection -free) skin rejuvenation treatments is enhancing the transdermal absorption of anti-aging molecules.

The aim of this clinical case is the evaluation of the anti-ageing effect and safety of a combined therapy composed of a serum (with molecules that promote skin rejuvenation, such as niacinamide, hyaluronic acid, and a mix of matrikines that stimulate collagen synthesis) [3,4,5] and by a device that promotes transdermal absorption using galvanic current, red light, soft micro-vibration, and controlled heat in a woman with moderate facial aging signs.

Case Presentation

FIGURE 1: Representative image of the Infinite Glow(R) device in on and off mode.

FIGURE 2: Effect of aesthetic treatment in a split-face description. White ovals with dashed lines indicate changes in skin color, while white arrows highlight the attenuation of skin wrinkles.

A 41 year-old-woman with middle-aged signs evaluated by Glogau record [6] without changes in anti-conceptive hormone therapy in the last 6 months. The patient does not have a history of smoking or dermatological diseases. The patient was informed and trained about the procedure before its execution and signed an informed consent.

The study has a split-face design. Every evening before going to bed, the patient applied the serum to her left hemiface and the serum and the Infinite Glow device to her right hemiface every day for 3 months. The device was applied for three minutes for each region: 1-front, 2-around the eye and cheek, and 3-in the chin. Patient follow-up was performed at 6 and 12 weeks of treatment.

The serum is a solution based on hyaluronic acid of high (2.5%) and low (2.5%) molecular weight, 3% Matrixyl® (palmitoyl pentapeptide-4 and related matrikines), and 5% niacinamide.

Infinite Glow® (developed by Nuva Group Spa) is a portable facial device composed of four skin stimulation

technologies: (i) a red-light radiation with a wavelength of 630 nm; (ii) low-intensity galvanic current generation; (iii) a micro-vibration and facial massage system and finally, (4) controlled therapeutic heat, designed to provide a sensation of comfort on the skin promoting improved local blood circulation (Figure *1*). The device has the recognition of Utility model by the Instituto Nacional de Propiedad Intelectual (INAPI) Nº20240112 [7]

The efficacy of the Infinite Glow device + serum was evaluated using the VISIA Skin Analysis System (Canfield Scientific Company). This camera-based device rotates around the patient's face to capture high-resolution, multispectral photos for evaluating skin health [8]. We evaluate the levels of wrinkles, texture, spots, pores, UV spots, brown spots, red areas, porphyrins, and TruSkin age parameters in comparison with a database of 250.000 persons of different ages (8). For each parameter, the software generates a percentile score by comparing the patient's results with an age-, sex- and skin type matched reference database. Percentiles represent the relative position of the individual within the reference population.

We obtained baseline values of 41 and 44 for TrunSkin Age on the right and left hemifaces, respectively. After three months of treatment, this parameter decreased by 5 and 1 year in the right and left hemiface, respectively. The main parameters that contributed to these results are Spots, wrinkles, and texture. UV Spots (expressed in percentile) increase at 6 weeks in the right hemiface (from 58 to 86) and in the left hemiface (from 72 to 86), and the values remained almost the same at 12 weeks, 87 vs 82 left and right hemifaces respectively. These data suggest an improvement in UV spots during treatment. Regarding wrinkles, we observed a reduction of wrinkles expression in the right hemiface (To: 34, T6w: 88 and T12w: 64) and in the left hemiface (To: 59, T6w:88 and T12w:61). As we shown in Spots parameter, the texture value has the same tendency, for the right hemiface (To: 21, T6w: 40 and T12w: 17) and the left hemiface (T0: 16, T6w: 40, T12w: 15). The effect of the aesthetic treatment was described in Figure *2*. No adverse event was reported.

Discussion

We observed a beneficial effect on both sides of the face, that is, a reduction in skin age, which was more evident at 6 weeks of treatment. These results may be due to reduced compliance with dual therapy after the 6 weeks.

Regarding the effect of the Infinite Glow device, we observed a significant benefit in reducing wrinkles. These results may be explained due to (i) galvanic current facilitates transdermal delivery of bioactive compounds through iontophoresis, improving the penetration and effectiveness of topical agents [2,9], (ii) red light radiation induces photobiomodulation, stimulating mitochondrial activity and promoting collagen synthesis via fibroblast activation [10], (iii) micro-vibration provides mechanical stimulation that may enhance microcirculation, lymphatic drainage, and mechanotransduction pathways involved in extracellular matrix remodeling [11], and finally, controlled thermal stimulation promotes vasodilation, increasing local blood flow and supporting tissue metabolism. Overall, these technologies act synergistically, primarily as adjunctive strategies to improve skin quality and enhance the effects of topical treatments rather than as standalone anti-aging interventions.

An important objective for us was evaluating the device's safety, given its innovative design combining four therapies into a single device. The safety and efficacy of the combined therapy encourage us to confirm these results in further studies, particularly the permanence of the rejuvenation effect over time.

Conclusions

In this case report, a combined non-invasive approach integrating a bioactive topical serum with a multi-modal device demonstrated measurable improvements in key skin aging indicators such as wrinkles attenuation at 6 weeks of treatment. These findings support the concept that facilitating transdermal delivery and stimulating complementary biological pathways may synergistically improve skin rejuvenation outcomes.

Further controlled studies with larger populations and longer observation periods are warranted to validate efficacy, and determine the durability of clinical benefits.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Dominique Rodríguez, Manuel Rodríguez, Christopher Andersen

Acquisition, analysis, or interpretation of data: Dominique Rodríguez

Drafting of the manuscript: Dominique Rodríguez

Critical review of the manuscript for important intellectual content: Dominique Rodríguez, Manuel Rodríguez, Christopher Andersen

Supervision: Manuel Rodríguez

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** Christopher Andersen is affiliated with Nuva Group Spa, which is involved in the development and/or commercialization of the device Infinite Glow®. All other authors declare no competing financial interests related to this work. Nuva Group Spa had no role in the study design, data collection and analysis, publication content and decisions, encompassing the choice of journal.

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