

INTENSE PULSED LIGHT VERSUS ADVANCED FLUORESCENT TECHNOLOGY PULSED LIGHT FOR PHOTODAMAGED SKIN: A SPLIT-FACE PILOT COMPARISON

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Abstract

Intense pulsed light (IPL) has been a popular nonablative treatment of photodamage. A prospective, randomized, controlled, single-blinded, split-face pilot study compared the efficacy and safety of 2 multitechnology broadband pulsed light platform devices: an IPL device (Lumenis One, Lumenis Corporation, Santa Clara, CA) and a fluorescent pulsed light with advanced fluorescent technology (AFT, Harmony System, Alma Lasers, Buffalo Grove, IL) device. Eight volunteer subjects (skin types I-IV) with a 2.0 mean Global Score for Photoaging (scale 0-4) participated in the study. Subjects received 3 to 5 treatments 3 weeks apart in which one side of the face was treated with the IPL device and the other side with the AFT device. During each treatment session, the face received 3 complete passes without anesthesia. Treatment was aggressive and parameters were determined by test spot application. Treatment endpoints were mild erythema. Results were evaluated by clinical observations of the investigator and comparison of pre- and post-treatment photographs by subjects and 2 blinded dermatologists. Blinded evaluators agreed that improvements in dyspigmentation, telangiectasias, erythema, and skin texture were similar on both sides of the face. Subject assessments of discomfort during treatment were also comparable. Adverse effects were not observed.

Introduction

Since the mid-1990s intense pulsed light (IPL, 500-1200 nm) has been a popular nonablative modality for the treatment of telangiectasia, erythema, lentigines, dyspigmentation, and reduced skin quality secondary to photoaging. In a full-face study, Bitter¹ reported visible improvement in wrinkling, dyspigmentation, telangiectasia, coarseness, and pore size in more than 90% of subjects treated with an IPL device. Downtime was minimal and subject satisfaction surpassed 88%.

At least 7 manufacturers actively market IPL devices in the US and thousands of these devices have been sold.² To the author's knowledge, split-face trials comparing the efficacies of various IPL devices have not been reported. One platform (Lumenis One, Lumenis Corporation, Santa Clara, CA, Figure 1) is equipped with a Universal IPL treatment head that delivers 515 to 1200-nm wavelengths. Multiple cutoff filters (515-755 nm) are available.

The Harmony platform (Alma Lasers, Buffalo Grove, IL, Figure 2) is a multitechnology platform in which 13 different treatment heads including advanced fluorescent technology (AFT, 410-950 nm), infrared light, and laser energy (Q-switched Nd:YAG, long-pulsed Nd:YAG, Er:YAG, fractional Er:YAG) are available.

The purpose of this prospective pilot study was to gather preliminary data to determine if the AFT device—a system less than half the size, weight, and price of the IPL device—could provide results similar to those of the IPL device for global photorejuvenation of the face.

Methods

Eight volunteers recruited from a single group practice received a series of 3 to 5 split-face treatments 3 weeks apart,

in which one half of the face was treated with the AFT device and the other half was treated with the IPL device. Although treatment was aggressive with high fluences on both facial sides, topical anesthesia was not used on either side.

Treatment fluences were determined on both sides by test pulses in which the clinical endpoint was erythema. All subjects were Caucasian (mean age 45 years, skin types I-IV) with a modest degree of photoaging (mean score 2.0 on the 0 to 4 Global Score for Photoaging) that included dyspigmentation, erythema, telangiectasias, and tactile roughness. All subjects provided informed consent for treatment.

Aggressive parameters were used to take advantage of the full clinical potential of each device. For treating skin types I to III, normal or "average" fluences for both devices are 12 to 16 J/cm². This range was chosen for the first treatment and then increased by 1 to 2 J/cm² per session as tolerated by patients. No patient sustained a burn. Furthermore, as Caucasian inhabitants of the Pacific Northwest, the patients could tolerate higher pulsed light fluences because they had no background tan or chronic bronzing of the skin.

After subjects washed their faces, a thin layer of refrigerated cooling gel was applied to all treatment areas. For the IPL-treated side, the 515-nm, 560-nm, and 590-nm cutoff filters were used and treatments were double pulsed with a 3.0- to 4.0-ms pulse duration and 10- to 20-ms pulse delay. The investigator made 3 passes at high fluences (14-21 J/cm²). The contralateral side of the face was treated with the AFT device using the green (540-950 nm) and yellow (570-950 nm) treatment heads (single pulsed light, 10-12 ms pulse duration). Three passes were made at high fluences (14-20 J/cm²). Subjects were asked to compare pain during treatment of each side of the face. Subjects were instructed to avoid