Pulsed Light (650-950nm) with Advanced fluorescence Technology Module for Long-Term Hair Removal

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BACKGROUND

This study was designed to evaluate the safety and efficacy of pulsed light advanced fluorescence technology (AFT) module (Harmony, Caesarea, Israel). Measurements were made through photographic and hair count performed at 1, 3 and 6 months after the last treatment.

PATIENTS & STUDY DESIGN

One-hundred and seven consecutive patients (age range 16-51; skin types I-V) were treated for unwanted hair in different parts of the body between September 2003 and February 2004. Patients were re-examined one month, three months and six months after the last treatment. Total number of treatments was 563 with mean treatments per patient of 4.2. Single treatment intervals were on average 7.2 weeks. Patients with skin types IV-V underwent average of 5.3 treatments whereas patients with skin type I-III received an average of 4.7 treatments.

RESULTS

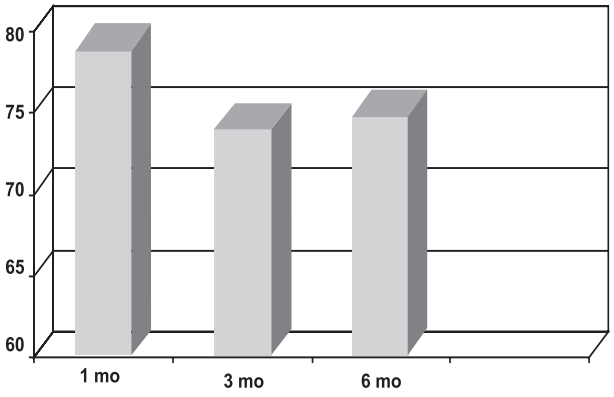
The average hair reduction after the last treatment was 78.7%, 73.8%, 74.6% (one month, three months and six months after the last treatment, respectively – Diagram 1). Side effects were clinically non-significant and transitive (i.e. perifollicular erythema, transient erythema, crusting (1%). There were no patients with scarring or discoloration (hyperpigmentation or hypopigmentation).

DISCUSSION

Light based technology has been used for the past decade to provide long term hair reduction with varying results. Efficacy has been proven to be wavelength, system and technique dependent. The light and laser systems introduced to the industry that require extended learning curves were rejected by our office, as it was discovered that the complexity offered no advantage to the efficacy and would potentially raise opportunities for operator error. Photoepilation systems are required to deliver sufficient energy (absorbed by the melanin in the hair shaft) to achieve conductive temperatures in excess of 55ºC to the follicle itself. Several systems were reviewed and all claimed similar rates of success at achieving permanent hair reduction. Of the systems tested, the Harmony system with AFT (advanced fluorescence technology) met the requirements of our office for safety, ease of use and patient satisfaction.

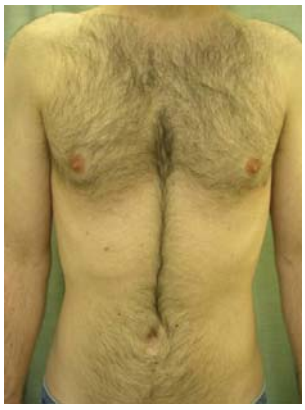
Delivery of AFT is accomplished through one of several modules that connect to the Harmony system (module selection is determined by the application). The hair removal (HR) module emits light between 650-950 nm, provides three different pulse widths (30, 40 and 50 msec) and delivers fluences of (up to) 20J/cm^2. The light guide aperture is placed against the skin in full contact with a thin layer of clear ultrasound gel interface. The contact spot size for the Harmony system is very large at 6.4 cm^2 and is approved for use on skin types I-VI. The Harmony system delivers lower peak power but at an equally distributed fluence (EDF) rate for pulse widths of up to 50 msec, achieved by a series of many pulses to compensate for the decrease in capacitor voltage. Consequently, the EDF's moderate peak power and its AFT module negates the need to use contact cooling (i.e., sapphire) as required in competitive systems and is safer to use. The targeted chromophore, melanin, is exposed to an optimal level of energy density, since the energy is delivered more efficiently. In practice, as we learned more about the mechanism of hair removal, it became evident that longer (pulse width) and moderate delivered energy parameters are the best combination of safety and efficacy. Results will likely improve with experience as we were conservative with the device.

Diagram 1: Mean hair reduction (%) 1, 3 and 6 months after the last treatment



CONCLUSIONS:

It is our finding that the Harmony system, using the AFT HR module, is both efficacious for permanent hair reduction and safe for our office treatments.
Our patients were satisfied with the clearances achieved. This office will continue to monitor as many of the initial patients as possible at both 12 months and 18 months and will report our findings at that time.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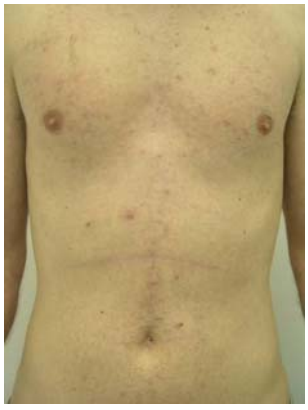
After

Orion Lasers, Inc.:
Email: contact@orionlasers.com **Website:** www.orionlasers.com