CLINICAL BULLETIN

NO. 4

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GentleLASE® Hair Removal in Skin Types V and VI

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Introduction

Our initial work with the GentleLASE alexandrite laser in skin types I–IV showed average hair count and thickness reductions of about 30%, 12 to 15 months after a single treatment. The average fluence initially used was 40 J/cm^2 with a 10 mm spot. The incidence of side effects such as hyper- or hypo-pigmentation was low, and patient satisfaction was generally regarded as high.

Subsequent work with the GentleLASE on lighter skin types involved using larger spot sizes (15 mm and 18 mm) at fluences of 16–30 J/cm^2, with continued significant hair count reductions, a minimal complication rate and consistent positive patient feedback.

Originally, extending the use of alexandrite lasers to darker skin types demonstrated a remarkable safety profile at lower fluences, but at the cost of declined efficacy. Subsequent modifications in technique and treatment parameters have improved GentleLASE hair removal capabilities in skin types V and VI, while maintaining patient safety and satisfaction levels.

This paper reports on the treatment results using the GentleLASE for hair removal for a patient with skin type VI.

Method

In this treatment, we evaluated the role of a single treatment with the GentleLASE laser in a patient with skin type VI, using an 18 mm spot, fluences of 14 J/cm^2 and Dynamic Cooling Device™ (DCD™) parameters of 90/20, with the end point of mild perifollicular erythema and edema. We chose a short DCD delay because we found that it enables more reliable, sustained cooling, especially at the periphery of the spot. We also evaluated the role of applying topical betamethasone dipropionate cream immediately before and for five days after treatment to minimize side effects. All treatment sites were iced immediately post-treatment.

Results

Consistent with other patients of similar complexion that we have treated, this patient demonstrated mild to moderate hyper-pigmentation at one week, but complete resolution at four weeks with the use of hydroquinone 4% cream. Applying topical corticosteroids appears to only minimally decrease the hyper-pigmentation, perhaps indicating a minor role for post-laser inflammation in the induction of hyper-pigmentation. Nevertheless, this seems a worthy addition to the treatment protocol. Twelve months after this single treatment, hair count reduction for this individual was 50% and the average hair thickness reduction in regrown hair was 24%.

with DCD

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Histologic studies have shown not only the expected shaft necrosis, but also have demonstrated follicular epithelial damage indicative of the potential for positive long-term results.

Discussion

Based upon the theory of selective photothermolysis, hair removal lasers, used in conjunction with epidermal cooling, target hair shaft and follicular epithelial melanin to selectively damage the hair follicle, while sparing the epidermis and surrounding dermis. Patients with skin types V and VI are often affected with problems of hirsutism, but given the increased amount of melanin found in their skin, there is an increased potential for non-selective energy absorption with epidermal injury and pigmentary problems. However, to these skin types' advantage is the fact that the use of lesser fluences tend to be as effective in this group due to the abundance of follicular pigment.

As with all hair removal lasers, one must adjust treatment parameters based upon the patient's skin color. In addition to host factors such as hair pigment density, size and depth, skin type and hormonal factors, outcomes in laser hair removal depend on a synergy of laser parameters such as wavelength, spot size, pulse duration, fluence and epidermal cooling methodologies. GentleLASE offers the operator versatility of these treatment parameters to allow treatment of skin types V and VI.

As evidenced by this patient, dark skin types can be treated as safely and as effectively as lighter skin types with the GentleLASE. This is true due in large part to the DCD cooling methodology of the GentleLASE. DCD is convenient to use and provides consistent and ample skin protection with every laser pulse. The large spot size of the GentleLASE also makes the treatments relatively fast and as comfortable for the patients as possible, minimizing the number of pulses required to treat a particular area.

Patients with skin types V and VI have the highest risk of temporary side effects regardless of the laser used; in this population, test spots and the use of sun protection cannot be overemphasized. In addition to limiting fluences to 8–14 J/cm^2, icing the treatment area and using topical corticosteroids is helpful. Also, prompt treatment of hyper-pigmentation with bleaching agents, and a seasonal approach to hair removal, similar to treating leg telangiectasia and veins, is recommended.

Figure 1–Skin type VI patient prior to treatment with an 18 mm spot, 14 J/cm^2, and DCD 90/20.

Figure 2–Same patient at one month. No epidermal damage noted.

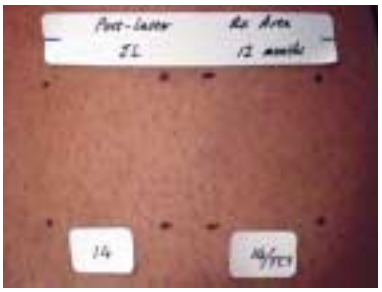

Figure 3–Same patient at 12 months. 50% hair reduction noted.

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