

A Novel 0.65 Millisecond Pulsed 1064 nm Laser to Treat Skin of Color Without Skin Cooling or Anesthetics

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“This uniquely gentle, sanitary, and effective laser treatment experience for patients of color can increase the likelihood that they will return for follow-up treatment sessions and also recommend the treatment to others.”

INTRODUCTION

The Nd:YAG 1064 nm has become the gold standard laser modality for safely treating all skin types and specifically skin of color. The 1064 nm laser technologies with ultra long pulse durations generally require anesthetics as well as skin cooling in order for patients to tolerate the treatment. The use of anesthetics and gels can involve considerable time, cost and mess. The development of a new 1064 nm laser technology with a unique 0.65 msec pulse duration now enables virtually pain-free treatment of skin of color, with no need for skin cooling or anesthetics and no skin contact during treatment by the handpiece. This uniquely gentle, sanitary, and effective laser treatment experience for patients of color can increase the likelihood that they will return for follow-up treatment sessions and also recommend the treatment to others.

SETTINGS AND METHODS

Patients were treated for unwanted facial and axillary hair, as well as clearance of Pseudofolliculitis Barbae (PFB) (Figure 1). After confirmation that the patients were not taking photosensitizing medications and were not pregnant, they were advised to shave the treatment sites approximately 2–3 days prior. On the day of the laser session, the treatment sites were thoroughly cleaned and allowed to dry before treatment.

Settings

Energy fluence applied was in the range of 14 to 21 joules/cm², with a 0.65 millisecond pulse duration and the use of a 6 mm spot size. The energy profile of the laser is a collimated beam,

which means that overlapping is not necessary and is also not harmful on any skin type at these relatively low fluences. This 1064 nm laser with the unique 0.65 msec pulse duration is also capable of reaching 318 joules/cm².

Technique

The novel 0.65 msec pulsed 1064 nm laser does not contact the skin. It employs a collimated beam so that the distance from handpiece to skin tissue does not affect fluence or spot size. When treating larger areas, a white eyeliner pencil is used to grid out the area. The laser pulses are then applied across the target area in a painting technique, with the handpiece held perpendicular to the treatment site and no need to overlap pulses. A visible charring of hairs is observed and most hairs are vaporized upon impact by the laser beam.

Treatment was performed in the complete absence of any cooling sprays, gels or topical anesthetics. Post-treatment cooling was applied on occasion with an ice pack to gradually reduce the temperature of the treatment site for enhanced comfort, but in most cases it is not used at all, as the treatment is extremely tolerable even in sensitive anatomical areas.

This procedure and this specific laser are appropriate for all Fitzpatrick skin types without limitation, as the risk of treatment discomfort, pigmentary changes, or scarring is absolutely minimized. This laser modality is applicable to a diverse array of skin conditions, including PFB, permanent hair reduction, acne vulgaris, and acne scars. It can also be used to treat PIH (hyperpigmentation), either by destroying the underlying cause such as acne or PFB lesions, or by treating PIH that remains from pre-existing lesions that have since disappeared.

Device

Traditional 1064 nm lasers often utilize pulse durations of 5 to 30 milliseconds, which are well in excess of the TRT (thermal relaxation time) of skin tissue, which is approximately 0.8 milliseconds. With these ultra long pulse durations, the skin must

be cooled continuously during treatment with gels, sprays and/or contact cooling plates. Additionally, in spite of the cooling, treatment with these traditional lasers can still be very painful. The LightPod Neo (Aerolase, Tarrytown, New York) represents a newer generation of Nd:YAG laser, whereby the laser emitter is mounted directly in the handpiece, and cooled during operation with a stream of air. This explains the compact size of the device (the traditional internal water circulating system and optical fiber lightguide system that is typical of the large, stationary water-cooled laser devices has been eliminated with this technology). This laser also has a key clinical benefit. With the emitter in the handpiece, the design avoids optical power losses associated with optical cables, which means it is able to generate sufficient fluence for aesthetic treatments within a shorter 0.65 millisecond pulse duration, below the skin's TRT.

This feature explains why the power profile is gentler on skin of color without sacrificing efficacy.

FIGURE 1. The novel 0.65 msec pulsed 1064 nm laser does not contact the skin. It employs a collimated beam so that the distance from handpiece to skin tissue does not affect fluence or spot size.



CLINICAL BOTTOM LINE

This new 1064 nm laser technology with a 0.65 msec pulse duration treats the skin beneath its TRT, negating the need for numbing and skin cooling and enabling uniquely gentle, sanitary, and effective laser treatment experiences for patients of color.

DISCLOSURES

The author has no relevant conflicts of interest to disclose.

REFERENCES

1. Perry PK, Cook-Bolden FE, Rahman Z, et al. Defining pseudofolliculitis barbae in 2001: A review of the literature and current trends. *J Am Acad Dermatol.* 2002;46 (2 Suppl Understanding):113S-119S.

2. Brown LA Jr. Pathogenesis and treatment of pseudofolliculitis barbae. *Cutis.* 1983;32(4):373-375.
3. Weaver SM 3rd, Sagral EC. Treatment of pseudofolliculitis barbae using the long-pulse Nd:YAG laser on skin types V and VI. *Dermatol Surg.* 2003;29(12):1187-1191.
4. Chui CT, Berger TG, Price VH, et al. Recalcitrant scarring follicular disorders treated by laser-assisted hair removal: A preliminary report. *Dermatol Surg.* 1999;25(1):34-37.
5. Greppi I. Diode laser hair removal of the black patient. *Lasers Surg Med.* 2001;28(2):150-155.
6. Adrian RM, Shay KP. 800 nanometer diode laser hair removal in African American patients: A clinical and histologic study. *J Cutan Laser Ther.* 2000;2:183-190.
7. Kauvar AN. Treatment of pseudofolliculitis with a pulsed infrared laser. *Arch Dermatol.* 2000;136(11):1343-1346.

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