

Clearance of Melasma Using a Novel 650-microsecond Pulsed Nd:YAG 1064nm Laser

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Abstract

This study was conducted to evaluate a novel 650 microsecond pulsed Nd:YAG 1064nm laser, for the clearance of Melasma. Seven female subjects with skin types II-V and an average age of 45.6 were enrolled for a single treatment of laser for Melasma.

Background and Objective

Melasma is a significant cosmetic concern for many patients; common factors that contribute to it include genetic predisposition, hormones, sun exposure and inflammation of the skin tissue. Melasma is commonly treated with prescription creams containing bleaching agents, particularly hydroquinone. Treatment efficacy can vary, and a variety of side effects are linked to hydroquinone including allergic reactions and skin irritations such as redness, peeling, burning, blistering, dryness and itching. Meanwhile, it is difficult for the clinician to control the dosage as the creams are applied at home by the patient. There is a strong interest in the potential use of light-based treatment modalities to avoid some of these potential side effects and transfer control of the procedure to the clinician. The purpose of this study was to evaluate a novel 650 microsecond pulsed Nd:YAG 1064nm laser for the clearance of Melasma.

Study Design/Materials and Methods

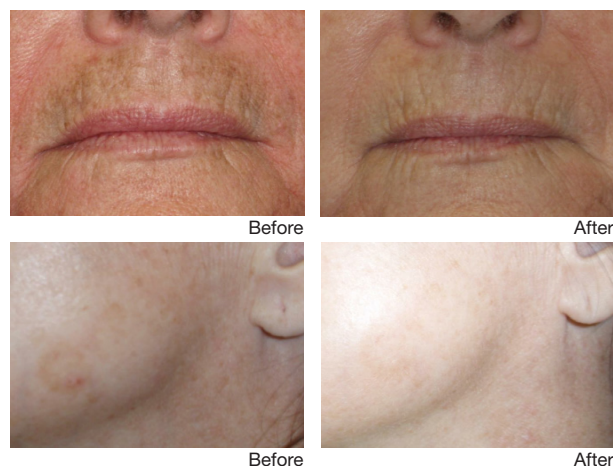
Seven female subjects with skin types II-V and an average age of 45.6 were enrolled for a single treatment of laser for Melasma. Treatment areas included cheeks and upper lip areas. All subjects confirmed that they were not using Accutane or other photosensitizing medications, and were not pregnant; subjects had all makeup and lotions removed immediately prior to treatment. No anesthetics, cooling, gel or lotions were used regardless of skin type, as the laser does not require any numbing or skin cooling at all.

Laser treatment was performed as follows: (a) two passes at fluences of 18-24 joules/cm² on a 6mm spot size, in a painting motion across treatment areas; and on skin types II-IV only, one pass at fluences of 159-191 joules/cm² on a 2mm spot size. All laser treatments were performed using a 1064nm Nd:YAG laser, LightPod Neo (Aerolase, Tarrytown, NY) with a novel 650 microsecond pulse duration.

The treated areas were kept moist post-op and the subjects were advised to keep these spots moist with lotion and to use sunblock after treatment; they were also advised to avoid picking at the treatment sites after the treatment session, and were informed to avoid direct sun exposure. All subjects were asked to rate their satisfaction with the procedure after the treatment, on a scale of Low, Moderate, High or Very High.

Results

The laser treatment was well tolerated without any anesthesia or any form of skin cooling; subjects reported little or no treatment discomfort and no complications were observed after a single treatment session. In the pigmented areas treated, subjects experienced minor darkening and crusting; each of these conditions resolved within 1 week of the treatment session. The effect of the laser treatments produced positive outcomes in terms of a reduction in the pigmentation; of the seven subjects, all rated their satisfaction as High.



Conclusion

This study shows that a novel 650 microsecond pulsed Nd:YAG 1064nm laser can be used to reduce the pigmentation caused by Melasma in a single treatment session, with little or no treatment discomfort and no complications. This treatment modality may be preferable to the usage of topic creams containing hydroquinone both in terms of the reduced risk of side effects, and also the ability of the clinician to exert a higher degree of control of treatments as compared to having patients apply creams at home at their own discretion. It is important to note that there are multiple factors contributing to Melasma including genetic predisposition, hormones, sun exposure and inflammation of the skin tissue, and although the laser treatment can produce complete or partial clearance of the pigmentation, patients with this condition are generally susceptible to its reoccurrence, particularly if they expose the treated areas to direct sunlight after achieving full or partial clearance from the laser treatment.