

### A Novel 650µsec Pulsed Nd:YAG 1064nm Laser For Removal of Pigmented Lesions

Yelena Kipervas, DO, & Tatyana Martinho

Comprehensive Family Practice, Laser & Cosmetic Center  
Bartonsville, PA

#### Background and Objective

The removal of pigmented lesions due to sun damage has historically not been successful using 1064nm Nd:YAG lasers, which typically have pulse durations well in excess of 1 millisecond. This study was conducted to evaluate a shorter pulsed 650µsec Nd:YAG laser for pigmented lesion removal.

#### Study Design/ Materials and Methods

Six females with skin types II-IV and an average age of 64.7 were enrolled for treatment of pigmented lesions due to sun damage on the hands as well as some facial areas including cheek, forehead, nose and upper lip. Subjects had hairs in the treatment areas shaved immediately prior to treatment and all makeup and lotions were removed; one subject had microdermabrasion treatment both before and after the two laser sessions. One subject was treated once and all others were treated two times with the laser, with treatment sessions spaced approximately one month apart. In each session, subjects were treated using one pass at fluences of 21-28 J/cm<sup>2</sup> on a 6mm spot size, followed by one pass at fluences of 159-223 J/cm<sup>2</sup> on a 2mm spot size. No cooling, gel or lotion was used; moisturizing cream was applied after treatment. A 1064nm Nd:YAG laser, LightPod Neo™ (Aerolase, Tarrytown, NY) with a 650µsec pulse was used to perform all treatments. All subjects were asked to rate their satisfaction with the procedure after the final treatment, on a scale of Low, Moderate, High or Very High. Also, these were older patients who exhibited chronic joint and muscle pain in their hands and because they all received treatment on the hands, and since the laser used for the pigmented lesion removal is also known to reduce joint and muscle pain, subjects were asked to rate their level of pain both before and after the course of treatments.

#### Results

All subjects experienced a temporary darkening of the lesions immediately upon treatment, with mild crusting in some cases; the affected tissue sloughed off within 2-3 weeks of each treatment

exposing lighter pigmented tissue or an absence of darker pigment beneath. None of the subjects experienced any complications. The reduction of pigmentation exceeded 75% on average after two monthly treatments, based upon visual observation; all subjects graded satisfaction ranging from High to Very High. In terms of joint and muscle pain reduction in the hands stimulated by the laser treatment, subjects reported a major improvement, with a pain rating averaging 9 prior to treatment and averaging 2 after the course of treatments (based on a scale of 1 to 10 with 1 being very low and 10 being very high).

#### Conclusion

This study shows that a 650µsec pulsed 1064nm Nd:YAG laser is effective and safe for the removal of pigmented lesions due to sun damage. The treatment is well tolerated without any anesthesia or any form of skin cooling.

*This paper was accepted for publication at the 2010 annual meeting of the American Society of Laser Medicine & Surgery.*



Before



After



Before



After



Before



After