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Clinical Report

A pilot study of the efficacy of a 1,064 and 1,320 nm sequentially firing Nd:YAG laser device for lipolysis and skin tightening

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Abstract

Background

Laser-assisted lipolysis with a medium pulsed 1,064 nm Neodymium:Yttrium-Aluminum-Garnet (Nd:YAG) system has been used since FDA approval in October 2006 [1]. Since then, this technology has been advanced to include an additional wavelength (1,320 nm) and an accelerometer designed to improve efficacy and safety.

Objective

(1) Evaluate the efficacy and safety of a sequentially firing 1,064 and 1,320 nm Nd:YAG laser device for lipolysis. (2) Evaluate the skin tightening effect by photographic documentation and skin measurements. (3) Assess new collagen formation by histologic and scanning electron microscopic studies.

Methods

Twenty subjects with unwanted local adiposities and skin laxity were enrolled. An Nd:YAG laser with sequentially firing wavelengths of 1,064/1,320 nm was used to treat localized areas of body adiposities. Digital photographs were taken before and after treatment, blinded independent observers graded improvement utilizing a percentile evaluation scale and subjects performed self-assessments. Five of the 20 subjects had the following tests performed: (1) Placement of 4 cm×4 cm square India Ink tattoos for measurement of skin tightening, (2) histology and electron microscopy, (3) biopsies prior to the procedure, 3 days and 1 month after the procedure to determine the presence of new collagen markers.

Results

Results showed reduction in localized adiposities with no adverse events from use of this device. Independent observers found 76-100% improvement in adiposities in 85% of

subjects and 51-75% improvement in 15% of subjects. Of the subset of five patients, India Ink tattoo maps demonstrated an 18% decrease in surface area indicating a significant skin tightening effect. Histology by H&E, Methylene blue stains, and electron microscopy indicated new collagen formation compared to baseline.

Conclusion

The 1,064 nm Nd:YAG and 1,320 nm Nd:YAG sequentially firing device with an accelerometer appears to be an effective and safe treatment for localized adiposities with the additional benefit of skin tightening. *Lasers Surg. Med.* 41:779-784, 2009. © 2009 Wiley-Liss, Inc.