

Study: From 2009 to 2013, a total of 178 patients underwent laser-assisted liposuction in combination with at least one of the following modalities: facelift, MIMS, CO₂ fractionation, and/or autologous fat injection. In this study, face contouring was assisted with a laser device with the wavelengths 1064 and 1320 nm.

Results: A total of 178 patients participated in the study; 105 patients received laser-assisted liposuction alone; 14 patients received laser-assisted liposuction + autologous fat injections; 13 received CO₂ resurfacing in addition to the MIMS and facelift; 15 patients received laser-assisted liposuction + MIMS and facelift; and 31 patients received laser-assisted liposuction + autologous fat + MIMS with facelift. For all patients, combinational use of laser-assisted liposuction resulted in excellent skin retraction and facial contouring. Additionally, no complications resulted from the combined use of laser-assisted liposuction with other therapies.

Conclusion: Overall, laser-assisted liposuction represents an excellent therapy for skin tightening that can be used safely and effectively with other facial contouring modalities for enhanced therapeutic benefit.

#E9

INTEGRATED AUTOFLUORESCENCE OPTICAL BIOPSY, OXIDATIVE STRESS AND FATTY GRADATION IN MODIFIED-DIET LIVER MODEL

Anna Cleta Croce, Andrea Ferrigno, Eleonora Tarantola, Vittorio Bertone, Mariapia Vairetti, Giovanni Bottiroli

University Pavia, Pavia, Italy

Background: Oxidative stress in fatty and/or ischemic livers plays a major role in the risk of hepatic failure development and progression. Autofluorescence-based Optical Biopsy (AF-OB), already successfully applied for liver function monitoring, is investigated as a minimally-invasive diagnostic procedure for the monitoring of oxidative stress, in particular with reference to application in surgery and recruitment of marginal donor organs in transplantation.

Study: Livers with increasing fat content (Male Wistar rats, 1–9 weeks of methionine/choline deficient -MCD- diet vs controls) were submitted to AF-OB and spectral fitting analysis (exc. 366 nm) *in vivo* via fiber optic probe, or on cryostatic tissue sections, to estimate the AF contribution of endogenous fluorophores involved in redox reactions (NAD(P)H, flavins, fatty acids, vitamin A). Lipid content and composition were defined by means of Nile red fluorochromization, and lipid peroxidation (TBARS), GSH, ATP, ATP/ADP levels measured by biochemical assays.

Results: As compared to controls, fatty livers show a red shift of AF spectra soon after 1 week of MCD diet, indicating a decrease in the relative contribution of NAD(P)H with respect to vitamin A and fatty acids, in turn accounting for a strong photolability of tissue vesicles. Consistently, a marked increase in both polar and apolar lipids is revealed by Nile red spectra. At 1 MCD week both GSH and ATP levels are markedly decreased, while lipid peroxidation increases slightly after 2 weeks, becoming strongly significant at 4 weeks, when, in parallel, a shoulder in the 500–600 nm AF emission region, reflecting and increase in oxidized lipids, becomes very evident.

Conclusion: The early changes in liver tissue AF properties observed in parallel with those of lipids and energetic and

antioxidant markers confirm the potential of AF-OB analysis for a real time fatty liver oxidative stress detection and monitoring.

#E10

INCREASED FIBROBLAST PROLIFERATION AND ACTIVITY AFTER APPLYING INTENSE PULSED LIGHT 800–1200 nm

Esther Cuerda, Gema Diaz, Maria Angustias Palomar, Rafael Linares

Madrid, Spain

Background: Light devices emitting near infrared have been shown to be highly effective for the skin rejuvenation but biochemical and molecular mechanism or optimum dose treatment are not well-known. In our study we try to elucidate why systems emitting near infrared produce skin improvement such as fibroblasts proliferation, increase in gene expression or extracellular matrix (ECM) protein production.

Study: 1BR3G human skin fibroblasts were used to test the effects of a near infrared intense pulsed light device emitting with an 800 nm SA filter and an experimental software (MiniSilk FT manufactured by Deka[®], Calenzano, Italy). In our protocol, fibroblasts were irradiated twice successively with a 10 Hz frequency, with a total fluence up to 60 J/cm² for 15 second each pass. In each pass we covered all the area and a cooling system was activated. After incubating for 48 hours, fibroblasts were harvested from the culture plates to test cell proliferation by flow cytometer. To determine changes in gene expression and protein production of a number of ECM macromolecules, mRNA levels and/or protein for collagen types I and II, versican and decorine were observed after irradiation.

Results: After 48 hours irradiation, 1BR3G human skin fibroblasts were observed to proliferate at a fast rate, showing a significant increase of cells in S and G2/M cell cycle phases. Also, the study of ECM macromolecules production using ELISA and RT-PCR assays, has allowed the role of light treatment in human skin fibroblasts activation.

Conclusion: Intense pulsed light emitting near infrared applied *in vitro* cultured cells increases fibroblasts proliferation and activity, which can be a possible mechanism of action for these devices in aging skin treatment.

#E11

CLINICAL EVALUATION OF A SPECIFIC 1064 Nd:YAG LASER FOR THE TREATMENT OF ONYCHOMYCOSIS

Jesus Del Pozo, Carmela Pestoni

CHU A Coruña / Centro Médico Abaton, A Coruña, Spain

Background: Onychomycosis is the fungal infection of the nail plate, it can be caused by dermatophytes such as *Trichophyton rubrum* or other *Trychophyton*, *Candida*, and other fungal species (mildew). It can affect toenails and fingernails. The prevalence is around 6–8% in adult population. The most common symptom is the nail becoming thickened and discoloured: white, black, yellow or green. The objective of this study is to evaluate the safety and efficacy of a specific Nd-YAG laser for the treatment of onychomycosis.

Study: 25 patients (20 females and 5 males) with an average age 55.9 years presenting onychomycosis in toenails or fingernails received 3 laser treatments (1 month apart) with the Nd-YAG

Lasers in Surgery and Medicine

The Official Journal of the

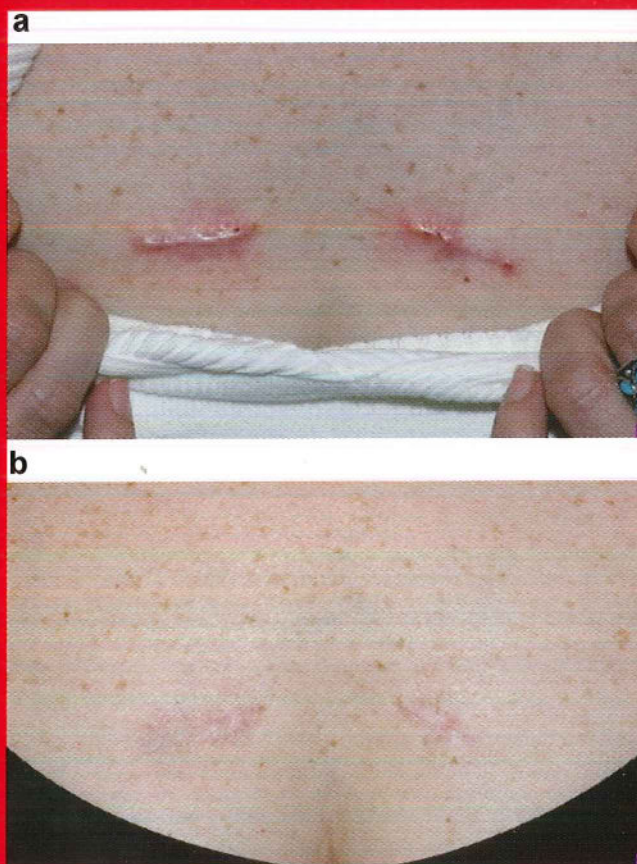


www.aslms.org

Laser Assisted Drug Delivery: A Review of an Evolving Technology

Fractional Ablative Erbium YAG Laser: Histological Characterization of Relationships Between Laser Settings and Micropore Dimensions

Heat Stress Induced Cell Death Mechanisms in Hepatocytes and Hepatocellular Carcinoma: *In Vitro* and *In Vivo* Study



Volume 46, Number 4, April 2014

WILEY Blackwell

ISSN 0196-8092

Discover this journal online at

WILEY
ONLINE LIBRARY
wileyonlinelibrary.com