for adverse effects such as scarring, hypopigmentation, or hyperpigmentation.
The elliptical spot seemed to be superior to the round spot in terms of resulting in less pain, less purpura, and faster clearance. Both spot types resulted in equivalent level of clearance. No long-term complications were observed with either spot.
Elliptical and round spot resulted in equivalent clearance of linear facial telangiectasias. However, the elliptical spot appears to induce less of a side effect profile: less pain, less purpura, and faster disappearance of purpura.

267

BOTOX-A GIVES ADJUNCTIVE BENEFIT TO PERIORBITAL LASER RESURFACING

Nicholas J. Lowe, Paul S. Yamauchi, Gary P. Lask, and Donna Moore

Clinical Research Specialists, Santa Monica, CA and UCLA School of Medicine, Los Angeles, CA

Purpose: Periorbital aging and lines are a result of intrinsic skin aging, ultraviolet damage, and repetitive action of periorbital muscles. Rejuvenation of this area should therefore be optimized by combining treatments that approach the different causative factors.
Results: We have concluded a bilateral study comparing effects of Botox-A versus saline placebo injections to the periorbital areas before and following Erbium-YAG laser resurfacing of the areas in 33 patients. The results demonstrated that the Botox-A treated side with laser resurfacing improved more significantly than the contralateral saline with laser treated area in diminishing periorbital rhytides as well as textural, pigmentation, and other features of periorbital skin aging.
Conclusion: This study illustrates the benefits of a combined approach to treating periorbital skin aging.

268

LASER TREATMENT OF KELOIDS AND HYPERTROPHIC SCARS: HISTOLOGICAL EVALUATIONS

M. Lualdi, R. Grillo, A. Colombo, A. Morelli Coghi, S. Tomatis, and R. Marchesini

Istituto Nazionale Tumori, Milan, Italy

Keloids and hypertrophic scars develop as a result of abnormal proliferation of dermal tissue following skin injury in predisposed individuals. Histologically, these lesions are composed of excessive collagen with an abnormally large number of partially or totally occluded microvessels. Laser therapy, the most promising therapeutic management of keloids and hypertrophic scars, is used since years with very encouraging results. Despite increasing knowledge of laser interaction with biological tissue, the reasons for the obtained results are still unclear. Our study is focused on histological observation of collagen fiber arrangement in treated and untreated lesions. 32 patients with 21 keloids and 11 hypertrophic scars were enrolled in this study. Five treatment, every six weeks, were performed on each patient using 532 nm QS Nd:YAG laser working in pulse mode. Laser was applied with a 3mm spot, using fluences of 1.8–2.2 J/cm^2 and pulse repetition of 10 Hz. Biopsies were taken prior to treatment and 2months after last treatment. Laser therapy effectiveness was determined by clinical evaluation, photographic analysis and histological observation. All hypertrophic scars showed an improvement greater than 50% and 6 of 11 showed complete healing. Among the 21 keloids only two were refractory to the treatment; all the other lesions demonstrated at least a 50% reduction. Side effects were limited to mild transient erythema. Surprisingly, histological examination of treated lesions revealed classical features of normal tissue, i.e., in addition to expected cutaneous microvessel collapse, a regular arrangement of collagen fibers is present. Figure reports two slides of a treated and untreated keloid. Work is in progress to explore the capability of the coherent electric field of the laser to orient in a preferential direction the collagen fibers.

272

LASER-TATTOO REMOVAL—COMPARISON OF CLEARANCE RATES OF NEW VS. OLD TATTOOS

Erick A. Mafong, Arielle N.B. Kauvar, Leonard Bernstein, Macrene Alexiades-Armenakas, and Roy G. Geronemus

Laser & Skin Surgery Center of New York

Purpose: Removal of undesirable tattoos is possible with a variety of lasers. This study evaluated the clearance rate of professional tattoos with respect to the age of the tattoo. Histologic and objective correlation was obtained.
Method: 4 patients with professional tattoos ranging in age between 2 months to 30 years old were treated with the Q-switched ruby laser (694 nm, 6.5 mm spot, 3.5–7.0 J). Each area received 3 treatments at 4–6 week intervals with a final evaluation at least 1 month after the last treatment. Evaluations consisted of clinical photographs, and patient and clinician assessment at each visit. High frequency ultrasound (Longport) studies and histological specimens were also obtained.
Results: Older tattoos demonstrated a greater clearance rate when compared to newer tattoos. Good clinical histological correlation was observed in the treated areas. None of the patients experienced scarring or pigmentary changes during the treatments.
Conclusion: Laser Tattoo removal results in a faster clearance rate for older, dark tattoos compared to newer tattoos.

275

LASER-ETCHED CONDITIONING OF DENTAL HARD TISSUES USING THE Er:YAG LASER AND THE CO_2 LASER

T.M. Marraccini,[1] H.A. Wigdor,[2] M.L. Turbino,[3] A. Stabholtz,[4] and D.M. Zezell[1]

[1]*Centro de Lasers e Aplicações, IPEN-CNEN/SP, São Paulo Brazil*
[2]*Northwestern University, Chicago, USA*
[3]*Faculdade de Odontologia, USP, São Paulo, Brazil*
[4]*Hadassa University, Jerusalem, Israel*

The objective from our research was to evaluate the dental hard tissues surfaces conditioned by laser-etching using the Er:YAG laser and the 9.6 μm emitting CO_2 laser prototype of Esc-Sharplan, and compare with the conventional method of acid-etching. A total of 150 bovine maxillary incisor teeth were chosen. They were all free of hypoplastic areas, cracks or gross irregularities in enamel structure. These teeth were cleaned, have the crowns separated from roots and divided into 6 groups. Three of them, each one containing 25 teeth, were polished up to the dentin surface, and in the other three ones, the enamel was kept. In group 1 (enamel) and group 2 (dentin), we used the Er:YAG laser of KAVO (80 mJ, 2 Hz of repetition rate, 1 min of exposure time, 3 mm of spot diameter, 28.3 J/cm^2), in the group 3 (enamel-control) and group 4 (dentin-control), we used the conditioning method prescribed for the Z-100 resin ("3M"), and in

the last two groups (5 and 6, enamel and dentin, respectively), we used the CO_2 laser prototype (3 W, 4 s of exposure time, 300 μm of spot diameter, 212.2 J/cm^2). The tensile strength of the resin was conducted in the Instron Machine and the results of the lased areas were compared with the acid-etched areas. All of these results were statistically analyzed using the ANOVA method and SEM was also performed in order to compare the surface morphological alterations before and after laser irradiation. Our results showed that the Er;YAG laser produced a better.

276

TOLERANCE OF HIGH FLUENCE PULSED DYE LASER TREATMENT BY NEWBORNS

Jean-Michel Mazer

Paris, France

Purpose: Enhanced technologies allow the use of higher fluences to improve efficacy in treatment of vascular lesions using pulsed dye lasers. The objective of this study is to determine the tolerance of these higher fluences in newborns.
Methods: In this prospective study, 86 subjects with facial port wine stains excluding eyelids were enrolled. First laser treatments were given before age of one year. Treatments employed the Vbeam, Sclero Plus, and Sclero Plus HP lasers (Candela Corporation), using parameters of 1.5 ms pulse duration and 595 nm, with a 7 mm spot handpiece. Fluences ranged from 10 to 15 J/cm^2. Most subjects were treated with 10 to 12 J/cm^2, to avoid crusting. Dynamic cooling was used in conjunction with all laser treatments.
Results: All subjects responded to treatment with purpura lasting 1 to 2 weeks. Four of 86 had transient hypopigmentation, and none had hyperpigmentation. Approximately 20% of subjects treated with 12 J/cm^2 or more had crusting, while only 5% treated with lower fluences had crusting No scarring or atrophy was seen.
Conclusions: High fluence pulsed dye laser treatment with dynamic cooling is safe for the treatment of newborns with portwine stains on the face.

277

TREATMENT OF RADIODERMATITIS WITH PULSED DYE LASERS

Jean-Michel Mazer

Paris, France

Purpose: Radiodermatitis is an underestimated side effect of radiation therapy for cancer, characterized by telangiectasias and atrophy of the skin. The objective of this study is to test the efficacy of pulsed dye laser treatment of this condition.
Methods: 102 women with a total of 142 lesions were enrolled in this study. The topography was presternal in 71%. Three of the 102 subjects were lost to followup, one because of recurrence of cancer. Subjects were treated with the SPTL-1a, ScleroPlus, and Vbeam lasers (Candela Corporation). Short pulse durations (6 ms or less) were used. The number of treatments required to achieve 90% clearance of the telangiectasia was determined.
Results: The number of lesions responding with 90% clearance were as follows: 19 with 1 treatment, 72 with 2 treatments, 40 with 3 treatments, 5 with 4 treatments, and 2 with 2 treatments. After laser treatment all lesions were purpuric, 8% had transient hyperpigmentation, 16% had superficial scabs, and none had scarring. Atrophy appeared to be reduced after treatment, with a reduction in the tendency to present superficial scabs or crusts.
Conclusions: Pulsed dye laser treatment is safe and highly effective for treatment of radiodermatitis. Most lesions respond with 2 to 3 treatments. Subjects report a high degree of satisfaction with this treatment.

278

RANDOMIZED CONTROLLED TRIAL OF SELF ESTEEM AND LASER DEPILATION

W.J. Clayton,[1] M. Rustin,[1] L. Sherr,[2] J. Elford,[2] and M. Lipton[2]

[1]*Royal Free Hospital, London*
[2]*Royal Free & University College Schools of Medicine, London*

Purpose: To develop a randomised controlled methodology to evaluate emotional well being during laser depilation in women with Poly Cystic Ovary Syndrome and unwanted facial hair.
Methods: Suitable subjects were recruited from endocrinology outpatients using clear selection criteria. After consent patients were randomised to receive six months sham treatments or six months conventional treatment using a long pulsed Alexandrite laser. The assessor and patient were blind to the allocation. Questionnaires were administered at the start of the trial, at 3 months and at 6 months. The questionnaire consisted of some validated instruments, WHOQ01-Bref, Hospital Anxiety and Depression Score, Rosenberg Self-Esteem Scale and the Cronin PCOS Quality of Life Questionnaire, together with study specific items derived from pilot interviews with patients. The power calculation was based on the self esteem item in the Cronin PCOS questionnaire.
Results: Eighty patients were recruited to the trial. Results were analysed on an intention to treat basis, so that withdrawals were included and reasons noted. Good response rates were achieved to the questionnaires. Randomising the allocation avoided selection bias. Concealing the allocation avoided recruitment bias. Blinding the assessors avoided assessment bias.
Conclusions: A randomised controlled design helps to avoid the biases inherent in observational and descriptive studies. This methodology can be successfully applied in laser medicine.

279

TREATMENT OF ADENOMAS OF PRINGLE IN BOURNEVILLE SYNDROME WITH A 532 nm QS Nd:YAG LASER

A. Morelli-Coghi, R. Grillo, A. Colombo, M. Lualdi, and R. Marchesini

Istituto Nazionale Tumori, Milan, Italy

Purpose: To evaluate the safety and the efficacy of a 532 nm QS Nd:YAG laser in the treatment of cutaneous symptoms of Bourneville Syndrome.
Methods: Bourneville Syndrome is a genetic disease characterized by the association of cerebral damage responsible for epilepsy, mental retard and cutaneous lesions that affect the skin, especially of the face. These are little yellowish nodules of fibrovascular nature located on the nose, chin and cheeks. The incidence of the disease is 0,3 on 1000 children born alive. Four patients were treated with a 532 nm QS Nd:YAG laser with a 3 mm spot, pulse frequency of 5 Hz, pulse width of 6 ns and fluences of 1,8–2,6 J/cm^2. Laser therapy effectiveness was determined by clinical evaluation, photographic and spectrophotometric analysis. To improve aesthetic results, each patient received one treatment of laser resurfacing with a 532 nm QS Nd:YAG laser used with 6 mm spot, pulse frequency of 10 Hz, pulse width of 6 ns and fluences of 0,55–0,70 J/cm^2.
Results: All patients have shown a remarkable aesthetic improvement. Each subject noted a subjective improvement of cutaneous lesions. Objectively, all patients demonstrated at least a 60% reduction of yellowish nodules. In addiction, neither scarring, nor pigmented changes were noted