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TREATMENT OF PURPURA AFTER PDL WITH LOW LEVEL LASER AND GEL

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Background and Objectives: PDL is golden standard in vascular lesions treatment but purpura is a limit even for so called "purpura free" PDL. We choose multiple methods to minimize down time. Very promising modality is low level laser therapy combined with gel masque.
Study Design: Double blind study. Group B inert gel with red light. Group A low level laser 35 mW with scanner, 20 minutes 5 days combined with special laser gel. Blind evaluation of differences.
Results: Lower intensity of purpura from third day in Group A. Quicker disappearing of purpura in Group A.
Conclusion: Combination of low level laser and laser gel make quicker healing of purpura after PDL without increased risk of side effects.

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CLINICAL EVALUATION OF NONABLATIVE SKIN REJUVENATION USING THE 532 nm AND COMBINATION 532 nm & 1064 nm LASERS

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Background and Objective: The 532 nm KTP, and 1064 nm Nd:YAG lasers target hemoglobin, melanin and oxyhemoglobin and treat telangiectasia and lentigines. These lasers selectively target the microvasculature which plays a role in stimulating collagen production. The 1064 nm Q switched Nd:YAG laser has been shown to have a non-ablative dermal remodeling effect. We evaluated the effectiveness of the 1064 nm Nd:YAG and 532 nm KTP laser for nonablative skin resurfacing.
Study Design/Materials and Methods: 10 volunteers participated in an IRB approved bilateral paired comparison study of facial rhytides. Half the face was treated with the 532 nm KTP laser and half treated with both the 532 nm KTP and 1064 nm Nd:YAG laser. Two combined treatments were performed, followed by two further treatments one month apart to the entire face with the 1064 nm Nd:YAG laser. Subject and investigator assessment of percent wrinkle reduction and satisfaction were conducted.
Results: Areas treated with the 532 nm alone show a decrease in erythema and improvement in skin tone, texture and rhytids. Sites treated with both 532 nm and 1064 nm wavelengths demonstrated the above plus slightly enhanced improvement in texture and rhytids.
Conclusion: Sun induced redness, pigmentation, rhytides and rough skin may be improved with combined 532 nm and 1064 nm laser treatments. 532 nm treatment alone was helpful but combination treatment produced better results.

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DYE LASER EXTENDED PULSE FORMAT EFFECTS ON PURPURIC THRESHOLD

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Background and Objective: The pulse dye laser [PDL] has a history that demonstrates a high degree of safety and efficacy in the treatment of vascular lesions. The price exacted is transient purpura at therapeutic doses. The degree to which the purpuric threshold can be modified has not been well studied. The range of fluence for single treatment vessel clearance has been determined for a number of PDL's and pulse durations. Using these as a benchmark we set out to develop a pulse format, which would modify the purpuric threshold to consistently exceed the expected therapeutic dose.
Study Design/Materials and Methods: 20 subjects were recruited for purpuric threshold testing on normal buttock skin. A specially modified extended-PDL (V-Star, Cynosure, Inc.) was developed to provide several pulse formats postulated to increase the purpuric threshold. Purpuric thresholds were determined for 0.5, standard 40-msec, and experimental 40-msec pulse formats. All laser exposures were done using a 7-mm handpiece, in conjunction with cold air-cooling (SmartCool, Cynosure, Inc.) Immediate and 24-hour purpuric thresholds were determined by visual and photographic inspection for each pulse format.
Results: Using the 0.5-msec purpuric threshold as a reference, the standard V-Star 40-msec pulse increased the purpuric threshold by ~2.4x from ~5 J/cm^2 to ~12 J/cm^2, consistent with previous study. The experimental pulse formats extended the purpuric threshold by more than ~3x (~16 J/cm^2) over the 0.5-msec pulse duration. No side effects were noted. The extension of the purpuric threshold to this fluence range may allow for consistent clearance of vessels without purpura. Theory of operation, and mechanism of action will be discussed.

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COMPARISON OF PULSE DYE LASER [PDL] AND INTENSE PULSE LIGHT [IPL] SOURCE FOR THE TREATMENT PHOTODAMAGE

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Background and Objective: Among the light-based systems used for non-ablative facial rejuvenation, PDL and IPL have both been used for treatment of three major components of photodamage: lines and wrinkles, superficial pigmentation, and vascular ectasias. There is not yet a clear consensus whether one device provides superior outcomes for the various components of photodamage. To address this question, we conducted a side-by-side comparison of these devices.
Study Design/Materials and Methods: A total of 20 patients presenting with photodamage were recruited. Each patient had one randomized side of the face treated with PDL (PhotoGenica V-Star, Cynosure, Inc.), the other side with IPL (Quantum, Lumenis). PDL treatments were done using a 595-nm PDL at a pulse duration of 40-msec using a 7-mm handpiece. PDL treatment fluences were maintained below the individual's purpuric threshold and ranged from 10 to 16 J/cm^2. IPL treatments were done using the 560 cutoff-filter, with fluences from 25–30 J/cm^2. Each patient received a total of three treatments at 4-week intervals. Photos were taken prior to treatment and during a three-month follow-up period. Efficacy of treatment was based on subjective grading of before and after photos and by patient self-reporting.
Results: Both treatments resulted in improvements to skin tone and texture including, to varying degrees, a reduction in the appearance of rhytids, reduction of vascular ectasias, and improved pigmentary evenness. A comparison of the two methods, including side effects and preference for the treatment of various components of photodamage will be discussed.

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COMBINED EXTENDED PULSE-DURATION DYE LASER/DRUG THERAPY FOR ACTIVE ACNE LESIONS

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Background and Objective: Drug therapy does not adequately control erythematous, cystic or pustular acne in a significant population. A limited number of treatment options exist for these patients, including Isotretinoin, which has significant side effects requiring careful oversight. The dye laser therapy has been shown to reduce the number of active acne lesions. The purpose of this study is to develop a combined drug and laser therapy to increase the overall efficacy of treatment to the point where more aggressive therapies are no longer required for adequate control of this disease.

Study Design/Materials and Methods: The study population consisted of ten (10) subjects presenting with acne lesions not adequately controlled by standard drug therapy. Subjects with history of Isotretinoin use within 6 months were excluded. Subjects continued on their previous drug therapy throughout the study, however drugs likely to produce phototoxic response at the treatment wavelength were excluded. Study areas were divided into treatment and control. Laser (V-Star, Cynosure, Inc.) treatment consisted irradiation of the treatment area at 595-nm, 40-msec, 1–1.5 J/cm^2 below purpuric threshold, with adjunctive air-cooling (Smartcool, Cynosure, Inc.). Individual active lesions were then re-treated with up to 2 additional pulses. A total of three treatments were done at 1–3 week intervals, with follow-up evaluation at 1, 8, and 12 weeks following the final treatment. Safety and efficacy were evaluated by lesion counts and determination of side effects.

Results: The combination of laser and drug therapy affects acne lesion count. Proper utilization of combined drug/laser therapy, side effects, and possible mechanisms for combination therapy will be discussed.

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PRELIMINARY EVALUATION OF EPIDERMAL COOLING IN THE LASER TREATMENT OF TATOOS

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Purpose of the Study: Laser treatment of tattoos relies primarily on photoacoustic injury, and to a lesser extent photothermal damage. Treatments are associated with significant epidermal damage and delayed healing times. This study is designed to evaluate the efficacy and safety of cryogen spray cooling in decreasing post-treatment healing times of tattoos in a small group of patients.

Research Design: Patients with predominantly dark green tattoos were selected. Treatments with a Q-switched alexandrite laser (Candela, Wayland, Massachusetts) enabled with a dynamic cooling device using tetrafluoroethane were delivered at 4–6 weeks intervals. Control areas received no epidermal cooling, or epidermal protection with Vigilon dressing.

Summary of Results: Preliminary results appear to indicate that epidermal cooling with cryogen spray cooling is of potential benefit in improving laser treatment of tattoos.

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TREATMENT OF ACTINIC BRONZING AND SOLAR LENTIGINES WITH SUPER-LONG-PULSE FLASHLAMP SYSTEM

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Background and Objectives: To validate the concept and evaluate safety and efficacy of super-long pulses of optimally filtered ("safe and effective spectrum"—SES) broadband light from a flashlamp system (FLS) for treatment of actinic bronzing and solar lentigines.

Study Design/Patients and Methods: 20 patients, skin type I–II, with actinic dyspigmentation, including bronzing and solar lentigines, were treated 3 times with 3–4-week interval with the FLS (Palomar EsteLux^{TM} with LuxG^{TM} handpiece) that utilizes super-long-pulse and SES (dual-band spectral output 500–670 nm, 870–1400 nm in rectangular, uninterrupted 20 ms pulse) with 1–2 passes of single or double pulsing. Treatment fluence (24–30 J/cm^2) varied from patient to patient based on their initial b/L pigment ratio measured with a reflectance spectrophotometer. Cold gel (Humatrix$^{®}$) applied to the skin and pre-cooling sapphire window with cryogen spray provided epidermal protection.

Results: Patients tolerated treatments well with mild post-treatment erythema, lasting up to one hour. Immediate darkening of pigmented areas was followed by gradual fine desquamation over the next 7–10 days. Significant improvements were observed without blistering, hyper- or hypopigmentation or textural changes. Serial b/L ratios, in patients using sunscreen, showed gradual reduction with each treatment. Cosmetic improvement and reduction in b/L ratios persisted in sunscreen compliant patients after 6 months.

Conclusions: The results validated the concept. The FLS with LuxG handpiece is safe and effective in producing long-lasting improvement of severe actinic dyschromia in Fitzpatrick I–II patients compliant with use of sunscreens.

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TREATMENT OF ROSACEA WITH A LONG-PULSE FLASHLAMP SYSTEM

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Objectives: To validate the concept and evaluate safety and efficacy of super-long pulses of optimally filtered ("safe and effective spectrum"—SES) broadband light from a flashlamp system (FLS) for treatment of rosacea.

Study Design/Patients and Methods: 20 patients, skin type I–II, with diffuse blanching erythema and facial telangiectasia (<0.1 mm) were treated with 3 monthly sessions with the Palomar EsteLux^{TM} and LuxG^{TM} handpiece that utilizes super-long-pulse and SES (dual-band spectral output 500–670 nm, 870–1400 nm in rectangular, uninterrupted 20 ms pulse). Cold gel (Humatrix$^{®}$) applied to the skin and pre-cooling sapphire window with cryogen spray provided epidermal protection. One to two single or double-pulsed passes at fluences 24–30 J/cm^2 were delivered based on the size and density of vessels. Spectrophotometric "a" readings were taken before each treatment.

Results: Significant reduction in background erythema, progressive reduction in blood vessel diameter or complete disappearance of blood vessels, and quantitative reduction in spectrophotometric "a" readings toward normal levels were observed after 3 treatments. No blistering, dyschromia or textural changes were noted. Few patients developed delayed onset of soft tissue edema that lasted 2–7 days and resolved without sequela. Importantly, reduction in erythema and spectrophotometric "a" readings remained unchanged from post-treatment values for 6 months.

Conclusions: The results validated the super-long-pulse concept for treatment of small-diameter vessels. The LuxG FLS handpiece is a safe and effective in producing long-lasting reduction in rosacea associated erythema and facial telangiectasia in Fitzpatrick I–II patients.