Combining Confluent and Fractionally Ablative Modalities of a Novel 2,790 nm YSGG Laser for Facial Resurfacing

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Background:  
The 2,790 nm YSGG wavelength primarily targets water, producing ablation and adjacent coagulation. The confluent device (Pearl™, Cutera) delivers treatments with depths confined to the epidermis. The fractional 2,790 nm YSGG ablative laser (Pearl Fractional™, Cutera,) delivers 300 micron diameter columns penetrating 300-1500 microns with 40-60 microns of RTD. This study evaluates the safety and efficacy of combining the two modalities in a single treatment with the goal of addressing both superficial and deeper changes associated with photoaging.

Methods:  
This was an IRB approved study of 10 subjects with Fitzpatrick skin type I-III, mean age 58, mild to moderate photo damage, and moderate wrinkles (mean Fitzpatrick wrinkle score 5.7). Each subject received a full face, single pass confluent 2,790 nm treatment (median fluence 3.3 J/cm²), immediately followed by 120 mJ, 2-3 pass fractional 2,790 nm treatment of areas with wrinkles and/or laxity. Topical anesthesia benzocaine/lidocaine/tetracaine with or without oral analgesics was used to perform all treatments. Pain level (0-10) was evaluated during treatment. Follow up was at 7 days, 11 days, 6 weeks and 3 months. Analysis of outcomes on moderate wrinkles, dyschromia, and skin tone and texture will be performed based on data collected from subject and physician questionnaires, and blinded physician assessment of standardized pre- and post-treatment photographs.

Results:  
Immediately post-treatment, 50% of subjects had mild pinpoint bleeding and 30% had mild oozing, all of which resolved within 24 hours. No serious adverse events occurred. The mean pain score was 4.2/10. At 7 day all wounds had reepithelialized. Results from all other follow-up visits will be available in February 2009.

Conclusions:  
The combination of single treatment confluent and fractionally ablative 2,790 nm laser modalities for facial resurfacing is well tolerated and safe and appears to be effective in the treatment of common stigmata of moderate to advanced photoaging.