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SHORT AND LONG TERM SAFETY OF FRACTIONAL DEEP DERMAL ABLATION

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Background and Objectives: Traditional Ablative Resurfacing carries significant risks including prolonged wound healing, postoperative erythema, infection, scarring and delayed onset hypopigmentation. Fractional Deep Dermal Ablation (FDDA) is an effective modality for the treatment of photodamage. Long term studies were performed to elucidate whether this modality mitigates the risks associated with traditional ablative modalities such as prolonged wound healing or erythema, scarring or delayed onset hypopigmentation.

Methods: A total of 55 subjects were enrolled in three Institutional Review Board approved studies of Fractional Deep Dermal Ablation. A 10,600 nm fractional CO_2 laser system was used. Treatment energies ranged from 5–100 mJ/cm^2 with densities ranging from 100–1600 MTZ/cm^2. Facial and non-facial areas were treated including the face, neck and forearms. Subjects were evaluated for short term side effects including time to complete reepithelialization, erythema, edema, hyperpigmentation and scarring. Twenty-six patients were contacted at either twelve months or twenty-four months after treatment to evaluate the incidence of delayed onset hypopigmentation or scarring.

Results: All subjects had complete reepithelialization within 48 hours post-treatment regardless of energy or treatment location. All subjects had significant but transient erythema and edema that resolved by three months post-treatment. No subjects displayed erythema lasting longer than three months post-treatment. No serious complications were reported. None of the twenty-six subjects followed for long term safety reported any scarring or hypopigmentation.

Conclusion: Fractional Deep Dermal Ablation with the 10,600 nm CO_2 laser offers considerable reduction in post-operative downtime and risk for complications when compared to traditional ablative resurfacing. No permanent side effects were reported in subjects for up to two years post-treatment.

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FRACTIONAL CARBON DIOXIDE LASER (ACTIVE FX) FOR TREATMENT OF ACNE SCAR IN ASIAN SKIN

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Background and Objectives: CO_2 laser has been the standard laser treatment for acne scarring. The treatment is invasive and the down time is long with a risk of post-inflammatory hyperpigmentation in darker skin types. Various treatment modalities have been investigated to decrease the down time to make the treatment more acceptable. The objective of the study is to evaluate the efficacy and risk of post-inflammatory hyperpigmentation (PIH) of fractional CO_2 laser for treatment of acne scar in Asian skin.

Design/Material and Methods: 10 Chinese subjects with skin type III–IV with acne scarring were recruited in this prospective study. Each subject has undergone 1 treatment. Each visit involves single pass treatment over the area with acne scarring. Energy level used was 100 mJ, 50 Hz. Setting was pattern 3, size 5, density 2. The subject is followed up up to 3 months post-treatment. Adverse effects were recorded. Subjects were evaluated by means of standardized photos using the Canfield Visia CR System® and patient questionnaires.

Results: 10 subjects have completed treatment and some are still being followed up. Our data suggests that there is significant improvement in acne scarring (p-value 0.039). Few mild PIH were noted. 70% reported moderate to significant degree of satisfaction.

Conclusion: Our evaluation indicated that active Fx improves acne scarring and the main adverse effect was mild PIH.

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TREATMENT OF PHOTOREJUVENATION AND NECK LAXITY USING SEQUENTIAL EMMISIONS OF WAVELENTHS—A CLINICAL AND HISTOLOGICAL STUDY

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Background and Objectives: Fractional devises have been used in treating wrinkles, skin tone and texture by largely targeting the superficial dermis. The purpose of this study is to evaluate a new laser allowing sequential emission of wavelengths 1320 nm Nd:YAG followed by 1440-nm Nd:YAG employing a diffractive array to simultaneously treat wrinkles, skin tone, and texture as well as skin laxity.

Study Design/Materials and Methods: 10 patients with photoaging consisting of mild to moderate wrinkle and skin laxity on the face or the neck, underwent a series of 3–5 treatments at 2–4 week intervals using the Affirm laser (Cynosure, Inc.) which allows sequential emission of wavelengths (1320 nm targeting the deeper dermis followed by 1440 nm Nd:YAG targeting the region of solar elastosis ~300 microns) and equipped with T-350 CAP array. Fluences of 8–10 J/cm^2 of 1320 nm, followed by 2 J/cm^2 of 1440 nm, 14-mm spot, with 1–2 passes were employed. Histologies of 7 patients were taken at 24 hours and 3 months post 3 monthly treatments. Histology shows fractional coagulative dermal damage and mild fibrosis to 450 microns at 3 months post final treatment. Patients were evaluated photographically throughout treatment and at 3 months post final treatment.

Results: Photographic evaluation showed improvement. Improvement was cumulative, increasing with increasing number of treatments. Using the parameters above, erythema lasting less than 48 hours was a constant finding. There was pain associated with the treatment. It was mild and did not require a topical anesthetic.

Conclusions: The sequential mission of 1320 nm and 1440 nm Nd:YAG laser with T-350 CAP array provides safe and effective treatment of photorejuvenation, and skin laxity of the neck. We are hopeful that further investigation will optimize our treatment parameters.