Low Risk of Postinflammatory Hypertopy
in Skin Types 4 and 5 After Treatment With Fractional CO2 Laser Device

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ABSTRACT

Background/Objective: Hypertopy occurs in more than 37% of dark-skinned subjects treated with a fully ablative CO2 laser device. This study assessed the risk of postinflammatory hyperpigmentation (PIH) in skin types 4 and 5 subjects treated once with a specific protocol of treatment using a fractional CO2 laser.

Methods: Seven subjects with photodamaged skin received a single facial treatment using a fractional CO2 laser. Anesthesia was limited to a lidocaine and prilocaine cream for 1 hour before single-pass treatment. Subjects were evaluated for improvement and PIH on alternate days for 14 days and at 1 month, 3 months, and 6 months after treatment.

Results: All subjects achieved improvement in their specific skin conditions and in skin texture. PIH was not observed in any subject. Four subjects experienced no pain during treatment while 3 reported mild pain. Recovery was associated with minimal pain and itching.

Conclusion: In dark-skinned subjects, fractional CO2 laser treatment and topical anesthesia subjectively improves skin conditions without PIH.

The purpose of this study was to conduct a preliminary assessment of the risk of PIH in skin types 4 and 5 subjects treated once with an ablative fractional CO2 laser device. This CO2 laser device ablates the tissue in the fractional column rather than the new CPG. Although spot diameters (and treatment areas) are larger, the energy delivered is focused and remains localized.4 The advantage of CPGs to the fractional CO2 laser has eliminated the need for sequential treatment of the face, as PIH does not occur in dark-skinned subjects treated with a single-pass fractional CO2 laser device. Treatment was associated with minimal patient discomfort during and after treatment.

The skin resurfacing is to remove sun and skin damage caused by the sun and age-damaged skin and to allow the regeneration of new skin. CO2 laser energy has been considered the gold standard treatment for this purpose. The results of this study suggest that fractional CO2 laser does not occur in dark-skinned subjects treated with a single-pass fractional CO2 laser device. Treatment was associated with minimal patient discomfort during and after treatment.

The aim of skin resurfacing is to remove sun and age-damaged skin and to allow the regeneration of new skin. CO2 laser energy has been considered the gold standard treatment for this purpose. The results of this study suggest that fractional CO2 laser does not occur in dark-skinned subjects treated with a single-pass fractional CO2 laser device. Treatment was associated with minimal patient discomfort during and after treatment.
form delivery of pulses, and promotes more uniform healing of the treated area. Computer pattern generators also permit the user to select pattern shapes, density, and size of the pattern. The low-density setting has no overlap and the high-density setting has more overlap. The larger the size of the pattern, the more laser impacts delivered.\(^6\)

Traditional CO\(_2\) laser treatment is also associated with long recovery times and significant adverse effects;\(^6\) the high incidence of PIH exceeds that of Er:YAG laser treatment and strong anesthesia such as intravenous sedation may be required. Yet, although the Er:YAG laser offers more superficial ablation and quicker healing time, the clinical benefits are less than those achieved with the fully ablative CO\(_2\) laser.\(^6\) To address the need for both higher efficacy and fewer adverse effects, FP laser devices that produce a pattern of tiny columnar wounds surrounded by large areas of undamaged tissue were developed.\(^6\)

The fractional CO\(_2\) laser combines the advantages of the CO\(_2\) laser and fractional photothermolysis. Clinical trials with the ActiveFX treatment have shown its efficacy in the treatment of dyschromia, rhytids, and skin laxity.\(^6\) In a recent 55-patient study of patients (skin types 2 and 3) receiving a full-face, single-pass session (using the same ActiveFX protocol) reported good improvement in fine lines, motiled hyperpigmentation, sallow complexion, tactile roughness, and global score.\(^6\) Transitory PIH reported in 1 case was attributed to misuse of a prescribed sun protection product.

In this study, skin conditions improved with a similar protocol. Subjects with skin types 4 and 5 received a single facial ActiveFX treatment with the UltraPulse Encore, a fractional CO\(_2\) laser device. The use of topical Emla Cream avoided the risk of intransavenous sedation. Four subjects experienced no pain during treatment while 3 noted only mild pain. Postinflammatory hyperpigmentation was not observed in any subject. (This study was limited to 7 subjects because of an initial concern the PIH might occur.) Mild hypopigmentation in 1 subject due to the prophylactic use of tretinoin and hydroquinone was improved when both agents were withdrawn. Recovery was uneventful and associated with minimal pain and itching.

**CONCLUSION**

ActiveFX treatment with the UltraPulse Encore and topical anesthesia subjectively improves common skin conditions with out PIH in Asian skin. Results presented here warrant additional studies with larger sample sizes.

**REFERENCES**


