

SKIN IMPROVEMENT OF ABLATIVE FRACTIONAL CARBON DIOXIDE LASER TREATMENT COMBINED WITH A REPAIRING & ANTI-AGING SERUM

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1 INTRODUCTION

Ablative fractional CO₂ laser (AFCO₂) has been commonly used in cosmetic dermatology for treating various skin problems such as acne scars and photoaging [1]. However, skin could be damaged to a certain extent after this treatment, leading to skin barrier defects [2]. Therefore, it is meaningful to understand the opportunities for cosmetic industry to minimize the skin damage and accelerate skin recovery after AFCO₂ treatment.

2 MATERIALS & METHODS

Objective:

To evaluate whether the application of a cosmetic anti-aging facial serum containing Bifida ferment lysate and Sphingomonas ferment extract could accelerate skin regeneration and enhance anti-aging efficacy after ablative fractional CO₂ laser treatment.

Materials & Methods:

64 Chinese female (20-50y) who with presence of acne scars or blemishes on the face, were randomly divided into the test and control groups (32 subjects/group).

3 stages were included in the clinical study:

stage I (pre-treatment stage)-control group used for standard products, while test group used for standard products plus anti-aging serum for 2 weeks;

stage II (laser treatment & self-recovery stage)-both groups were only provided with doctor-advised epidermal growth factor (EGF) for 10 days after laser;

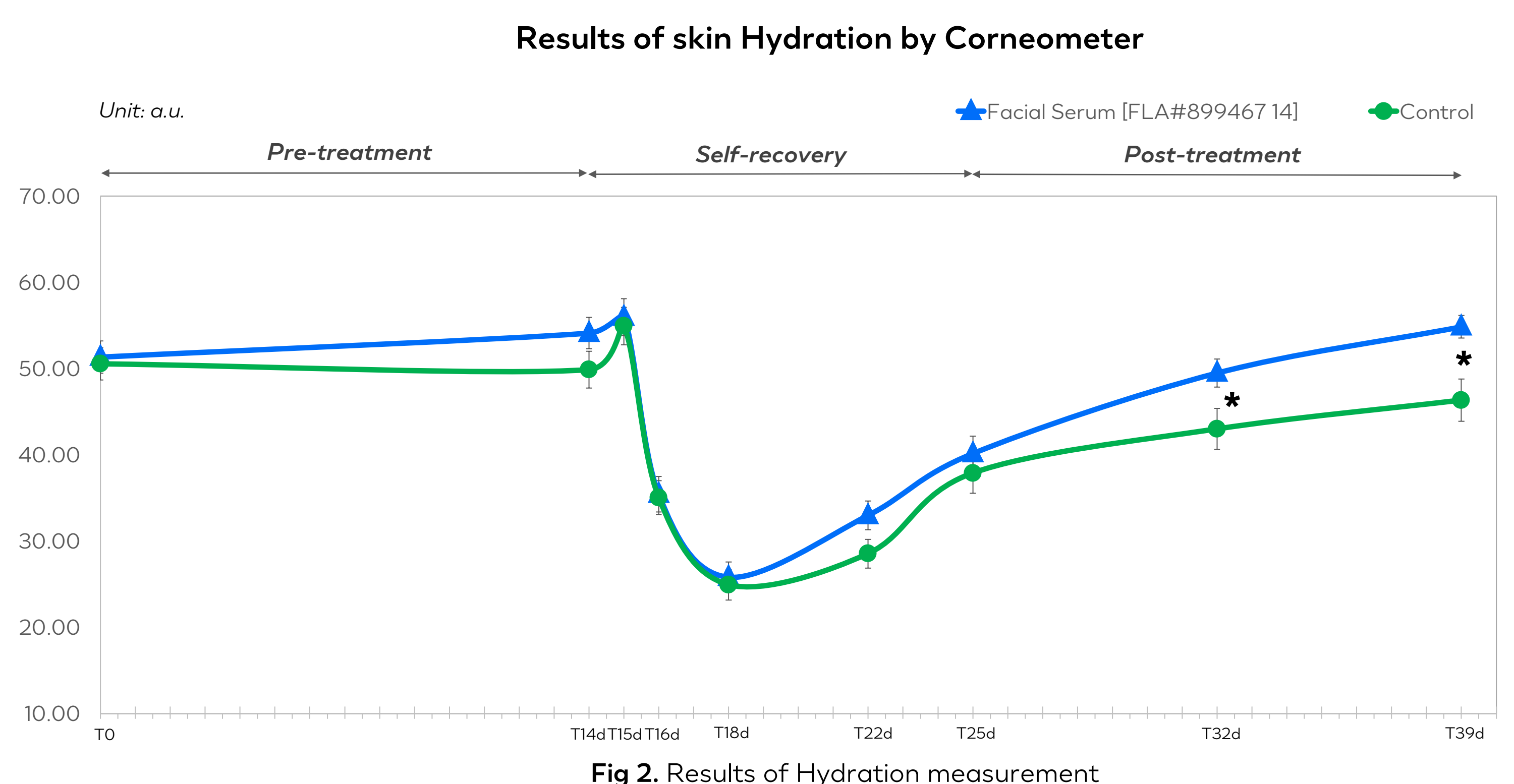
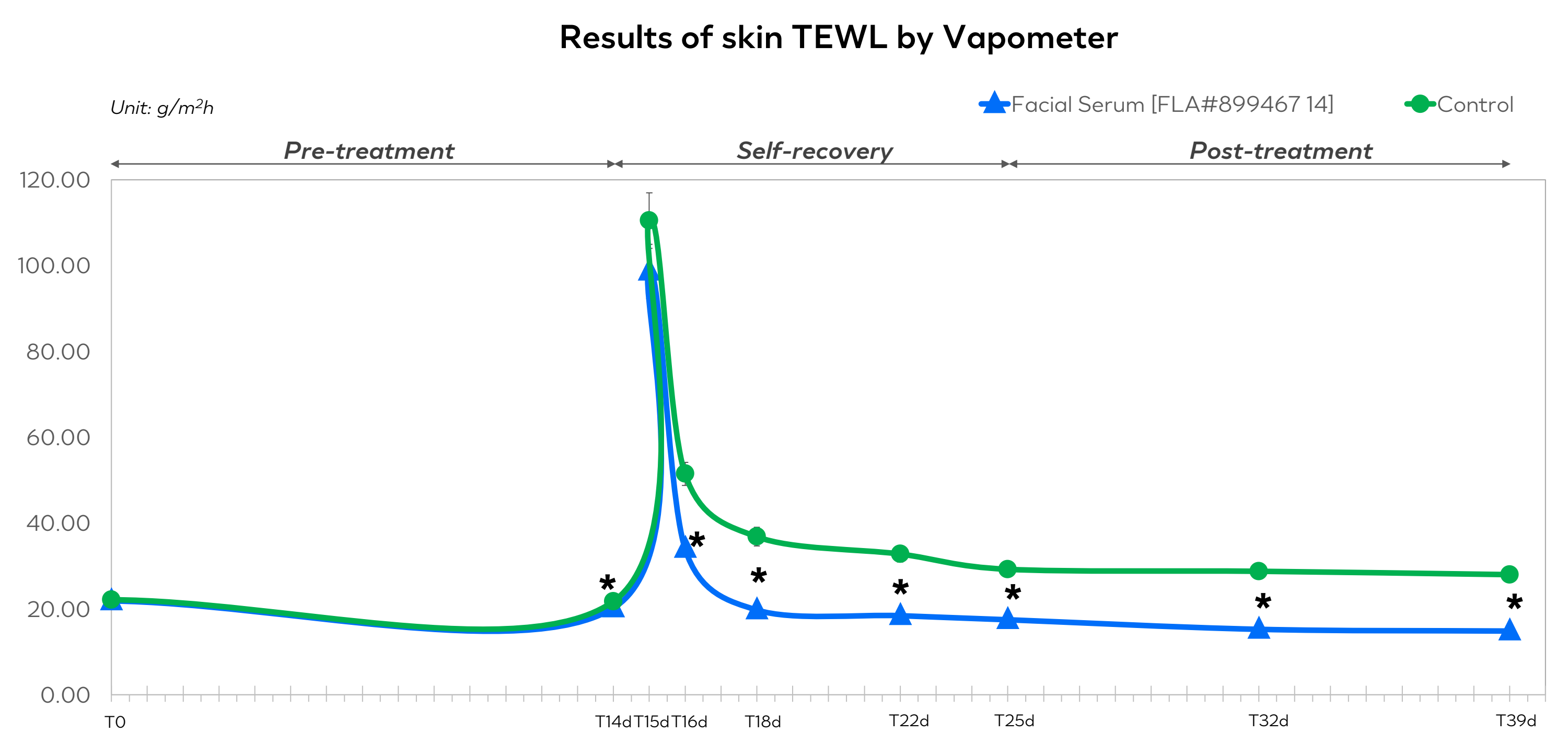
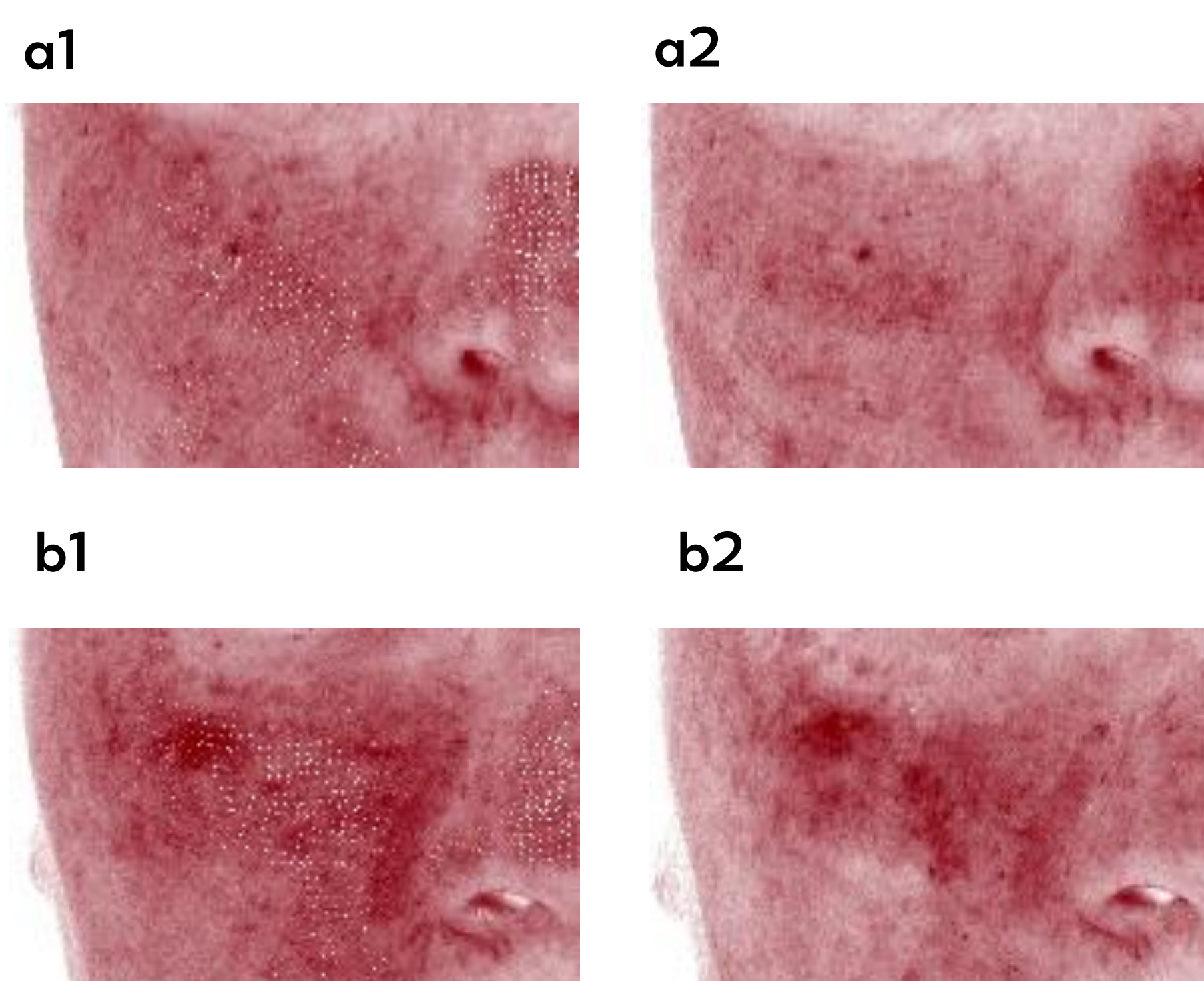
stage III (post-treatment stage)-subjects followed same routine as in stage I for another 2 weeks.

Instrumental measurement, clinical evaluation and self-assessment questionnaire were included during each stage. The side effects after laser treatment were also assessed by dermatologist and subjects themselves.

3 RESULTS & DISCUSSION

A significant better efficacy on skin barrier function improvement was observed for test group (P<0.05) during all three test stages. The skin barrier function with 2-week serum pre-treatment recovered to a better level than control group within 3 days after procedure; while control group did not recover even until the end of the study. Compared to control group, the improvement rate on skin barrier function for serum-treated group was 58.6% at the end of the study. Skin elasticity, smoothness, brightness and hydration was significantly improved at the end of the study, with an improvement rate of 11.2%, 19.9%, 7.5% and 14.3%, respectively. After CO₂ fractional laser treatment, the test group also observed the relief on skin discomforts such as redness, burning, sting sensation at least 7 days quicker than control group.

Fig 3. VISIA 7 images on skin redness immediately after ablative fractional CO₂ laser (T15d) & 1 day after laser (T16d). **a1** Test serum group (RD013) at T15d; **a2** Test serum group (RD013) at T16d; **b1** Control group (RD031) at T15d; **b2** Control group (RD031) at T16d.



Note: * means test facial serum group sig. better than control group

4 CONCLUSIONS

Skin pre-treated with a newly developed cosmetic facial serum before ablative fractional laser could enhance skin barrier, with the boosting effectiveness of ablative fractional CO₂ laser in the treatment of cutaneous aging.

REFERENCES

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- [2] DeBruler, D.M., et al., Inflammatory responses, matrix remodeling, and re-epithelialization after fractional CO₂ laser treatment of scars. *Lasers Surg Med*, 2017. 49(7): p. 675-685.