

EFFECT OF CERAMIDE-CONTAINING FACIAL LOTION WITH A MULTI-VESICULAR EMULSION ON MAINTAINING SKIN HYDRATION: A RANDOMIZED, SINGLE-BLIND, CONTROLLED TRIAL.

Leandra Metsavaht¹, Priscila Correia², Nada Baalbaki³, Mariana Feiges², Sofia Silveira², Nathalia Harnam².

¹Clínica Metsavaht, Rio de Janeiro, Brazil, ²L’Oreal Brasil, Rio de Janeiro, Brazil, ³ Cerave, LLC, USA.

INTRODUCTION

The replenishment of skin lipids on dry and damaged skin is a desirable therapeutic target to restore the barrier and to improve skin moisturization. Sustained release technology is designed to increase and maintain skin hydration by delivering moisturizing ingredients over time, improving the effect of a moisturizer. In this randomized, single-blind, controlled trial a facial lotion containing ceramides, niacinamide and hyaluronic acid in a multilamellar vesicular emulsion (MVE) was tested for its influence on hydration in both dry and barrier disrupted skin in comparison to reference lotion with a soothing complex.

RESULTS

DRY SKIN HYDRATION

According to Corneometer® measurements on face, the ceramide-containing test lotion increased significantly ($p > 0.05$) 31% of the hydration after immediately application (with the product on skin), 7% and 21% after 1 and 14 days (without product on skin), respectively, when compared to baseline. The comparison with the control group, the ceramide-containing test lotion immediately increased skin hydration by 25% compared to the reference lotion ($p < 0.05$), maintaining this effect at day 1 (+7%, $p < 0.05$) and day 14 (+16%, $p < 0.05$).

BARRIER DISRUPTED SKIN HYDRATION

In the TCA-affected skin, the ceramide-containing test lotion increased hydration immediately by 47% compared to the reference lotion ($p < 0.05$) and maintained hydration at day 1 ($p < 0.05$) and day 14.

There was no statistical difference observed between the two groups for the investigator scored parameters on the forearm.

There was no statistical difference observed between the two groups for the subject by self-assessment.

MATERIAL AND METHODS

46 adult (28 – 57 YO) females with self-declared dry and sensitive skin were randomized in two groups: ceramide test lotion ($n=24$) and reference lotion ($n=22$). The influence in the dry skin was evaluated on the face immediately, on day 1 and on day 14. The lotion application was twice daily. The hydration was measured using Corneometer® on 20 standardized regions in order to develop a 3D hydration map of the facial surface. To induce barrier disruption, a 35% solution of trichloroacetic acid (TCA) was applied on both volar forearms. Subjects applied the test lotion or reference lotion to the designated forearm immediately after the TCA application and then twice a day for 14 days; the other forearm remained untreated. Instrumental measurements of hydration (Corneometer®) were performed at baseline, after TCA application, immediately after first application of the lotion, and on clean skin at day 1 and 14. Additionally, erythema, dryness, desquamation, itching, pricking and tightness were scored visually by a dermatologist evaluator. Subjects completed a self-evaluation questionnaire.

Figure 1. Corneometer® measurements in the facial dry skin.

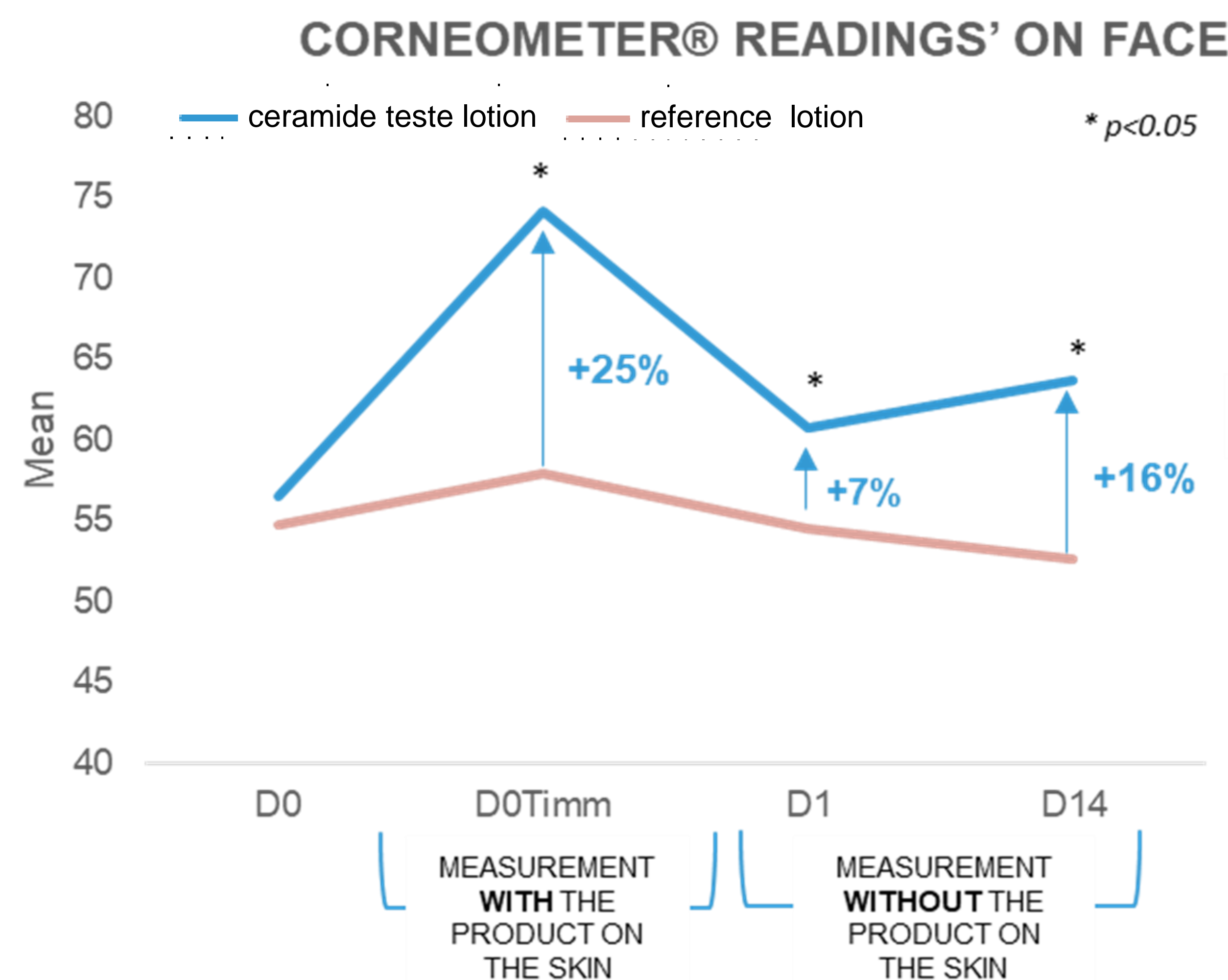


Figure 2. Corneometer® measurements in the barrier disrupted skin.

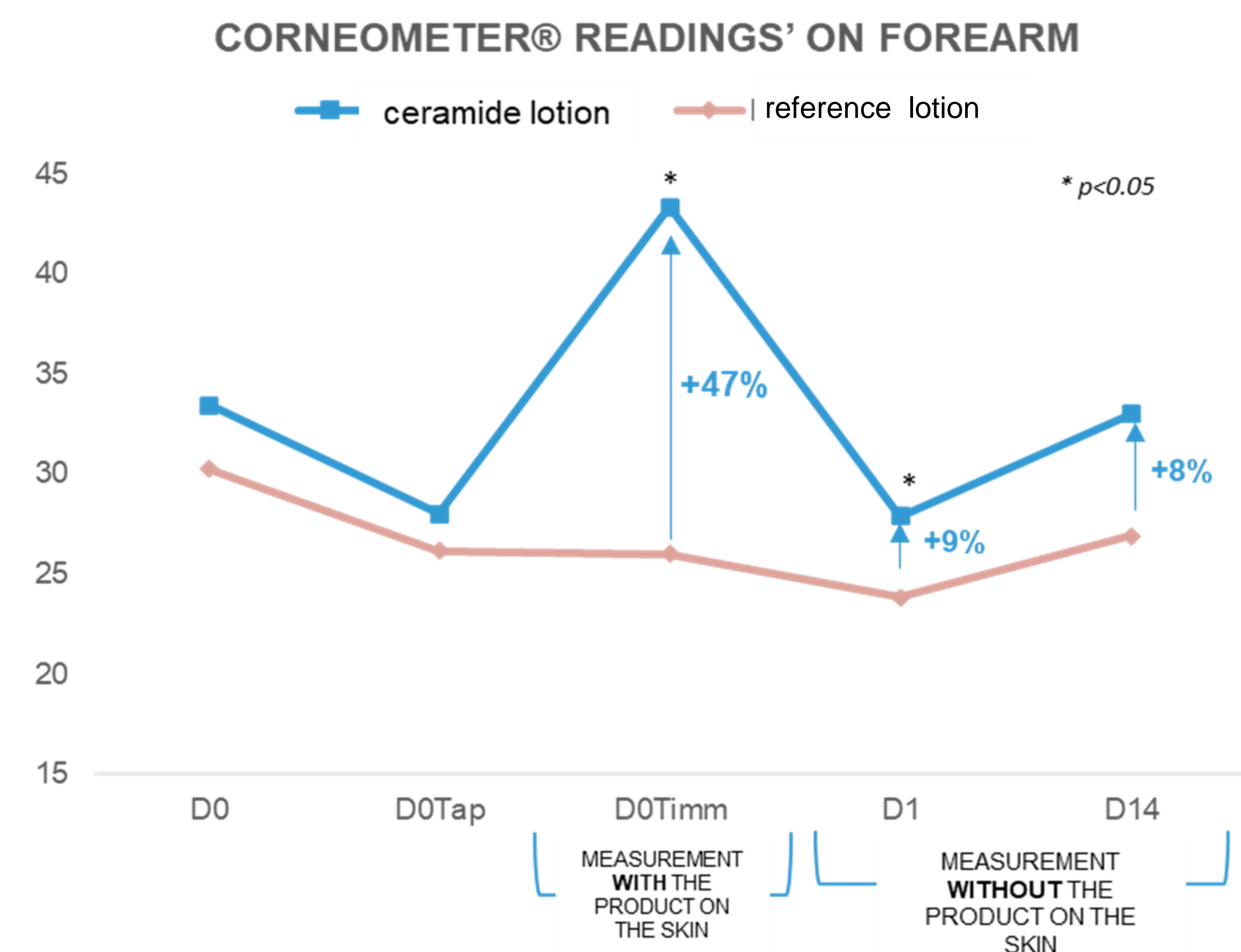
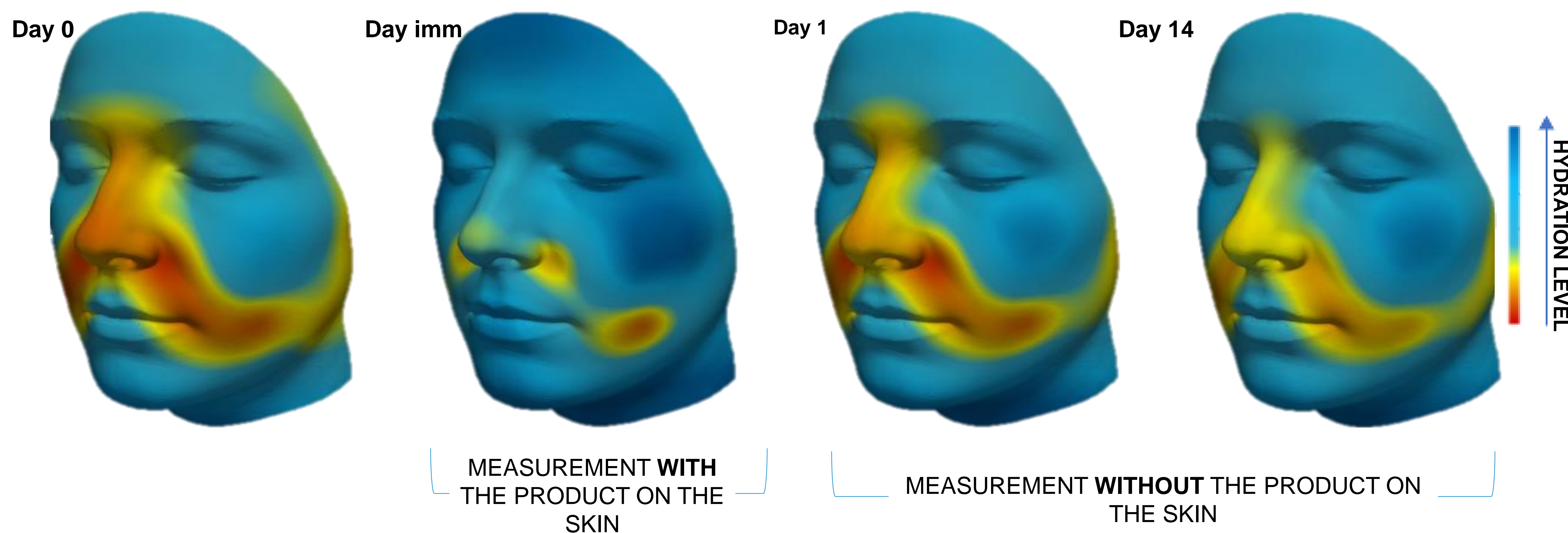


Figure 3. Hydration mapping using the average case of ceramide lotion group.



DISCUSSION

- The ceramide-containing lotion was more effective to immediately increase and maintenance of the hydration in barrier-disrupted skin on the forearm and dry skin on the face compared to the reference emollient with soothing complex.
- Maintaining skin hydration levels is important as any disruption in skin barrier integrity will result in disturbance of the epidermal water balance.

REFERENCES

- Danby SG, Andrew PV, Brown K et. al. An Investigation of the Skin Barrier Restoring Effects of a Cream and Lotion Containing Ceramides in a Multi-vesicular Emulsion in People with Dry, Eczema-Prone, Skin: The RESTORE Study Phase 1. *Dermatol Ther (Heidelb)*. 2020 Oct;10(5):1031-1041. doi: 10.1007/s13555-020-00426-3. Epub 2020 Jul 15.
- Draelos, ZD, Baalbaki, NH and Cook S, et. al. The effects of a ceramide-containing product on stratum corneum lipid levels in dry legs. *J Drugs Dermatol*. 2020 Apr 1;19(4):372-376. doi: 10.36849/JDD.2020.4796.
- Ousey K, Cutting KF, Rogers AA and Rippon MG. The importance of hydration in wound healing: reinvigorating the clinical perspective. *Wound Care*. 2016 Mar;25(3):122, 124-30. doi: 10.12968/jowc.2016.25.3.122.