

Beneficial Effects of a Medical Face Care System in Subjects with Dry Skin

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Abstract

We investigated efficacy, skin compatibility and caring properties of a medical face care system consisting of 2 creams containing 5% urea to meet the specific needs of dry skin conditions of various origin:

– a light w/o emulsion for daily face care (Eucerin® 5% Urea Face Cream, "A")

– a rich w/o emulsion containing additionally ceramide-3, a skin-own lipid, for special use at night (Eucerin® 5% Urea Night Face Cream, "B").

For both creams an improvement of skin moisturisation, reduction of skin roughness and enhancement of skin barrier function (cream B) were proven. These results were further substantiated in a clinical study with cream B performed for 2 weeks in patients with dry skin including chronic dermatoses and atopic dermatitis. The facial skin symptoms dryness, reddening, scaling, fine wrinkles, itch and tension were significantly improved at the end of the study period. The tolerability of the products was mainly assessed to be very good or good. No side effects were reported.

We conclude that the Eucerin® medical face care system consisting of 5% Urea Face Cream and 5% Urea Night Face Cream is excellently suited for patients with dry skin, even in case of atopic dermatitis of the face.

Introduction

Exposure to chemicals, microorganisms, low environmental temperature, and low humidity may cause symptoms of dryness and barrier abnormalities. In addition, normal aging and psychological stress have been reported to influence barrier homeostasis. Acute and chronic perturbations of barrier function may lead to epidermal hyperplasia and cutaneous inflammation by increased production and secretion of cytokines. Furthermore, symptoms of dryness and impaired barrier function to irritants are seen in cutaneous disorders, such as atopic dermatitis, psoriasis and ichthyosis (1). As the part of the body that is most consistently exposed to the drying and aging effects of the environment, facial skin can benefit greatly from currently available moisturizer technology (2). Urea is a compound of the natural moisturizing factor (3). By its hydrogen-bond breaking effect, it may expose water-binding sites on keratins allowing transport of water molecules into the stratum corneum and thereby leading to its plasticization effect (4). The following studies investigated efficacy, skin compatibility and caring properties of a medical face care system consisting of two urea-containing face creams developed to meet the specific needs of dry skin conditions.

Materials and Methods

Test products

A: Eucerin® 5% Urea Face Cream, INCI: Aqua, Urea, Glycerin, Triisostearin, Pentaerythrityl Tetraisostearate, Cyclomethicone, Dimethicone, Caprylic/Capric Triglyceride, Cetyl Alcohol, Sodium Lactate, Glycerol Stearate, Biosaccharide Gum-1, Benzyl Alcohol, PEG-40 Stearate, Methylparaben, Lactic Acid, Lanolin Alcohol.

B: Eucerin® 5% Urea Night Face Cream, INCI: Aqua, Glycerin, Urea, Cyclomethicone, Ethylhexyl Cocoate, Caprylic/Capric Triglyceride, Helianthus Annuus, Isopropyl Stearate, Polyglyceryl-2 Dipolyhydroxystearate, Squalane, Sodium Lactate, Butyrospermum Parkii, Polyglyceryl-3 Diisostearate, Hydrogenated Castor Oil, Benzyl Alcohol, Magnesium Sulfate, Sodium Corn Starch Octenylsuccinate, Lactic Acid, Methylparaben, Disodium EDTA, Ceramide 3, BHT.

Efficacy tests

24 volunteers with healthy skin were enrolled in the studies with cream A. The test product was applied twice daily on the inner forearm. Moisturisation and skin roughness were assessed at baseline, after 1 week and 2 weeks of treatment, 3 days and 7 days after last application.

32 volunteers with dry skin were enrolled in the studies with cream B. At the start of each study a pre-treatment period of 1 week was performed without any application of care products and with standardized cleansing of test areas twice daily. The test product was applied twice daily on the inner forearm. Moisturisation, roughness and skin barrier function were assessed at baseline, 2 hours after 3rd application, 3 days and 2 weeks of treatment.

Clinical in-use study (Cream B)

30 female patients with dry skin including different dermatoses like atopic dermatitis and psoriasis were enrolled in the open, dermatologically controlled study. Symptoms such as dryness, scaling, tension, erythema and itching were assessed by the physician at baseline and after 2 weeks of treatment. Each symptom was evaluated on a five-point scale. After 2 weeks of treatment the facial skin was reassessed by the physician. Changes in skin condition with regard to the baseline evaluation as well as tolerability of the product were evaluated according to a 4 point scale (normalized, improved, unchanged, worsened respectively very good, good, moderate, poor). In addition, the patients evaluated tolerability and cosmetic performance of the products at the end of the study. Product performance (moisturisation, absorption, spreadability, skin smoothness, caring effect, smell, consistency) was rated on a seven-point scale.

Results

Efficacy tests

The application of Eucerin® 5% Urea Face Cream improved skin moisturisation as shown by an increase of corneometer units (Fig. 1). The cream reduced skin roughness (Fig. 2) measured by topometry in the treated areas in comparison with untreated skin. Both effects were highly statistically significant. The analogous tests performed with Eucerin® 5% Urea Night Face Cream showed nearly identical results. The cream B improved skin's barrier function measured by transepidermal water loss (TEWL) (Fig. 3). These effects were statistically significant as well.

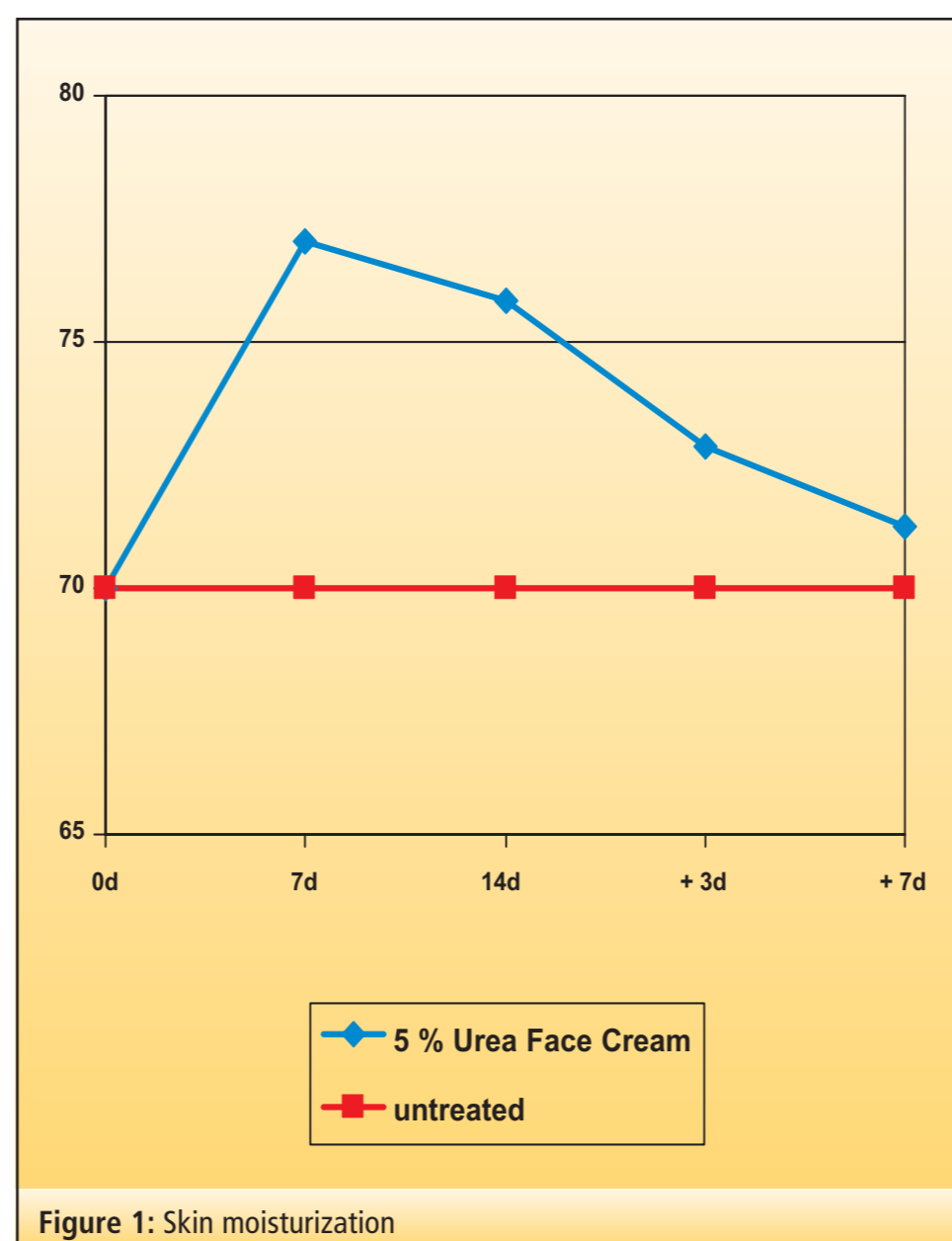


Figure 1: Skin moisturization

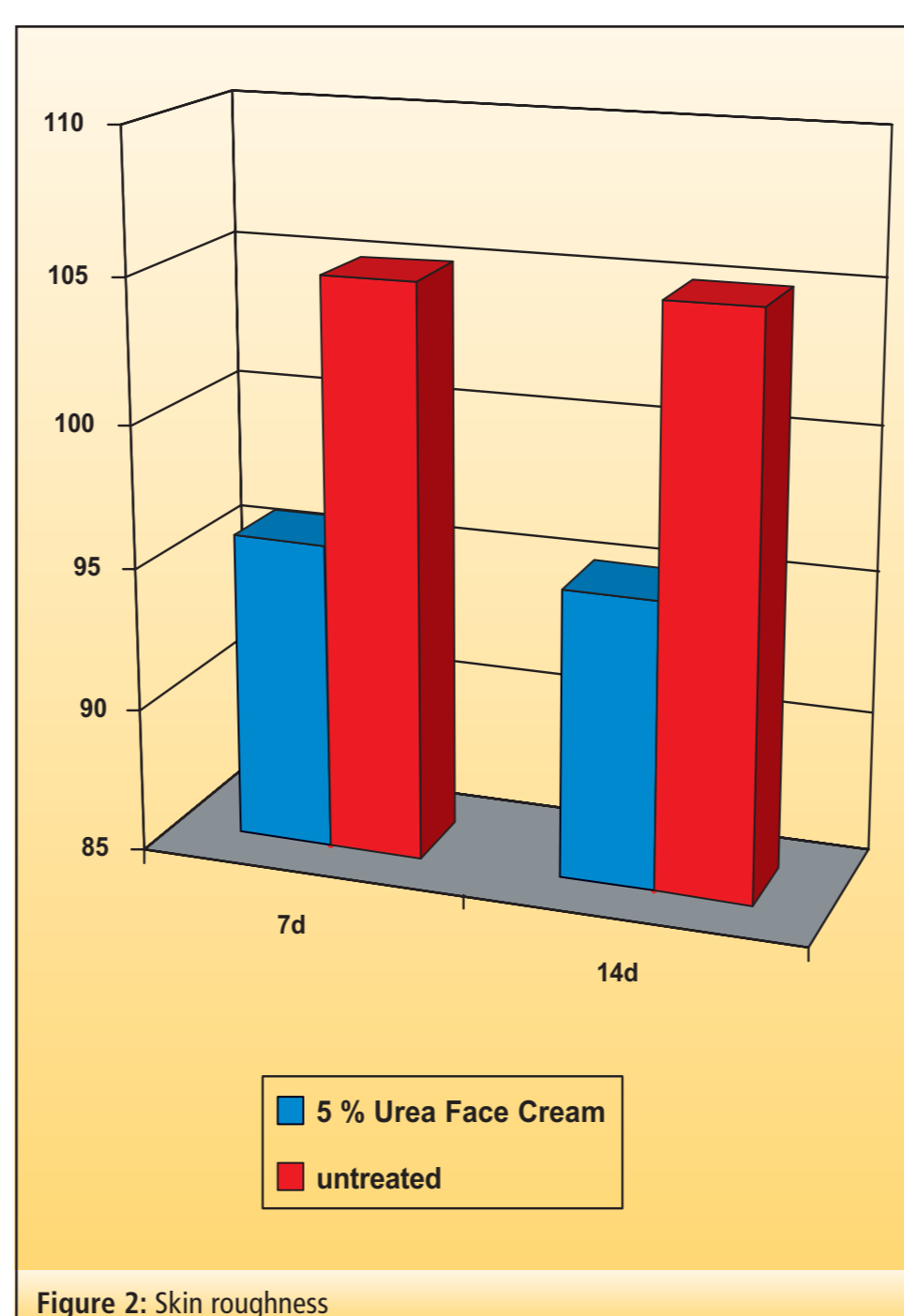


Figure 2: Skin roughness

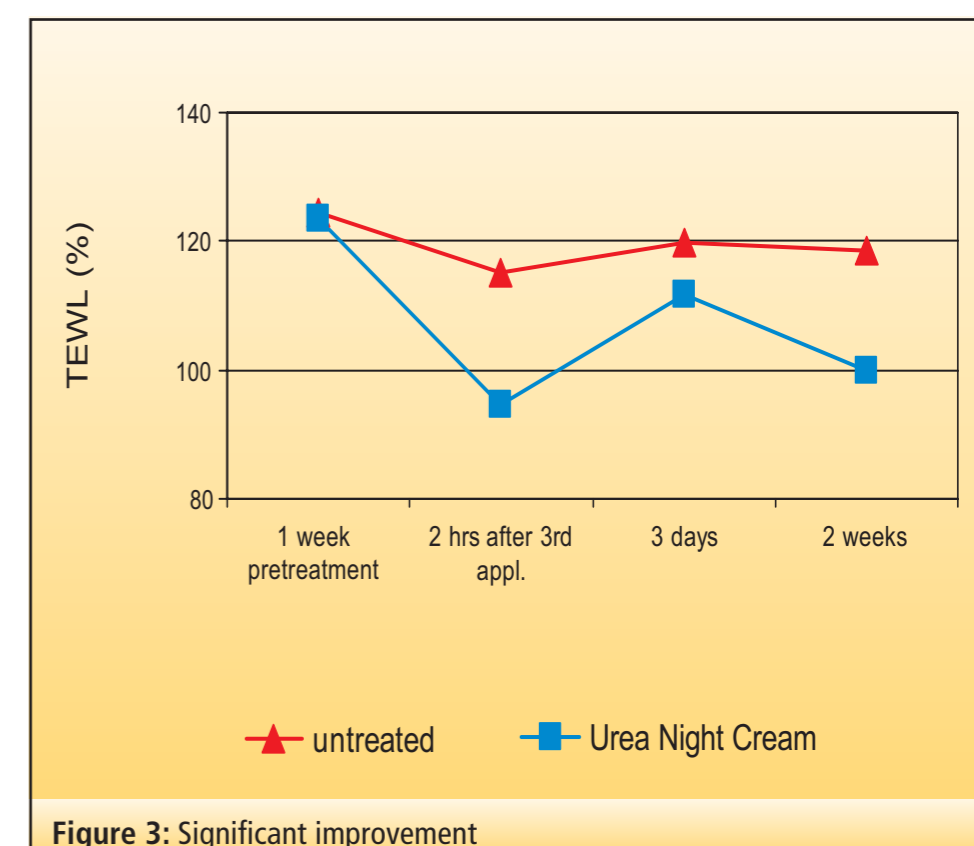


Figure 3: Significant improvement

Clinical in-use study

The comparison of the average scores of the assessments of the solicited symptoms before and after the study showed statistically significant improvements for dryness, scaling, reddening, tension, itch and fine wrinkles (Fig. 4). The most pronounced changes were observed for the dryness and tension of the skin. The assessment of the tolerability by the investigator and by the patients was predominantly rated to be "very good" or "good".

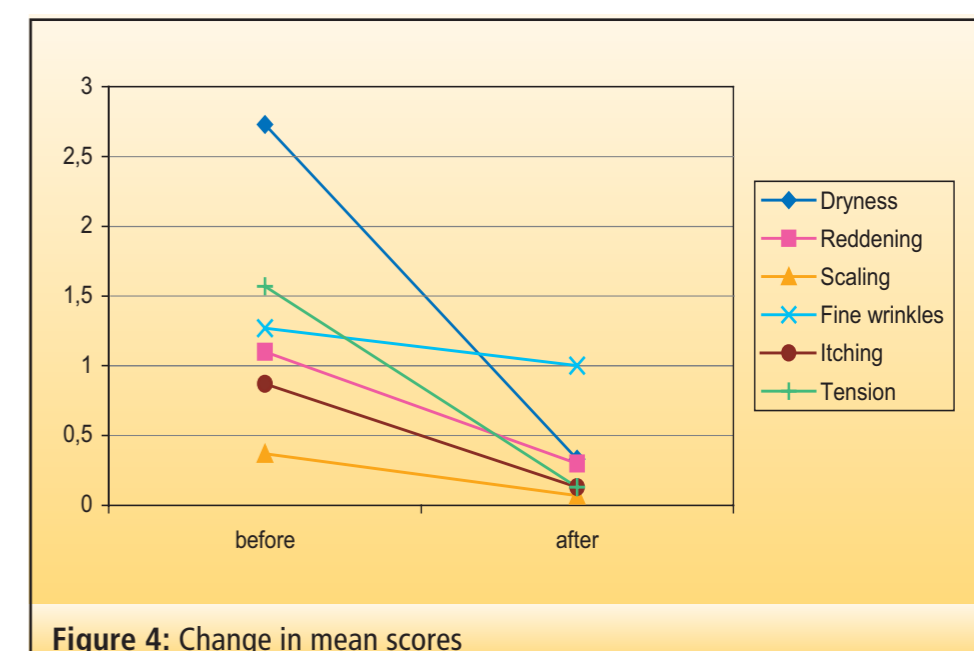


Figure 4: Change in mean scores

The assessments of the product properties were mainly positive with the best mean scores for the potential to smoothen rough and dry areas of the skin (mean: 5.9) followed by the easy spreadability of the product and its good supply of moisture (mean: 5.4 in both cases). Almost all patients with dry skin indicated that they would like to keep using the tested product after the end of the study.

Discussion and Conclusion

Dryness is frequently linked to an impaired barrier function observed, for example, in atopic skin, psoriasis, ichthyosis and contact dermatitis. Moisturizing creams are used to break the dry skin cycle and to maintain the smoothness of the skin. Large differences also exist between moisturizing creams (1). In the present studies we could show that the Eucerin® medical face care system, especially developed for dry skin conditions of the face, consisting of Eucerin® 5% Urea Face Cream and Eucerin® 5% Urea Night Face Cream, is excellently suited and highly tolerable for subjects with dry skin, even in atopic dermatitis.

References

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