

# Evidence-Based Corneotherapy

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In this issue of *Dermatology*, Tagami and his group propose a practical method to evaluate the hydrating properties of various skin moisturizers used in adjuvant skin care. The authors' objective was to develop a test based on a non-invasive biophysical approach that allows to compare the remanence of the hydrating effect of various skin moisturizers. They determined stratum corneum hydration by electrical conductance measurement, a method that assesses superficial skin hydration and has been well evaluated. The results are clear-cut and show what one would expect, i.e. that skin moisturizers really moisturize the skin, and that some, containing urea or heparinoids, provide a longer-lasting effect.

The authors ascribe this remanent action of topical skin hydration to a pharmacological effect, and use the term of 'corneotherapy'<sup>1</sup>, instead of simple 'repeated application of moisturizers'.

Now, what makes the difference between 'corneotherapy' and 'repeated application of moisturizers'?

Corneotherapy takes its rationale from a 'corneal' perspective of the pathogenesis of skin diseases. The stratum corneum is recognized as a dynamic and interactive tissue. Epidermal IL-1 $\alpha$  was just an early candidate link between skin barrier disruption and subsequent dermal inflammatory reactions [1]. Increasing knowledge about the physiology of the permeability barrier and the sequential events between barrier insults and epidermodermal

responses have led to a new *outside-inside concept* of skin disease triggering. For example, the sustained barrier abnormality in overlying epidermis [2] has been proposed as the trigger in keloid development (as opposed to the orthodox view of dermo-epidermal triggering), offering a rationale for occlusive treatment (for an exhaustive discussion, see Elias [3, 4]). Further progress in basic research on the mechanisms regulating skin barrier homeostasis is needed to open up the perspectives for rational corneotherapy, and this rational base may indeed make a difference to simple repeated application of moisturizers.

Is it pharmacological versus non-pharmacological action that discerns corneotherapy from repeated application of moisturizers? This would be a rather dogmatic position that might be difficult to maintain, because one would have to argue with eminent proponents of, say, 'water dermatology' [5]. It is scientifically more honest to accept that any product applied to the skin acts pharmacologically, be the effect measurable or not. The real question is the indication of the application of the product and the evaluation of the manufacturer's product claims. It is in regard to this latter point that the study of Tagami and his group is pertinent, as it demonstrates the power of today's biophysical methods to discern subtle differences between products with similar intention profiles.

Finally, corneotherapy is, as a term, en vogue, and dermatologists are trendsetters in the application of non-invasive methods for clinical investigation. If the call for a base of evidence, for treatments that are so much part of clinical common sense as adjuvant skin moisturizing,

<sup>1</sup> The term 'corneotherapy' has been coined by Prof. A.M. Kligman [pers. commun.].

may seem exacting, it is much more constructive to take up the issue and evaluate corneotherapy as an evidence-based approach in the treatment of skin disease, instead of dismissing it as cosmetology and low science.

There is no doubt that the final outcome will be a renewed esteem for the specialist's clinical skill that, as we all know, makes the *real* difference between simple repeated application of moisturizers and corneotherapy.

## References

- 1 Hauser C, Saurat J-H, Schmitt JA, Jaunin F, Dayer JH: Interleukin 1 is present in normal human epidermis. *J Immunol* 1986;136:3317–3322.
- 2 Suetake T, Sasai S, Zhen Y-X, Tagami H: Functional analyses of the stratum corneum in scars. *Arch Dermatol* 1996;132:1453–1458.
- 3 Elias PM: Signaling networks in barrier homeostasis. *Arch Dermatol* 1996;132:1505–1506.
- 4 Elias PM: Stratum corneum architecture, metabolic activity and interactivity with subjacent cell layers. *Exp Dermatol* 1996;5:191–201.
- 5 Kligman AM: Hydration injury to human skin; in Elsner P, Berardesca E, Maibach HI (eds): *Bioengineering of the Skin: Water and the Stratum corneum*. Boca Raton, CRC Press, 1994, pp 251–255.