

Corneotherapy – Quo vadis?

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Strengthening and maintaining the health of the stratum corneum is the goal of corneotherapy. What is important in the material composition, which application possibilities there are and why it is still not mainstream, you can find out here.

For many years, the professional associations have failed to formulate quality standards that attest to the institutes' special, certified performance. In general, marketing is the dominant factor within cosmetics. Sound background information about the substances and treatments used is falling behind and sustainability leaves much to be desired.

Sustainability

Corneotherapy, which was initiated by Prof Dr Albert Kligman, who died in 2010, fills this gap. It was he who proved in studies that substances used in cosmetics can have a lasting effect on dermatological indications such as atopic skin. In his studies, the restoration of the disturbed skin barrier played a primary role. Hence the name "corneotherapy", which refers to the importance of the intact stratum corneum for maintaining the health of the skin.

Parallel developments

Almost at the same time as the Kligman work, the first lamellar skin protection preparations were developed in the nineties, the composition of which not only matched the physiological requirements but also physically matched the lamellar lipid bilayers of the skin barrier. The basic idea was to use the phosphatidylcholine known from the cell membranes, which also have a lamellar structure, for the protective creams.

At that time, experience was already available with the phosphatidylcholine-containing liposomes, which are similar in size and composition to cell membranes and which, due to their high penetration enhancement, dispensed with most of the excipients used in cosmetics, such as preservatives. Additional emulsifiers, which are responsible for the undesirable wash-out effects of skin care products during skin cleansing, were also avoided. In order to realise the flat lipid bilayers of the skin barrier in contrast to the cell-like liposomes, only the fatty acid composition of the phosphatidylcholine was changed. The unsaturated acids bound in the molecule were replaced by their likewise physiological saturated relatives.

Many application possibilities

With the new developments, corneotherapy, which originally focused on the elimination of barrier disorders and the associated influence on skin hydration and transepidermal water loss ("water dermatology"), could be extended to cornification and connective tissue disorders. The Moscow professor Dr Ksenija Suvorova coined the term "adjuvant corneotherapy" for cases in which adequate, adapted corneotherapeutic skin care is applied to the medical indication and treatment.

Not widely used so far

Looking back at history, the question arises as to why corneotherapy has not developed into a broad mainstream until now. The answers are obvious:

- In both cosmetics and dermatology, basic chemical, physical and biological knowledge is not widely available to grasp the complex relationships between cause and effect in an indication and translate them to treatment with appropriate compositions.
- Dermatologists are very well versed in active pharmaceutical ingredients, but usually not in the material properties of base creams, for example. Even today, the most common standard question when presenting a topical cream is how high the lipid content is, without asking about the type and concentration of emulsifiers.
- Corneotherapeutic treatment with suitable compositions requires modular, coordinated components that enable adapted prescriptions in the institutes similar to the extemporaneous prescriptions in the pharmacy.
- The cooperation between dermatological practices and competent cosmetic institutes still has rarity value – similar to the needle in a haystack.

Treatment components

Not every material composition is suitable for corneotherapy. Without going into detail, the criterion is the physiological compatibility of the components used with the skin, its condition, the present indication as well as the microbiome surrounding the skin. In other words, physical, chemical, biochemical and microbiological processes have to be taken into account that decide whether to use or exclude components.

However, there are also fundamentally counterproductive components such as the already mentioned adjuvants, which should be avoided from the outset. The constant evaluation of new scientific findings is the prerequisite for further optimising corneotherapy in this respect.

Literature

- Korneotherapie – Bindeglied zwischen Dermatologie und Kosmetik, 1. Auflage, Deutscher Apotheker Verlag, Stuttgart 2022, ISBN 978-3-7692-7893-4
- Die Haut und ihre Pflege, Chemie in unserer Zeit 55 (5), 306-319 (2021)

Note

The International Association for Applied Corneotherapy (I.A.C.) is a non-profit organisation (NPO) that has set itself the goal of disseminating Prof Kligman's corneotherapy, developing it further and making it accessible to those working in dermatology and cosmetics. Non-members can participate in the symposia.

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