

Wissenschaftliche Posterausstellung: Poster 2

Direct Evaluation of the Barrier Integrity by Visualization of the Intercellular Lipid Lamellae using TEM. Pilot Study with an Emollient on Children with Atopic Skin

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Treatment options of atopic dermatitis (AD) encompass the use of medicated and non-medicated preparations. One sign of atopic dermatitis is an impaired skin barrier which could be shown by either improved clinical features, by a reduced transepidermal water loss or by increased skin hydration. A direct evaluation of the barrier integrity is only possible by electron microscopical visualization and may be characterized by the lipid lamellar organization in the intercellular space between the corneocytes of the stratum corneum. Skin barrier integrity was measured by morphometric analysis of the stratum corneum inter-cellular lipid lamellae in non-lesional and eczematous skin of atopic children and after a 15-day treatment (plus a 7 day follow-up) of atopic skin with a glycerin preparation. Furthermore, skin capacitance, transepidermal water loss and the local SCORAD were measured at the same time points.

A significant treatment effect was shown by the restoration of the inter-cellular lipid lamellae. This pilot study reveals that the morphometric analysis of the lipid lamellar organization is suitable to differentiate between healthy and diseased skin and to semi-quantitatively determine the effect of a non-medicated glycerin formulation. It is hypothesized that the technique is a promising tool to evaluate the strength of medicated and non-medicated preparations to normalized the skin barrier integrity.

