Acid-coated Textiles (pH 5.5-6.5) - a New Therapeutic Strategy for Atopic Eczema?

Abstract:

Increased transepidermal water loss (TEWL) and decreased skin capacitance are characteristic features of the disturbed epidermal barrier in atopic eczema (AE). The "acid mantle", which is a slightly acidic film on the surface of the skin has led to the development of acidic emollients for skin care. In this context, the effect of citric acid-coated textiles on atopic skin has not been examined to date. A textile carrier composed of cellulose fibres was coated with a citric acid surface layer by esterification, ensuring a constant pH of 5.5-6.5. Twenty patients with AE or atopic diathesis were enrolled in the study. In a double-blind, half-side experiment, patients had to wear these textiles for 12 h a day for 14 days. On day 0 (baseline), 7 and 14, tolerability (erythema, pruritus, eczema, wearing comfort) and efficacy on skin barrier were assessed by TEWL skin hydration (corneometry/capacitance), pH and clinical scoring of eczema (SCORAD). Citric acid-coated textiles were well tolerated and improved eczema and objective parameters of skin physiology, including barrier function and a reduced skin surface pH, with potential lower pathogenic microbial colonisation.