

PAEDIATRIC DERMATOLOGY

EFFECTS OF EMOLLIENT USE ON THE DEVELOPING INFANT SKIN MICROBIOME

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Introduction: Although the skin microbiome acquires an infant skin-like profile days after birth, the microbial community evolves throughout a longer period of infancy. Establishing a healthy skin microbiome is essential to limiting access to harmful/infectious microbes and may contribute to immune modulation. Microbial dysbiosis associated with atopic dermatitis (AD) can impact management of this inflammatory skin disease. Emollients are beneficial in preventing/treating AD, potentially due to effects on the skin barrier and microbiome, and current evidence supports their use in at-risk infants.

Objective: We examined effects of a mild cleanser and a topical emollient on the skin microbiome of healthy infants.

Materials and Methods: A single-center, evaluator blinded, randomized trial evaluating cleansing alone versus mild cleansing and emollient regimen, on skin barrier and microbiome effects was conducted in healthy infants aged 3-6 months. Microbial diversity and richness, and skin barrier parameters (hydration; pH) were measured at baseline, after 2 and 4 weeks of treatment, and after 3-5 days of regression. The presence of lipids, amino acids, and other metabolic products were assessed in a subset of patients.

Results: Both regimens were well tolerated. There were no statistically significant differences in hydration in either regimen at day 14 or 28 versus baseline. Although there was a statistically significant increase in pH after regression (cleanser) and after immediate moisturizer use and day 14 (cleanser & emollient), skin pH remained slightly acidic throughout the study in each regimen. No statistically significant changes in dryness, redness/erythema, rash/irritation, tactile roughness or total objective irritation score, or overall skin appearance occurred in either group versus baseline at any timepoint.

Conclusions: While microbial diversity was maintained with both regimens, a statistically



significant increase in microbial richness observed with emollient use suggests that emollients may help improve microbial community richness, overall skin barrier integrity, and skin health.

