Editorial

Can Changing Skin pH Help Us Control Atopic Dermatitis?

The therapeutic options for atopic dermatitis (AD) are rapidly evolving as new medications are developed to address patient needs. Systemic medications, such as methotrexate, azathioprine, and cyclosporine, have been used for years; new small molecules such as the Janus kinase inhibitor baricitinib are under development, and dupilumab has already revolutionized the treatment of AD.[1] Given their costs and/or side effects, these treatments are reserved for patients with moderate-to-severe AD, whereas those with milder AD are often managed using topical therapies. While the new developments have been revolutionary, there continues to be a need for highly efficacious treatments for patients with limited disease who have failed first-line therapies.

For mild AD, topical corticosteroids continue to be the medication of choice. However, patients and caregivers may experience steroid phobia, contributing to medication nonadherence.[2] While steroid-sparing topical medications, such as crisaborole, can be effective, application-site discomfort and the general difficulty of topical treatment may limit adherence.[3] Other topical options – including ruxolitinib, tapinarof, and roflumilast – are currently undergoing trials with promising results, but these topical treatments will still face the hurdle of poor adherence in real-life use.[4] Different approaches may be needed to surmount the problem of poor adherence. In the study by Lee and Jamil reported in this issue of JDDS, skin pH correlated with the severity of AD, posing the question of whether therapies targeting alterations in skin pH may lead to improvement in AD.[5]

While multiple endogenous and exogenous factors influence skin pH, the skin pH of those with AD is generally greater than those without disease.[6] Lee and Jamil observed the pH and transepidermal water loss (TEWL) at lesional versus nonlesional skin in patients with AD, ultimately finding that both pH and TEWL were even greater at lesional and peri-lesional skin than that in the surrounding nonlesional areas. Both pH and TEWL positively correlated with disease severity as determined by itch and Eczema Area and Severity Index scores. These results suggest that increased skin pH may be a contributing factor to disease severity, highlighting an important potential therapeutic avenue. Lowering pH toward that of normal skin may be accomplished by implementing topical treatments of proper acidity and though this has not yet been evaluated, long-term topical alteration of pH may prove to be a helpful component in managing localized diseases. In addition, modulating skin pH may also be explored as a means to prevent further lesions.

Targeting the alteration of skin pH may be explored as a useful approach to treatment in mild disease. However, if changing the skin pH requires long-term use of a topical treatment, this approach will still face the daunting challenge posed by patients’ poor adherence to topical treatment. While steroid-sparing agents may better be received by patients than steroids are, adherence to ongoing, chronic treatment will still likely be a major hurdle.

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Received: 25 October 2020, Accepted: 27 October 2020, Published: 10 November 2020

References


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