Effect of vinegar on oxazolone induced atopic dermatitis murine model

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Maintenance of acidic pH in stratum corneum (SC) is an important factor for normal skin barrier function. Recently, it was reported that simply acidification of SC substantially prevents barrier damages and immune abnormalities toward atopic dermatitis development in murine skin. Vinegar is a representative acidic solution that has been used as an oriental medicine and a folk remedy for the treatment of pruritus and eczema. We investigated whether vinegar could be used as a modality of treatment and/or prevention of atopic dermatitis (AD).

We applied vinegar containing cream twice daily for 20 days during the course of oxazolone induction for AD hairless mice model, and evaluated gross morphology, skin barrier function, immunohistochemical stain and molecular findings. Acidic cream as well as vinegar containing cream showed better gross appearance, epidermal permeability barrier function, epidermal differentiation and anti-microbial peptides (CRAMP, mBD3) expression, and restored the predominant Th2 phenotype compared with neutralized cream and vehicle. These results suggest that not only vinegar containing cream but also acidic cream could be useful in the treatment and prevention of atopic dermatitis.

Key Words : Atopic dermatitis, Oxazolone, Vinegar, Acid, Stratum corneum