

Scientific Symposium on Advanced Skin Care for Successful Management of Skin Barrier Impairment and Atopic Dermatitis

Reported by WH Leung 梁衛紅

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Epidermal barrier dysfunction management

Speaker: Gavin Ong
The Skin Specialist, Singapore

Atopic dermatitis (AD) is the most common skin disease in children and may persist into adulthood in as many as 20 to 30% of individuals. It can cause a significant impact on quality of life with physical, emotional and financial burdens. A family history of AD or other atopic diseases (e.g. asthma or hay fever) is known to be a risk factor of AD. This suggests that genetic predisposition with environmental interaction plays a central role in the pathogenesis of AD and other atopic diseases in sequence ("atopic march"). The pathogenesis of AD mainly involves epidermal barrier dysfunction and immune dysfunction. Factors contributing to epidermal barrier dysfunction

include loss of function mutation of filaggrin (FLG) gene that is crucial in the formation of natural moisturizing factor (NMF), and decreased ceramides (ceramide 1 and 3). The current management of AD relies on a step-up approach starting from moisturisers to topical corticosteroids and calcineurin inhibitors, followed by systemic treatment. New moisturisers containing ceramides and N-palmitoylethanolamine (PEA) are available which may offer an alternative option to traditional emollients. Emerging systemic treatments targeting the Th2 pathway include dupilumab (IL-4/IL-13 inhibitor), lebrikizumab (IL-13 inhibitor), tralokinumab (IL-13 inhibitor) while crisaborole, a topical phosphodiesterase 4 inhibitor, is undergoing phase 3 trials in patients with mild-to-moderate AD.

Learning points:

New findings on epidermal barrier dysfunction and immune dysfunction have provided new targets for emerging treatments of AD.

Advanced skin care for successful management of skin barrier impairment and symptoms

Speaker: Rene C. Rust

University of Basel, Switzerland

An intact skin barrier is vital to human health as its dysfunction will result in skin dryness, pruritus and susceptibility to irritation. A feasible, safe and effective way for atopic dermatitis (AD) prevention by emollient use from birth has been suggested in the literature. One critical factor to maintaining an intact skin barrier is intercellular lipid composition and organisation within the stratum corneum. Tightly packed intercellular lipid lamellae can provide a protective physical barrier. The essential lipids and molecules for a healthy skin barrier include ceramides, triglycerides, glycerol and squalene. A new concept of biomimetic formulation aims to provide the lipids and other molecules similar to those in healthy skin. Experiments have shown that lipid organisation in biomimetic hand creams is similar to that of a healthy stratum corneum

at body temperature. Vitroskin is a testing substrate that mimics the surface properties of human skin. It is a synthetic product used in testing for sunscreen measurements, evaluation of water resistance and emollient spreading. It has been found that water vapour transmission rate was lower with biomimetic formulations such as Vitroskin®. Similarly, the emerging role of N-palmitoylethanolamine (PEA) in skin care has been studied. The result of the ATOPA study showed that substantial relief of objective and subjective symptoms of atopic eczema with improvement in sleep quality was achieved after regular skin care with the study cream containing PEA. The study also showed a reduction in use of topical corticosteroid.

Learning points:

Biomimetic and PEA-containing moisturising formulations are found to have an encouraging effect in reducing dryness of skin and the associated pruritus.