

〈シンポジウム I〉

『環境と皮膚免疫』

角質水分量は皮膚アレルギー反応の強さを決めている

水川良子

Magnitude of Cutaneous Allergic Responses Depends on Skin Surface Hydration

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Abstract

The high morbidity rate of allergic diseases such as atopic dermatitis (AD) is observed in advanced countries. This phenomenon implies that environmental factors have a strong impact on the rise in allergic diseases. Modernization and changing lifestyle can influence room temperature and humidity: an increase in temperature and decrease in humidity have been reported. The characteristic of AD is reduction of a skin surface hydration associated with increased transepidermal water loss (TEWL). In this regard, the abnormal skin barrier function induced by the filaggrin (FLG) mutations has attracted attention as one of the important factor which causes AD. However, little attention has paid to the alternative possibility that a decrease in the skin surface hydration. Therefore, our aim of this study is whether a degree of skin surface hydration induced by a change of environmental humidity can influence a magnitude of cutaneous allergic responses. We use the mouse model to discuss it and try to elucidate its mechanism. We demonstrate that there is a high degree of variability in the water content among various strains: high water content is well associated with reduced contact hypersensitivity (CHS). Regardless of strains used and of conditions in the sensitization phase, each mouse display reduced CHS, when elicit under a high humidity condition, through an increase in the water content. Absorption experiments show that water content is crucial for the penetration of epicutaneously applied hapten. In conclusion, the important factor that can influence the development of CHS is the water-holding capacity of the stratum corneum.

Key words: atopic dermatitis (AD), skin surface hydration, contact hypersensitivity (CHS).