

〈教育セミナー〉

(21世紀へ向けてのアンチエイジング—しわを防ぐために)

表皮性のシワ発生メカニズムとその改善 ——表皮バリアーの関連について——

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Formation Mechanisms of Wrinkles Originated in Epidermis and Its Improvement

—Contribution of skin barrier disruption to its formation—

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Abstract

Skin dryness leads to several alterations of skin appearance such as the formation of scaling, the direction-disrupted and obscure furrows and the formation of fine wrinkle. It has been understood that the fine wrinkle develops to deep wrinkle under exposure to UV lights or severe environmental conditions. A theme in this seminar is “the formation mechanisms of wrinkles originated in epidermis and its improvement.” However, it is so difficult to define epidermal wrinkles or to distinguish between epidermal wrinkles and dermal wrinkles. Then, fine wrinkles, which were easy to disappear by loading of water, were defined as epidermal wrinkles. In the seminar, we attempted to investigate the relationship between the formation of fine wrinkle and skin barrier. It has been found that oleic acid or squalene monohydroperoxide (Sq-OOH) gave the disruption of skin barrier. Thus, to develop the model of fine wrinkle using hairless mice, each oleic acid and Sq-OOH was successively applied onto dorsal skin. Both chemicals led to disruption of skin barrier, decrease of skin surface water content, epidermal thickness and skin roughness. Probably, the skin roughness might be an initial symptom of fine wrinkles. Further, application of α -hydroxycholesterol ester, which had a reinforcement potency of skin barrier, to skin disrupted barrier function showed the improvement of skin roughness and epidermal thickness. The results suggested the possibility that epidermal thickness was responsible for formation of skin roughness. And it was indicated that the reinforcement of skin barrier effectively exerted on improvement of skin roughness.

Key words: wrinkle, roughness, TEWL, oleic acid, epidermis.