

〈原著〉

## 鱗屑性病変角層の水和特性 —とくに結合水について—

竹ノ内正紀 鈴木 啓之  
岡谷 吉雄\* 大山 昌己\* 金子 晃久\*  
田上 八朗\*\*

### HYDRATION CHARACTERISTICS OF THE STRATUM CORNEUM DERIVED FROM SCALY SKIN

Masanori TAKENOUCI, Hiroyuki SUZUKI, Yoshio OKAYA\*  
Masami OYAMA\*, Teruhisa KANEKO\* and Hachiro TAGAMI\*\*

#### Abstract

We measured in vitro the hygroscopicity, water holding capacity and bound (non-freezing) water of various kinds of scales obtained from the lesions of senile xerotic skin, psoriasis vulgaris and erythroderma and those of the whole thickness horny layer from glabrous skin and plantar horny layer in addition to the measurement of the amount of NMF components such as free amino acids and 2-pyrrolidone-5-carboxylate (PCA).

The amount of water taken up by pathologic stratum corneums was much less than that by control one, and dehydration rate of the former was higher than that of the latter.

The amount of free amino acids and PCA was also less in pathologic stratum corneums than that of control. There was high correlation between the amount of NMF components and water-uptake.

Tightly bound primary water to stratum corneum measured by Karl-Fischer's method was about 5 mg per 100 mg of dry stratum corneum in all the samples studied, while less tightly bound secondary water was much smaller in amount in scaly stratum corneums than in the control, i.e. 31.7 mg/100 mg dry scale from senile xerosis and 27.2 mg/100 mg dry psoriatic scale vs, 38.2 mg/100 mg dry normal stratum corneum and 37.3 mg/100 mg dry callus.

These facts indicate that the water-uptake of stratum corneums mainly depends on the amount of NMF components, while the water holding capacity of stratum corneums depends on holding capacity of secondary water which bound to the structural protein such as keratin.

#### Key Words

Pathologic stratum corneum, normal stratum corneum, NMF components, bound water, keratin