Cell Turnover Time of Stratum Corneum on Soles in Patients with Hereditary Palmoplantar Keratoderma

Sir,

In previously performed studies on cell turnover time of stratum corneum, 5% dansyl chloride was shown to be a reliable marker (J Invest Dermatol 1980; 74: 13–16). The thickness of stratum corneum on soles limited the value of this method. A composition of 5% dansyl chloride and 50% propylene glycol in white petrolatum was prepared to enhance percutaneous penetration.

Sevenpatients (4 men and 3 women), average age 52 years (range 32–67 years), suffering from hereditary palmoplantar keratoderma of the Unna Thost variety without dermatophytosis entered the study. Five healthy individuals (3 men and 2 women), average age 49 years (range 34–53 years), served as controls.

A 2.5×2.5 cm patch test, which consisted of filter paper and 2 g of the test composition, was applied to the plantar surfaces of the heels covered with Tensoplast® (Smith & Nephew, Scandinavia). Five per cent dansyl chloride in white petrolatum was placed on the left sole and 5% dansyl chloride and 50% propylene glycol in white petrolatum on the right. Patches were removed after 48 h of occlusion and subsequently examined weekly in Wood's light until the fluorescence disappeared. The first examination in Wood's light was performed 2 days after removal of patches, and at the same visit to the clinic a 3 mm punch biopsy from the center of the heel of both patients and controls was carried out. Frozen sections were immediately prepared and microscopically examined in Wood's light to assess the level of fluorescence in the horny layer.

The replacement time of stratum corneum on the heels of patients with hereditary palmoplantar was not significantly different from that of healthy control individuals (mean ± SD 75.7±8.0 and 70.6±8.2, respectively) with propylene glycol-treated skin, and in only dansyl chloride-treated skin the replacement time was 18.7±1.8 and 18.6±1.7, respectively. In propylene glycol-treated skin, fluorescence of dansyl chloride was seen in the entire horny layer but with dansyl chloride alone fluorescence was only seen in the upper 1/3 of the horny layer.

The Unna Thost variety should, therefore, be considered at retention hyperkeratosis.

Received December 16, 1992.

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