

〈綜 説〉

皮脂の生化学

大城戸 宗男*

Biochemical and Biophysical Aspects of Skin Surface Lipids

Muneo Ohkido*

Recent advances in the biochemical and biophysical aspects of sebum are reviewed herein.

1. Skin surface film

The biochemical indicators of sebaceous gland activity and of epidermal lipids were discussed herein. One of most excellent and accurate methods for sebaceous activity was the gasliquid chromatographic measurement of squalene in the skin surface lipids. The correlation between sebum and squalene values was proved when sebum values were abundant. In a similar fashion, both total and free cholesterol in the skin surface lipids by a gas-liquid chromatography was a sophisticated indicator of epidermal lipids.

2. Skin surface lipids as a cutaneous barrier

In this chapter, we discussed how skin surface lipids could contribute to one of the main functions of skin, namely to protection against transepidermal water loss (TWL). From our experimental results, an inverse correlation was seen between TWL and the amount of total cholesterol in casual lipids. In other words, TWL is increased, while the total amount of cholesterol is decreased on the skin surface. No correlation was found between TWL and squalene in casual and replacement lipids, total cholesterol in casual lipids, and free cholesterol in casual and replacement lipids. It is suggested that total cholesterol, mainly esterified cholesterol originating from the epidermis, exerts an inhibitory action on cutaneous insensate perspiration.

3. Epidermal lipids in keratinization

The molecular ratio between cholesterol and phospholipids in epidermis is suggested to be ca. 1:1. The role of cholesterol in cellular membrane of epidermis was discussed.

4. Skin surfactant and skin lipids

The possibility that membrane coating granules or lamellar granules contain lipids, especially phospholipids was considered. as was the possibility that these granules may play the role of skin surfactant.