〈教育セミナー〉

高 SPF 製品を考える
——良い点，悪い点：皮膚科医の立場から——

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Evaluation of Sunscreens with High Sun Protection Factor
—Merit and demerit—

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Abstract

A single exposure to sunlight induces acute reaction and repeated exposures cause chronic damage in healthy human skin. Sunburn, the most common acute skin reaction produces DNA damage in epidermal and partly dermal cells which may lead to immunosuppression and melanogenesis. Repeated exposures induce photoaging of the skin, including skin cancers. Most of the photosensitive diseases are caused by ultraviolet radiation (UV) A, ranging from 320 to 400 nm. Sunscreen use is shown to be one of the most convenient and effective ways to protect our skin against a harmful solar ultraviolet radiation. For skin type I subjects who burn easily and tan poorly, sunscreen with SPF higher than 40–50 is recommended when they work or play outside from morning till evening in mid summer, because a total UVB dose they receive may reach about 20 MED which is equivalent to over 200 times UV dose causing activation of the genes responsible for skin aging. If skin type I subjects go outside only 15 to 30 min in mid-summer, they are advised to use sunscreen with SPF 5–10. Regular use of sunscreen with high SPF (>50) is recommended for the patients suffering from UVB sensitive diseases. Technical improvement in producing chemical products such as TiO_2 may reduce the incidence of contact and photocontact dermatitis by sunscreen use, and may contribute to making safe sunscreens with high SPF. Beneficial and adverse effects of high SPF sunscreen on human health should further be discussed in relevance to gene activation, DNA damage and imunosuppression.

Key words: sunscreen, high SPF, skin cancer, DNA damage, ultraviolet radiation (UV).