Abnormalities of pigmentation following UVB exposure and incorrect application of calcipotriol ointment and tazarotene gel for psoriasis

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SUMMARY

We present two cases where an incorrect application of the topical therapy in association with UVB phototherapy caused hyper- or hypopigmented skin lesions.

CASE 1. A 48-year-old man with plaque psoriasis treated with calcipotriol ointment plus UVB phototherapy. Although correctly instructed, on one occasion he applied the calcipotriol ointment a few minutes before the UVB exposure. Some hours later he presented numerous irregular hypopigmented areas around the psoriatic lesions. The calcipotriol therapy plus UVB phototherapy was continued and the hypopigmentation areas gradually cleared in about a month.

CASE 2. A 48-year-old man with plaque psoriasis treated with tazarotene 0.1% gel plus UVB phototherapy. Although correctly instructed, he applied tazarotene gel one hour before the UVB exposure. The results was the sudden appearance of numerous dark-brown hyperpigmentation in the form of asymptomatic round or oval patches on the site of psoriatic lesions involving his trunk and limbs. The treatment was discontinued and the hyperpigmentated patches lasted for a further 6 months.

KEY WORDS

psoriasis, calcipotriol, tazarotene, side effects, hypo-pigmentation, hyper-pigmentation

Background

Calcipotriol is a new vitamin D analogue while tazarotene is the first of a new generation of acetylenic retinoids, which have proven to be efficacious in the treatment of mild to moderate plaque psoriasis (1, 2). These topical preparations are cosmetically acceptable, generally well tolerated and are minimally absorbed systemically; the adverse events are limited to local irritation (2, 3). Recent studies indicate that calcipotriol can be combined with UV therapy (4, 5). In preclinical toxicity studies, topically applied, tazarotene was neither teratogenic nor carcinogenic and was not sensitizing, phototoxic, or photosensitizing (6, 7).

We report two cases where an incorrect application of calcipotriol or tazarotene gel in association with UVB phototherapy caused respectively hypo- or hyperpigmented skin lesions.

Case report

CASE 1: A 48-year-old man with plaque psoriasis was treated with calcipotriol ointment plus UVB photo-

Fig. 1. Numerous irregular hypopigmented areas appeared after UVB exposure in correspondence to the psoriatic lesions presenting a form which matched the site of application of calcipotriol ointment.

therapy. Although we had instructed the patient to apply a thin film of the medication to all psoriatic lesions (excluding those on the face, flexor, and intertriginous areas) once daily, in the evening, on one occasion he applied the calcipotriol ointment a few minutes before the UVB exposure. Some hours after the exposure he presented numerous irregular hypopigmented areas around the psoriatic lesions (Fig. 1). The patient enjoyed a good health and had not taken any drug in the last months. Routine laboratory parameters were normal. He refused a biopsy needed for a histopathological examination. The calcipotriol therapy plus UVB phototherapy was continued and the hypopigmentation areas gradually cleared in about a month.

CASE 2: A 48-year-old man with plaque psoriasis was treated with tazarotene 0.1% gel plus UVB phototherapy. Although the patient was instructed to apply a thin film of the medication to all psoriatic lesions (excluding those on the face, flexor, and intertriginous areas) once daily in the evening, he applied tazarotene gel in the morning, one hour before the UVB exposure. The result was the sudden appearance of numerous dark-brown hyperpigmentations in the form of asymptomatic round or oval patches at the site of the psoriatic lesions on his trunk and limbs (Fig. 2). The patient reported to have always been in good health and had not taken any drug during the last months. Routine laboratory parameters were normal. The patient refused to give his consent to undergo a biopsy for a histopathological examination. The treatment was discontinued but the hyperpigmentated patches lasted for further 6 months.

Discussion

The incorrect use of topical therapy before UVB exposure can cause different side effects. These 2 cases seem to suggest that the ointment containing calcipotriol inhibits UVB penetration, while the gel containing tazarotene appears to contain a phototoxic factor.

In the first case, we observed hypopigmented patches on the site of application of calcipotriol ointment. Although the patient continued phototherapy treatment, the lesions remained visible. This shows that the lesions were not only determined by the barrier effect of the

Fig. 2. Numerous dark-brown hyperpigmented patches appeared on the sites of psoriatic lesions following application of tazarotene gel and UVB exposure.

calcipotriol ointment, but that the active principle or the vehicle acted on the melanin pigmentary system. The absence of a histopathological and of histochemical examinations did not allow us to establish the site of the damage. Pigmentary disorders have already been reported on lesional skin after vitamin D3 analogues and UV exposure. Hyperpigmentation has been observed as side effect after combined treatment with calcipotriol and heliotherapy (8) or bath-PUVA (9). On the contrary, hypopigmentation has never been described. In view of a possible importance of this observation, further studies on a larger number of patients are suggested.

In the second case, the hyperpigmented patches appeared after UVB exposure on the site of application of tazarotene gel. So far we have not noticed similar hyperpigmentations in other patients who have undergone the same treatment but kept to the instructions to apply the tazarotene gel in the evening, at least 12 hours prior to UV exposure. Consequently, in the absence of other etiologic factors, it may be concluded that the topical application of tazarotene a short time before phototherapy is responsible for the appearance of hyperpigmentation.

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