

Treatment of vitiligo by topical calcipotriol

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ABSTRACT

Objective Evaluation of the efficiency of topical calcipotriol monotherapy in vitiligo.

Materials and methods This was a prospective, right/left comparative, open study at the Dermatology Department at the University Hospital in Nice, France. Twenty-four patients with localized or generalized vitiligo with symmetrical lesions were included. The main outcome measure was the evaluation of the percentage of repigmentation in treated target lesions and untreated control lesions for each patient.

Results and conclusions Topical calcipotriol in monotherapy is not an effective treatment of vitiligo.

Key words: calcipotriol, psoralen ultraviolet A therapy, vitiligo

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Introduction

The pathogenesis of vitiligo is still unclear. Its course is benign but psychological consequences of its cosmetic damage may be important. Several treatments exist but none of them are really efficient. Recently, perturbations of calcium homeostasis in vitiliginous epidermis have been described.¹ Based on these findings, several clinical studies suggest that a topical vitamin D₃ analogue, calcipotriol, in association with sun exposure or psoralen ultraviolet A (PUVA) therapy induces repigmentation of lesional skin;^{2,3} however, the effect of a monotherapy with topical calcipotriol has never been evaluated. This led us to report our experience on 24 cases of patients with vitiligo treated by topical calcipotriol monotherapy (Daivonex*, Leo Laboratories) in the Department of Dermatology, Archet-2 Hospital (Nice, France).

Materials and methods

We included 24 patients (15 females and nine males), middle aged 23 years (range 5–59) in a prospective, right/left comparative, open study. They had localized or generalized vitiligo with symmetrical lesions. The average duration of the disease was 7.02 years (range 0.5–52). Thyroid function tests were normal in all patients.

For each patient, one target lesion was treated with daily topical application of calcipotriol, and one lesion on the

other side was left untreated as an intraindividual control. Other treatments of vitiligo and sun exposure were not allowed during the study. The mean duration of the treatment was 3.9 months (range 3–6). The repigmentation percentage was estimated on both sides by clinical examination at the end of the treatment.

Results

At the end of treatment, 21 patients (87.5%) had no repigmentation. Three patients (12.5%) had a partial repigmentation of their lesions (Table 1). Among the improved patients, one had 5% repigmentation on the treated lesion and no repigmentation on the untreated control lesion, and two (8.05%) had repigmentation (20% and 30%) on the treated lesion but a spontaneous repigmentation of 20% and 10%, respectively, was noted on the untreated control lesion. These three patients had not been exposed to the sun. Statistical analysis of repigmentation percentage with a non-parametric paired test did not find a significant difference between treated and untreated lesions ($P > 0.5$). Tolerance of the treatment was acceptable for all patients.

Discussion

This open study clearly shows that topical calcipotriol alone is not an effective treatment of vitiligo. This result is interpretable

Table 1 Summary of per-patients data

Patients	Age	Duration of evolution (year)	Sun exposure	Duration of application (month)	Localization	Percentage repigmentation treated lesion	Percentage repigmentation control lesion
1	29	10	No	4	Arms	0	0
2	13	1.5	No	4	Members	0	0
3	14	2	Yes	2	Ankles	20	20
4	9	1	No	3.5	Hand	5	0
5	5	1	Yes	5	Forehead	0	0
6	13	7	No	4	Knees/feet	0	0
7	5	1	No	6	Arms/Legs	0	0
8	9	3	No	5	Legs	0	0
9	12	3	No	5	Legs	0	0
10	59	0.5	No	4	Scalp	0	0
11	40	10	No	4	Hands	0	0
12	47	33	No	4	Hands/knee	0	0
13	34	2	No	1.5	Arms	0	0
14	33	3.5	No	5	Forehead	0	0
15	60	7	No	4	Arms	0	0
16	29	2	Yes	2	Hands/feet	0	0
17	13	1	Yes	4	Knees	0	0
18	33	3	Yes	2	Hand/arms	0	0
19	11	2.5	No	4	Legs	0	0
20	8	1	Yes	3.5	Chin	0	0
21	13	1	No	4	Knees	0	0
22	10	1	No	3	Knees	30	10
23	39	50	No	3	Arms	0	0
24	13	7	No	4	Knees	0	0
Average	22.95	7.02		3.90		2.29	1.25

from a statistical stand-point because open studies usually tend to increase the treatment efficiency. Moreover interindividual variability of patients, caused by the possibility of spontaneous repigmentation, is compensated for right/left study with an internal control.

Several previous studies have suggested that the association of calcipotriol with PUVA therapy is more efficient than PUVA therapy alone. Our study shows that this result cannot be explained by the addition of the efficiency of the two compounds of this association, but rather by a potentialization of the PUVA therapy effect by calcipotriol. Involved mechanisms are unknown but they should concern the regulation of melanogenesis or immunomodulation.^{4–6} However, further studies are necessary to confirm the synergy of the association of calcipotriol with PUVA therapy and to explain their mechanisms.

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