

Topical Tacrolimus is Useful for Avoiding Suction-blister Epidermal Grafting Depigmentation in Non-segmental Vitiligo: A Case Report

Calogero Pagliarello¹ and Andrea Paradisi²

¹Health Services Research Unit, IDI-IRCCS Via dei Monti di Creta 104, IT-00167 Rome, and ²Department of Dermatology, Catholic University of the Sacred Heart, Rome, Italy. E-mail: calogero.pagliarello@libero.it
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Current therapy for vitiligo is largely unsatisfactory; hence there is a need for new treatment combinations to be assessed. Whereas stable vitiligo can benefit from surgical therapies, such as suction-blister epidermal grafting (SBEG) (1), the non-segmental counterpart usually shows a poor response to this treatment (2). To overcome this issue, for high-risk patients affected by both focal and generalized vitiligo, a combined approach of epidermal graft and systemic corticosteroids has been advocated in order to reduce the risk of graft depigmentation (3, 4).

We report here the case of a patient affected by generalized vitiligo who was treated successfully with SBEG after a prolonged course of topical 0.1% tacrolimus treatment (Protopic, Astellas Pharma US, Inc.). It is noteworthy that maintaining topical tacrolimus treatment allowed and preserved graft pigmentation for

more than one year, whereas, after its discontinuation, graft depigmentation began to develop.

CASE REPORT

A 62-year-old Caucasian woman presented with well-defined white patches on her face (Fig. 1a), hands and elbows of 2 years duration. She had first noted the skin depigmentation as a side-effect during interferon α -2a treatment for chronic active hepatitis C. This treatment was successful, since viral eradication was reached, but the skin lesions persisted after discontinuation of interferon. She had not had diabetes or any autoimmune disease such as thyroiditis, as documented by extensive laboratory work-up. She was diagnosed with generalized vitiligo and she commenced applying 0.1% tacrolimus ointment to the facial lesions at bedtime,

combined with narrow-band ultraviolet B (NB-UVB) phototherapy twice a week. Topical tacrolimus used in conjunction with ultraviolet (UV) light is effective in increasing the extent of overall repigmentation and in reducing the cumulative NB-UVB dose needed to achieve a therapeutic benefit (5, 6). After one-year treatment she achieved an acceptable level of repigmentation (Fig. 1b) with no further improvement, although treatment continued for another year. This finding was consistent with the reported time to reach significant pigmentation during tacrolimus treatment (7).

We proposed a trial with SBEG to cover her left forehead, after we had fully informed her about the high chance of graft depigmentation reported for generalized vitiligo. After the grafting procedure, the patient followed the same therapeutic regimen, based on topical tacrolimus at bedtime plus NB-UVB phototherapy twice a week. After 3 months the grafts reached a good pigmentation, so phototherapy treatment was stopped (Fig. 1c). We recommended the patient to apply tacrolimus treatment each night to help centrifugal pigmentation to spread from the grafts.



Fig. 1. (a) Patient before starting combined treatment with topical tacrolimus and narrow-band ultraviolet (NB-UVB) phototherapy. (b) After one year of treatment. (c) Eighteen months after suction blister graft. (d) Two months after discontinuation of tacrolimus. (c) and (d) are ultraviolet fluorescence pictures, which can capture even subclinical relapse of the disease outside the graft.

After 18 months we suggested that the patient also stop tacrolimus treatment as a precautionary measure, but after 2 months the grafts began to become depigmented, although no new lesions appeared elsewhere, as documented by ultraviolet fluorescence photography (8) (Fig. 1d). The patient currently applies tacrolimus only twice a week to preserve grafts pigmentation, with excellent adherence and no side-effects reported so far.

DISCUSSION

Surgical therapies are time-consuming, and can be considered in inactive, non-progressive disease. It is well known that in non-segmental vitiligo because of disease activity, the recipient site can become depigmented. Due to her age and to the clinical variant of the disease our patient was a poor candidate for grafting, with an approximately 40% chance of graft depigmentation (2, 9, 10). Although various treatment modalities have been used to prevent this, on reviewing the literature no reports were found about the usefulness of topical tacrolimus as adjuvant and neoadjuvant treatment in epidermal grafting, only one experimental study for skin allograft in rats (11) and, up to the time of publication, we have not treated any other patients with this regimen. In our case topical tacrolimus induction and maintenance monotherapy seems to have helped the pigmentation of the graft and decreased the risk of its depigmentation.

The patient was pleased with the complete repigmentation of a large area in just 3 months, which had been unresponsive to one-year treatment with NB-UVB phototherapy and tacrolimus ointment, which had proved effective for all other lesions.

Although there is evidence of the benefit of thin split-thickness grafts (12), treatment challenges persist, as not all patients respond to this therapy. We assessed SBEG in non-segmental vitiligo, and this suggested that it might be of some value in repigmentation even in unstable disease, as long as the vitiligo is kept under control with tacrolimus ointment, and with the provision that topical immunomodulator treatment may need to be continued for the long-term.

Further studies with a larger number of patients are needed, in order to evaluate whether such a grafting

procedure, followed by long-term topical tacrolimus, with its possible risks, is likely to be justifiable.

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