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Improvement of Anti-TNF- α Antibody-Induced Palmoplantar Pustular Psoriasis Using a 308-nm Excimer Light

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Key Words

Anti-TNF- α antibody · Palmoplantar pustular psoriasis · Paradoxical reaction · 308-nm excimer light

Abstract

Anti-tumor necrosis factor (TNF)- α antibody is utilized in the treatment of a variety of chronic inflammatory conditions, including psoriasis. However, it can induce paradoxical development and/or exacerbation of psoriasis in the course of anti-TNF- α antibody treatment, which is sometimes refractory to conventional treatments. Herein, we report a case of refractory palmoplantar pustular psoriasis induced by anti-TNF- α antibody treatment, which was improved by treatment with a 308-nm excimer light. The 308-nm excimer light has less long-term risks than narrow-band UVB. The 308-nm excimer light may be a good therapeutic option for refractory psoriatic skin lesions induced by anti-TNF- α antibody therapy because of localized side effects without systemic problems, short length of treatment and low cumulative dosages of UV light.

Introduction

Anti-tumor necrosis factor (TNF)- α antibody has been successfully utilized in the treatment of a variety of chronic inflammatory conditions, including Behçet's disease, rheumatoid arthritis and psoriasis [1]. Although it has been demonstrated to be safe and effective in most patients, its underlying action mechanism remains unclear. As such, it is difficult to predict the occurrence of paradoxical development and/or

exacerbation of psoriasis in the course of anti-TNF- α antibody treatment [2]. This paradoxical psoriasis can be treated with strong topical corticosteroids, vitamin D analogs, phototherapy, methotrexate or cyclosporine, but is occasionally refractory to conventional treatments [2].

Recently, the beneficial effect of a new UVB source, a 308-nm excimer light, has been reported in the treatment of psoriasis and pustular psoriasis [3–5]. However, it remains unknown whether the 308-nm excimer light is also effective for this paradoxical skin reaction. Herein, we report that palmoplantar pustular psoriasis induced by anti-TNF- α antibody therapy was successfully treated using the 308-nm excimer light.

Case Presentation

A 48-year-old woman was diagnosed with psoriasis and treated with topical vitamin D3 analogs and strong topical corticosteroids, but she was refractory to topical ointment. She started adalimumab for the treatment of severe psoriasis. Her skin conditions improved remarkably. Three months later, she gradually developed diffuse erythematous scaly plaques and generalized pustular lesions on her palms and soles (fig. 1a, b). A skin biopsy of the pustular lesion on the foot exhibited psoriasiform dermatitis with intracorneal pustules (fig. 1c), which indicated palmoplantar pustular psoriasis paradoxically induced by anti-TNF- α antibody therapy. The lesion did not improve despite cessation of adalimumab treatment and administration of topical corticosteroid ointment and vitamin D analogs. Therefore, phototherapy was started using the 308-nm excimer light (TheraBeamUV308; Ushio, Japan) on the palms and soles. The side effects of the 308-nm excimer light are localized without systemic problems, while the addition of systemic therapies with cyclosporine or methotrexate may be beneficial but sometimes trigger significant side effects. The treatment was performed once or twice a week at a power density of 200 mJ/cm². After a few phototherapy sessions, the erythematous scaly plaques on the palms and soles began to resolve. After 20 phototherapy sessions, the lesions resolved almost completely (fig. 1d, e).

Discussion

Half of the patients with adverse cutaneous effects induced by anti-TNF- α therapy discontinued the treatment with anti-TNF- α antibody and required additional therapy for adverse cutaneous effects [2]. Our case suggests that the 308-nm excimer light is a good therapeutic option for refractory palmoplantar pustular psoriasis induced by anti-TNF- α antibody. Various reports have demonstrated the usefulness of narrow-band UVB (311–313 nm) and the 308-nm excimer light in the treatment of psoriasis vulgaris and pustular psoriasis. Furuhashi et al. [5] have demonstrated that phototherapy using the 308-nm excimer light increases regulatory T cells, although it does not affect the level of T helper 17 in patients with pustular psoriasis, which may be the mechanism of remission for the paradoxical skin reaction in our case. Thus, the 308-nm excimer light may be a good therapeutic option for refractory psoriatic skin lesions induced by anti-TNF- α antibody therapy because of localized side effects without systemic problems, short length of treatment and low cumulative dosages of UV light.

Fig. 1. Clinical appearances of the patient's pustular psoriatic skin lesions on the palms and soles before (**a, b**) and after (**d, e**) 20 sessions of excimer light treatment. A skin biopsy of the pustular lesions on the foot revealed psoriasiform dermatitis with intracorneal pustules (**c**).

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