Successful treatment of recalcitrant prurigo with alitretinoin

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Abstract

Background: Chronic itch with secondary scratch lesions, such as prurigo has a major impact on quality of life. Due to its relapsing nature and often unknown origin, its treatment is challenging.

Objective: We sought to demonstrate, that alitretinoin can be efficacious and well tolerated treatment in a patient suffering from chronic itch with concomitant prurigo lesions.

Methods: Case report

Results: After one month of alitretinoin treatment (30 mg daily) itch, as well as prurigo and psoriasis lesions decreased importantly. Three cycles of alitretinoin were performed, as each cessation of treatment led to relapse of the symptoms after 6-8 weeks. Reduction of alitretinoin dose (30 mg every second day) after the third cycle allowed to maintain the effects for over 18 months.

Conclusion: Treatment of refractory prurigo with alitretinoin might be an efficacious alternative to standard therapies. In case of relapse, re-treatment with alitretinoin reinduces further long-lasting response.

Introduction

Chronic pruritus presenting with secondary scratch lesions, such as prurigo has been demonstrated to have a major impact on quality of life. Although the underlying origin is often unknown, it may be associated with numerous dermatological, systemic and/or psychological diseases. Given its chronicity and relapsing nature, treatment of chronic pruritus with prurigo can be challenging. Temporary relief can be achieved by use of corticosteroids, topical

calcineurin inhibitoris, menthol, capsaicin creams or ultraviolet therapy. Treatment with oral agents such as ciclosporin, anxiolytics, opiate receptor antagonists, thalidomide and gabapentin is often satisfactory, however their pronounced toxicity prevents the long term use of these drugs, and the severity of the disease often worsens markedly after treatment is stopped. We present a case of a patient suffering from chronic itch with concomitant prurigo and psoriasis lesions successfully treated with alitretinoin.

Case Report:

A 46-year-old Caucasian woman, with a history of a plaque psoriasis of elbows and knees, chronic alcohol abuse and depression was admitted to our outpatient clinic with severe, 5-year-pruritus and secondary prurigo lesions on the extensor surface of her arms and legs (Fig. 1. AB). Physical examination of the patient, blood chemistry test, chest X-ray, as well as direct and indirect immunofluorescence did not confirm any underlying systemic disease. Histological examination of a skin biopsy of a nodular lesion was consistent with prurigo.
Previous treatments including topical corticosteroids, topical tacrolimus, menthol, phototherapy, antihistamines, montelukast, doxepin, gabapentin did not provide healing of the lesions. Treatment with cyclosporine (200 mg daily) led to significant improvement of both, prurigo and psoriatic lesions (BSA:3), but due to potential risk of long-term adverse reactions the treatment was interrupted after 1 year.

Eventually, successful treatment with alitretinoin (30 mg daily) was introduced. After approximately 1 month pruritus decreased and both, prurigo and psoriasis lesions (BSA:<1) improved significantly (Fig. 1. CD). After 5 months the skin lesions healed completely with some postinflammatory pigmentations and scars (Fig. 1. EF). Consequently, alitretinoin was stopped. Altogether three cycles of alitretinoin were performed, as each cessation of retinoid treatment led to relapse of the symptoms after approximately 6-8 weeks. Reduction of alitretinoin dose (30 mg every second day) after the third cycle allowed to maintain the therapeutic effect for over 18 months. In the last 3 months treatment with alitretinoin 30 mg was extended to every third day and no relapse has been observed so far. Treatment was well tolerated except for slightly elevated level of non-fasting total cholesterol values (up to 7 mmol/L, normal value:< 5.2 mmol/L).

Discussion:

Alitretinoin (9-cis retinoic acid) is a novel vitamin A derivate that binds to all six retinoid receptors (retinoic acid receptor, RAR-α, -β, -γ and retinoid X receptor, RXR- α, -β, -γ). The most frequent retinoid receptor in the skin is RAR-γ/RXR-α heterodimer [1]. Previously used retinoids (such as acitretin and etretinate) target mainly RAR-receptors. Hence, alitretinoin is expected to act in a wider spectrum of diseases and on different pathways comparing to the old retinoids. It has anti-inflammatory and immune-modulating effects and has been demonstrated to regulate production of cytokine and leukocyte activity [2].

The most frequent adverse effects of alitretinoin include mucocutaneous dryness and headache [3]. The latter is dose-dependent and often disappears with dose reduction. Laboratory abnormalities comprise the typical effects of retinoids such as increase in serum lipids and liver enzymes, as well as a reduced thyroid-stimulating hormone. In our case, except for a slightly elevated level of non-fasting total cholesterol value there was no change in the laboratory investigations, especially no increase in liver values was observed. Furthermore, the mood of the patient was not altered during the therapy.

Alitretinoin has been registered as a systemic treatment for severe chronic hand eczema unresponsive to potent topical corticosteroids [4,5]. In addition to its approved use, alitretinoin has been reported to be beneficial also in refractory pityriasis rubra pilaris [6], lichen planus [7,8], cutaneous lupus erythematosus [9], palmoplantar pustular psoriasis [10], as well as in mycosis fungoides [11], but it appeared to have mixed effect in congenital ichthyosis [12]. Several studies have also been carried out with alitretinoin used in the treatment of AIDS related Kaposi's sarcoma [13].

The present report describes a case of chronic itch with secondary prurigo lesions and psoriasis successfully treated with alitretinoin (30 mg daily). After approximately 1 month of the therapy pruritus decreased in our patient and both, prurigo and psoriasis lesions improved. Significant decrease in intensity of itch after treatment with alitretinoin has already been demonstrated in the literature. A case report on 2 patients with mycosis fungoides described a cessation of pruritus after 2 months of alitretinoin treatment (30 mg daily), before improvement of the skin lesions [11]. Similarly, in one patient with lichen planus treated with alitretinoin (30 mg daily) pruritus disappeared after 4 weeks, before all skin lesions completely healed [8]. It is known that itch and subsequent repeated scratching are major factors responsible for development of prurigo lesions. Reduction of itching is therefore one of the main therapeutic strategies in this skin pathology.

Histological examinations of prurigo nodules have demonstrated a characteristic cellular pattern found in the majority of specimens. It consisted of fibrosis of the papillary dermis, increased number of fibroblasts and capillaries, and a superficial, perivascular or interstitial inflammatory infiltrate of lymphocytes, macrophages and also eosinophils and neutrophils [14]. Moreover, it has been demonstrated, that an accumulation of neuropeptides up-regulated the production of many pro-inflammatory cytokines (Interleukin (IL)-1 alpha, IL-1 beta and IL-8), as well as degranulation of increased number of mast cells with subsequent release of histamine. The latter, in addition to induction of itch, stimulates proliferation of fibroblast and synthesis of collagen.

The exact effects of alitretinoin on pathomechanisms of itch and prurigo have not been elucidated so far. Apart from its well-known immunomodulatory effects on keratinocytes [15], it may also influence fibroblasts [16] and mast cells. Studies show that 9-cis-retinoic acid is able to inhibit in vitro the production of human mast cells [17]. Furthermore, in vitro stimulation of human T cells with 9-cis-retinoic acid increases production of IL-4 [18]. The latter has been demonstrated to exert potent inhibitory action on growth of mast cells [19]. It has been previously suggested, that also pruritogenic IL-31 may play a role in pathogenesis of itch in prurigo [20]. One of the sources of this cytokine are mast cells [21]. Based on mentioned above studies, we can hypothesize, that alitretinoin can reduce production of IL-31 through its inhibitory effect on mast cells.

Apart from an increased secretion of IL-4, in vitro stimulation of human T cells with 9-cis-retinoic acid resulted also in raised levels of IL-5, and IL-13 and decreased levels of IFN-γ, IL-2, IL-12p70 and TNF-α [18]. TNF alpha and IL-12/IL-23 axis play an important role in the development of psoriasis [22,23]. Hence, it can explain the positive therapeutic effect of alitretinoin not only on prurigo but also on psoriatic lesions in our patient. The positive effect of alitretinoin in psoriasis has been described previously in only few reports. Irla et al [10] observed 50% improvement in PPPASI score in 100% of patients with palmoplantar pustular psoriasis (n=7) treated with alitretinoin 30 mg daily for 3 months. Moreover, they have also observed a significant decrease of itch intensity in all studied psoriatic patients.

After interruption of the therapy with alitretinoin prurigo lesions relapsed in our patient within 6-8 weeks. This phenomenon has already been observed in studies on hand eczema. The median time to relapse, defined as recurrence of 75% of initial signs and symptoms, was 5.5-6.2 months in the absence of other medications [4]. In our case the second and third therapeutic course of alitretinoin (30 mg daily) was necessary to completely heal the skin

lesions. This is consistent with the data from a recently reported trial on chronic hand eczema [3]. The authors of this study demonstrated that alitretinoin in dose of 30 mg daily reinduced response in the majority of patients who had relapsed within 6 months following successful treatment with an initial course of alitretinoin.

In conclusion, our report shows that treatment of refractory prurigo with alitretinoin might be efficacious alternative to standard topical and systemic treatments. In case of relapse, re-treatment with alitretinoin reinduces further long-lasting response. Further clinical studies are warranted to confirm efficacy and safety of alitretinoin in this disease.

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Legends:

Fig.1. Clinical outcome before (AB), after approximately 1 month (CD) and after 5 months (EF) of alitretinoin treatment.