Acrodermatitis continua of Hallopeau: Response to Combined Treatment with Acitretin and Calcipotriol Ointment

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Key Words
Pustular psoriasis - Polymorphonuclear leucocyte - Steroid hormones

Abstract
Treatment of acrodermatitis continua of Hallopeau (ACH) is difficult and often disappointing. We describe a patient with an extensive ACH of all finger- and toe-tips, who was treated with acitretin combined with calcipotriol. A within-subject left/right comparison was carried out between calcipotriol ointment (50 µg/g) and the ointment base to investigate the additional value of calcipotriol above the ointment base. The side treated with calcipotriol as adjunct therapy showed an impressive improvement, well beyond the degree of improvement at the side treated with the ointment base only.

Introduction
Acrodermatitis continua of Hallopeau (ACH) is characterized by pustular eruptions predominantly involving the distal phalanges of fingers and toes with marked involvement of the nail bed. This specific localization and the fact that lesions are often painful imply that ACH is a disabling condition. While some authors consider ACH as a variant of pustular psoriasis, others distinguish ACH as a separate entity [1]. Unfortunately, as other forms of localized pustular psoriasis, ACH is very resistant to treatment.
We describe a patient with an extensive ACH of all finger- and toetips, improving during combined treatment with acitretin and calcipotriol. The present case report suggests a synergistic effect of combination of acitretin and topical calcipotriol in ACH.

Case Report

A 73-year-old woman presented with a 3-year history of redness, scaling and pustulation of all the finger- and toetips. From time to time, she had also pustular eruptions elsewhere on the body. The lesions appeared for the first time on the elbows and on one finger as discrete pustular changes and rapidly progressed to a disabling condition. Prior to disease onset, there was no history of trauma or infection. Treatment with potent topical steroids, crude coal tar, UVB and UVB combined with dithranol had been ineffective. Also treatment with calcipotriol 50 µg/g monotherapy during 3 weeks did not result in improvement of the lesions. Before attending our hospital, the patient had been treated with acitretin 35 mg/day (0.5 mg/kg) during 3 months. Initially, acitretin had a beneficial effect on lesions on the body but no effect on the acral lesions. Treatment with acitretin was discontinued because of the lack of further improvement.

On clinical examination, 3 months after discontinuation of acitretin treatment, the patient presented with erythema and scaling at the dorsal side of the distal phalanges of all fingers and toes. Most nail plates were absent and the nail beds showed multiple pustules, from pinhead size to a few millimetres (fig. 1). All digits were equally involved. In addition, on elbows, legs and knees sharply demarcated erythematous, indurated lesions with pustule formation were present.

Acitretin was re-introduced in a dosage of 35 mg/day (0.5 mg/kg) once daily. Because of a moderate cheilitis, hair loss and a dry skin, it was not possible to increase the dosage of acitretin further. On the lesions of the left hand and foot calcipotriol 50 µg/g ointment (Daivonex®, Leo Pharmaceutical Products, Weesp, the Netherlands) was applied twice daily. On the right hand and foot, placebo ointment (Leo Pharmaceutical Products) was applied twice daily. After 1 month of combined treatment, a substantial improvement of the lesions at the placebo-treated sides was present (fig. 2A). However, the calcipotriol-treated side was far more improved (fig. 2B). Pustulation had disappeared completely, and only slight erythema and desquamation remained.
**Discussion**

ACH is difficult to treat, which is reflected in several reports on different treatment modalities applied in ACH. No controlled studies have been performed and most communications are casuistic. Local therapies, which are reported to be effective, comprise coal tar preparations [2], dithranol [2], fluorouracil [3] and methocholhemethane [4]. Systemic treatments which may be effective are systemic steroids [5], methotrexate [2], ciclosporin A [6, 7], etretinate [1, 8, 9] and the non-steroidal inflammatory agent nimesulide [10].

The present case report illustrates the possible additional effect of calcipotriol ointment above systemic treatment with acitretin in ACH. A synergistic effect of etretinate and topical calcitriol has been demonstrated in chronic plaque psoriasis [11]. Several groups have studied the effect of acitretin and calcipotriol on the polymorphonuclear leukocytes (PMN), the cells that dominate in pustular psoriasis. Acitretin 25–75 mg/day inhibits the in vivo migration of PMN using leukotriene-B4-induced intra-epidermal accumulation of PMN as an in vivo model [9, 12, 13]. In vitro, acitretin inhibits the migration of PMN but does not interfere with arachidonic acid release by these cells [14, 15]. Calcipotriol has been shown to inhibit the release of arachidonic acid from the PMN [16] and to inhibit chemotaxis in vitro [17]. During treatment of psoriatic plaques with calcipotriol, PMN faded from the psoriatic plaque already during the first week of treatment, in contrast to the relatively long persistence of other infiltrate cells [18].

So far, we can only speculate on the putative synergism of calcipotriol and acitretin. Further controlled studies are worthwhile to explore to what extent the combination of both treatments has to be recommended.

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**References**