Case Reports

Complete eradication of chronic long standing eczema and keratosis pilaris following treatment with dextroamphetamine sulfate

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Summary

Purpose: To present two other dermatologic conditions related to a disorder of sympathetic nervous system hypofunction common in women that respond to treatment with dextroamphetamine sulfate – chronic eczema and keratosis pilaris. *Materials and Methods:* Case 1 was a patient with chronic eczema of 30 years duration was started on treatment for other conditions related to the sympathetic neural hyperalgesia edema syndrome, i.e., migraine headaches and chronic fatigue syndrome. Case 2 who also had chronic eczema also had a skin condition frequently associated with eczema – keratosis pilaris and he was started on dextroamphetamine sulfate for chronic fatigue syndrome. *Results:* Not only did the headaches and chronic fatigue syndrome in both patients markedly improve following sympathomimetic amine therapy but so did the eczema and keratosis pilaris. *Conclusions:* Eczema and keratosis pilaris are two more chronic dermatologic conditions besides chronic urticaria and prurigo nodularis that respond extremely well to treatment with dextroamphetamine sulfate. Case 2 shows this condition is not restricted to females.

Key words: Chronic eczema; Keratosis pilaris; Sympathomimetic amines; Sympathetic nervous system hypofunction; Sympathetic neural hyperalgesia edema syndrome.

Introduction

Atopic eczema is a chronic relapsing inflammatory skin condition related, at least in part, to defects in skin barrier function [1]. This defect leads to the classic eczematous skin lesions which may respond to topical glucocorticoids and topical calcineurin inhibitors, e.g., tacrolimus or pimecrolimus [1]. Sometimes microbial colonization and superinfection are implicated in exacerbations which respond to topical or systemic antimicrobial treatment [1].

Severe cases may be treated with systemic anti-inflammatory therapy including systemic glucocorticoids, cyclosporine A or mycophenolate mofetil [1]. New experimental methods undergoing clinical trials includes cytokine and chemokine therapy, e.g., anti tumor necrosis factor alpha drugs [1].

There is evidence that the sympathetic nervous system acts to reduce inflammation possibly by inhibiting cellular permeability [2]. Diminished sympathetic nervous activity has been found in patients with chronic pruritic skin disorders [3]. Some skin disorders, e.g., chronic urticaria refractory to standard therapy, have been found to respond to treatment with sympathomimetic amines [4, 5].

The present case report describes the complete remission of eczema of 30 years duration following treatment with the sympathomimetic amine dextroamphetamine sulfate. Furthermore not only did the eczema improve but one of the cases also had marked improvement of chronic keratosis pilaris of many years duration.

Case Report

Case 1

A 47-year-old woman presented with severe and frequent migraine headaches refractory to standard therapy. She was advised that a condition exists where diminished activity of the sympathetic nervous system leads to a variety of pathological conditions that respond quickly and efficiently to therapy with sympathomimetic amines [6]. These conditions include severe migraines resistant to standard therapy, and have been found to respond to sympathomimetic amine treatment [7, 8].

A trial of dextroamphetamine sulfate extended release capsules 15 mg twice daily was initiated with subsequent decrease in the intensity and frequency of the migraines. After two months on this therapy she relayed to the authors that an interesting phenomenon occurred; her eczema of 30 years duration had completely disappeared. She questioned whether this may be related to her dextroamphetamine sulfate therapy.

The patient was first diagnosed with eczema at age 18, which began with intensely pruritic lesions below the right elbow with

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spread to the contralateral elbow and subsequently to the entire length of both arms. Intermittently she would develop lesions in other areas of the body, including her eyelids and knees; however, these lesions would only last two months whereas the upper extremity lesions were persistent.

The only treatment that the patient received was betamethasone cream on an alternating three months on and three months off schedule, which provided only minimal relief. After 12 years she discontinued all therapy and resolved to just persevere with the condition. Following only two months of therapy with dextroamphetamine sulfate, the lesions had completely cleared up. The total remission has lasted two years thus far. While she continued the dextroamphetamine sulfate there have been no untoward side effects from the medication.

Case 2

A 45-year-old male presented with chronic fatigue syndrome. He was aware of the authors' treatment with dextroamphetamine sulfate for this condition and sought therapy [9, 10]. He demonstrated marked improvement in his chronic fatigue syndrome on 60 mg dextroamphetamine sulfate extended release capsules. He also noted interestingly that not only did his eczema of 30 years duration almost completely disappear but he had marked improvement of his keratosis pilaris which is a common skin condition in which the protein keratin forms hard plugs in the hair follicles forming small skin colored papules with the hair follicle. This condition is frequently associated with atopic dermatitis (eczema). The patient stated that this is the only time in 30 years he has had an improvement in the acne or the keratosis pilaris and for the first time he "did not have chicken skin".

Discussion

Though a spontaneous remission of the eczema in this woman is possible, the 30-year length of the eczema without any previous remission makes it likely that the sympathomimetic amine treatment was responsible for the benefit. The authors have found similar success in the treatment of long-standing severe urticaria lending credence that the benefit in this patient was not unique and that this therapy is likely to have benefit in other dermatologic pruritus disorders [4, 5, 11]. The authors have now treated over 20 cases of chronic severe urticaria resistant to standard therapy that have responded quickly and effectively to treatment with dextroamphetamine sulfate, and in fact, to date there has not been one failure.

The authors have also seen marked improvement in a severe case of prurigo nodularis that had failed to respond to antihistamine, intralesional glucocorticoids, phototherapy, and thalidomide (unreported at this time). The proposed mechanism of action of sympathomimetic amine therapy is that the drug corrects sympathetic nervous system hypofunction leading to a correction of a cellular permeability defect. The prevention of the absorption of toxins, chemicals, and bacteria eliminates the stimulus which would otherwise initiate an inflammatory reaction. There is evidence that diminished sympathetic nervous system activity in the skin plays an important role in the pathophysiology of disorders of chronic pruritus, including, but not limited to, prurigo nodularis [3].

It is unclear why in given individuals only certain tissues are affected, and why the same defect in the sympathetic nervous system can lead to such a wide degree of varying manifestations, particularly in women. These manifestations are often chronic, treatment-resistant disorders and include, but are not limited to, edema, weight gain, headaches, arthritis, fibromyalgia, chronic fatigue syndrome, pelvic pain, interstitial cystitis, esophageal motility disorders, gastroparesis, pseudointestinal obstruction, Crohn's disease, severe constipation, pseudopheochromocytoma, and vasomotor instability [2, 6, 12]. All of the above mentioned conditions have also been reported to respond very well to treatment with dextroamphetamine sulfate when all other types of treatments have failed.

Dextroamphetamine sulfate in the dosage prescribed (usually no more than 30 mg per day) is extremely well tolerated with no risk of addiction or withdrawal symptoms at these levels. The authors report this case with the hope that it will stimulate interest so that other clinicians will try this therapy before proceeding with riskier treatments, e.g., systemic anti-inflammatory agents [1]. It is also hoped that this case report may spark interest in a larger controlled trial for sympathomimetic amines in the therapy of chronic treatment-resistant eczema and other chronic pruritic disorders of the skin.

The condition now referred to as the sympathetic neural hyperalgesia edema syndrome is predominantly a disorder found in women. It is responsible for most pelvic pain conditions and the authors usually prescribe dextroamphetamine sulfate as the second line therapy if oral contraceptives are not sufficient [13]. They prefer sympathomimetic amine therapy over surgical intervention [14].

Case 2 was presented not only to substantiate by a second case that sympathomimetic amine therapy can markedly improve long standing chronic eczema and to report improvement of a new entity keratosis pilaris, but to also remind the reader that the defect of sympathetic nervous system hypofunction can also be seen in males.

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