

## Narrow-Band UV-B Treatment in the Early Stages of Mycosis Fungoides

### Tratamiento con ultravioleta B de banda estrecha de los estadios iniciales de la micosis fungoide

To the Editor:

Skin-directed therapies are used for early-stage mycosis fungoides, and include topical corticosteroids, carmustine, and nitrogen mustard, psoralen with UV-A (PUVA) photochemotherapy and, more recently, narrowband UV-B phototherapy.<sup>1-4</sup>

We performed a retrospective study of patients with early-stage (IA and IIB) mycosis fungoides who were treated with narrowband UV-B in the Dermatology Department of Hospital de León between 2005 and 2009. A total of 11 patients, 5 men and 6 women, with a mean age of 66.3 years, were included in the study; 6 had stage IA disease and 5 had stage IIB disease. Mean disease duration from diagnosis to treatment commencement was 4.7 years (range, 6 months to 10 years); 7 and 4 of the patients had skin phototypes II and III, respectively. All the patients received 3 weekly phototherapy sessions, with dose adapted to skin phototype (Table).

Following therapy, 10 of the patients achieved complete remission (no lesions), whereas lesions in the remaining patient worsened. The patients underwent an average of 31 phototherapy sessions (between 17 and 61 sessions), and the mean cumulative dose was 22.6 J/cm<sup>2</sup>.

During the follow-up period (median, 2 years), 6 of 8 patients experienced a relapse. We have no information on relapse for the remaining 3 patients in the study, as 1 withdrew from therapy, another left the city, and the third died from a heart disorder. Two patients are in remission after 3 years of follow-up. The mean disease-free period was 5.3 months.

Phototherapy began to be used as a treatment for mycosis fungoides about 30 years ago, following the observation that mycosis fungoides lesions developed in areas of the skin not exposed to sunlight.<sup>5</sup>

As a skin-directed treatment with minimal systemic side effects, phototherapy in various forms—PUVA (320-400 nm), topical PUVA, UV-B, and narrowband UV-B (311-313 nm)—has been used to treat early-stage (IA and IIB) mycosis fungoides with no systemic involvement.

UV-B irradiation of the Langerhans cells prevents antigen presentation, modulates cytokine expression, and induces apoptosis of malignant T-lymphocytes.<sup>5</sup> UV-B radiation has a number of advantages over PUVA therapy, primarily that it is equally effective for early-stage disease, has a remission rate of 50% to 100%, and has none of the disadvantages associated with psoralen intake, such as the risk of damage to the eyes and skin cancer.<sup>6,7</sup> The disadvantages of UV-B radiation are that recurrence occurs earlier (mean, 6 months), and that it may be difficult for active patients to visit the hospital for the treatment.

**Table** Narrowband UV-B dose adapted to skin phototype

| Skin phototype   | Initial dose           |
|--|------------------------|
| Type I-III:  | 200 mJ/cm <sup>2</sup> |
| Type IV-V:   | 240 mJ/cm <sup>2</sup> |
| <b>Increase dose by 10% per session</b>                              |                        |
| Mild erythema: repeat dose   |                        |
| Symptomatic erythema: suspend session and restart with previous dose |                        |

To overcome the drawback of early relapse associated with UV-B therapy, some authors recommend a maintenance schedule<sup>8</sup>; however, this is more difficult than with PUVA therapy, as the risk of post-session erythema grows when the interval between irradiation sessions is increased to 7 up to 15 days. To overcome the second drawback, some authors propose home-based phototherapy.<sup>9</sup>

The results of our study are consistent with those of previous studies<sup>5,10</sup>: narrowband UV-B is an effective therapy for early-stage mycosis fungoides when the lesions are not infiltrated, and especially for lighter skin phototypes.

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## Allergic Contact Dermatitis to Footwear in Children

### Dermatitis de contacto alérgica al calzado en niños

*To the Editor:*

Allergic contact dermatitis used to be considered an uncommon childhood disorder but in recent years it has become a considerable clinical problem.<sup>1,2</sup> Foot dermatitis is both a diagnostic and a therapeutic challenge as the differential diagnosis is very wide. In children, foot rash tends to be self-limiting but occasionally the symptoms persist and are resistant to treatment. Allergic contact dermatitis must be considered as a possible diagnosis in such cases.<sup>3</sup> The most common allergens implicated in footwear contact dermatitis are rubber, adhesive, and skin treatment compounds.<sup>1</sup>

Between 2004 and 2008, a total of 920 patients underwent patch testing in the Skin Allergy Unit of the Dermatology Department at Hospital Clínico Universitario de Valencia, in Valencia, Spain. Of these, 57 (6.2%) were children aged 16 years or younger, and within this group, 22 had been referred for foot lesions compatible with footwear contact dermatitis. Clinical histories were taken according to an established protocol, with recording of the following variables: age, sex, clinical presentation, lesion site, and personal history of atopy.

The 57 children were patch tested using the standard series of the Spanish Contact Dermatitis and Skin Allergy Research Group (abbreviated in Spanish to GEIDAC). No specific allergen series were tested. One of the patients (patient #3) was patch tested with 2 fragments from the shoes which she associated with the onset of symptoms. Patch test readings were performed according to the recommendations of the International Contact Dermatitis Research Group, and standardized allergens were applied using the T.R.U.E. TEST system. Clinical relevance was established on the basis of clinical history and physical findings.

Of the 22 children referred for suspected footwear contact dermatitis, 18 were boys (82%) and 4 were girls (18%). The mean age was 9.9 years (range, 3-16 years). The lesions in these children were diagnosed as dyshidrotic eczema (12 cases, 54.5%), acute eczema (n=5, 22.7%), chronic eczema (n=4, 18.2%), and pustulosis (n=1, 4.5%).

The reactions were positive—and relevant—in 7 patients (31.8%). Positive results were observed for potassium dichromate in 6 patients, for colophony in 1 patient, for cobalt chloride in another, and for mercapto mix in another. The Table shows the data for the 7 patients with positive patch test results.

As mentioned above, 7 (32%) of the 22 patients referred to our unit with suspected footwear contact dermatitis had positive patch test results. The most common allergen implicated was potassium dichromate, a finding in agreement with series published on adult footwear contact dermatitis.<sup>4,5</sup>

The lesion sites and their correlation with the allergens identified also coincide with reports published to date, namely lesions related to potassium dichromate, cobalt chloride, and colophony on the dorsal and lateral aspects of the feet, and lesions related to rubber on the surface of the heels.<sup>6</sup> Patient #3, who tested positive to colophony, was patch tested a second time with fragments from a pair of sports shoes (worn without socks to do taekwondo) with which she associated the onset of symptoms. The result was negative. Colophony allergy is typically associated with involvement of the heels and balls of the feet as this substance is used in adhesives employed in the shoe industry to reinforce the structure of footwear in these areas. We were not able to demonstrate that the positive reaction to colophony was currently relevant in our patient as the patch test performed with fragments from the sports shoes was negative. However, because colophony is typically associated with footwear contact dermatitis, the advice given to the patient was the same as would have been given had the result been positive.

The main difference between our findings and those observed in our review of reports of footwear contact dermatitis in children is that potassium dichromate was by far the most common allergen in our series, while in others the most common allergens were, in order, rubber, adhesives, and skin treatment compounds.<sup>1,2</sup> This difference could be due to multiple factors such as differences in legislation governing the use of chromium in leather tanning processes or cultural factors such as the use of sandals without socks from an early age. We followed the patients for at least 3 years to assess the impact of the recommendations we made based on the test results. Two of the patients (#2 and #7) were lost to follow-up and the other 5 did not develop any further lesions. Of the 7 patients with positive patch test