Bronchial Asthma and Allergic Rhinitis in Patients with Hereditary Palmoplantar Keratodermia

Sir,

More than 100 years ago it was observed that inhalation of fungi could induce bronchial asthma (1). Since then, such reactions have repeatedly been reported and shown to be correlated with positive immediate skin tests and presence of specific dermatophyte IgE antibodies (2, 3). The prevalence of bronchial asthma, reported in a northern county of Sweden, was 5–7% and that of allergic rhinitis among military service men 13–15% (4). As the prevalence of dermatophytosis in patients with hereditary palmoplantar keratodermia (1982–1987) was reported to range between 36% and 42%, it was considered of interest to study the prevalence of bronchial asthma and allergic rhinitis in 207 patients with hereditary palmoplantar keratodermia, compared to that of the population of the county (5).

Dermatophytes were isolated on Sabouraud’s glucose agar from 83 of the 207 patients with hereditary palmoplantar keratodermia, and they were distributed as follows: T. rubrum 42%, T. mentagrophytes 35% and E. floccosum 23% (Table I). At the clinical examination a family and/or personal history of atopy was obtained in 37% of all patients. Fifty-one percent of those had dermatophytosis. Of those patients without a family and/or personal history of atopy dermatophytes were isolated in 15%. Serum IgE levels > 100 IU/ml, determined by using the Phadebas radioimmunoassay method (Pharmacia, Sweden), was found in 17 of all patients, of whom 14 had dermatophytosis. Dermatophyte infections in patients with bronchial asthma, allergic rhinitis and urticaria together with serum IgE levels are shown in Table I.

A commercial antigen prepared on extract from T. mentagrophytes (Trichophyton*, Miles and Dome, UK) and a specially prepared antigen extract from T. rubrum (National Bacteriological Laboratory (SBL) Stockholm, Sweden) gave, however, only 2 certain positive immediate and 4 doubtfully positive reactions, when intradermally injected (1, II) (Table I).

**COMMENTS**

The prevalence of bronchial asthma among 207 patients with hereditary palmoplantar keratodermia was 5.5%, corresponding well to the prevalence of the population of the county at that time. However, the prevalence of bronchial asthma among those 83 patients who had hereditary palmoplantar keratodermia and dermatophytosis was 18.0% and among those without dermatophytosis 2.3% (p < 0.05). For the present statistical calculation the chi square test was applied. The prevalence of allergic rhinitis was also raised compared to that of the population (Table I). A family and personal history of atopy also confirms previously performed studies of increased susceptibility to dermatophyte infections in patients with atopy (6, 7).

Two possible pathways for dermatophyte antigen have been proposed, either through eczematous skin or by the airways (8). In patients with hereditary palmoplantar keratodermia, dermatophyte infections are confined to the hyperkeratosis and do not propagate to other parts of the skin, probably due to different immunological mechanisms (9). Mycotic material may pass through the airways, leading to production of specific IgE antibodies. Bronchial asthma and allergic rhinitis seem to occur more often among patients with hereditary palmoplantar keratodermia and dermatophytosis than among the population of the county and among patients without dermatophytosis; however, more extensive studies of these patients concerning the prevalence of IgE-mediated diseases should be performed.

**REFERENCES**


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**Table I. Patients with hereditary palmoplantar keratodermia with or without dermatophytosis, related to the parameters investigated T. rubrum (TR), T. mentagrophytes (TM), E. floccosum (EF). Figures indicate number of patients.**

<table>
<thead>
<tr>
<th>All patients</th>
<th>TR patients</th>
<th>TM patients</th>
<th>EF patients</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>207</td>
<td>35</td>
<td>29</td>
<td>19</td>
</tr>
<tr>
<td>Family and/or personal history of atopy</td>
<td>130</td>
<td>13</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>Patient without family and/or personal history of atopy</td>
<td>77</td>
<td>6</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Serum IgE &gt; 100 IU/ml</td>
<td>190</td>
<td>29</td>
<td>24</td>
<td>16</td>
</tr>
<tr>
<td>Serum IgE &lt; 100 IU/ml</td>
<td>11</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Bronchial asthma</td>
<td>13</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Allergic rhinitis</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Urticaria</td>
<td>207</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

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Treatment of Hand Dermatosis: A Comparative Study of a Topical Glucocorticoid Ointment vs Solution Occluded with a New Thin Hydrocolloid Dressing

Sir,

Hand dermatosis (HD) represents a considerable clinical problem as the course is often prolonged and chronic. The purpose of the study was to see whether a treatment regime consisting of a thin hydrocolloid dressing combined with a potent topical glucocorticoid preparation could induce a remission of the HD with a minimum of applications of the preparations. Furthermore, we wanted to investigate the most suitable galenic composition of glucocorticoid preparation for treatment of palms and fingers.

MATERIAL AND METHODS

Thirty consecutive patients, 9 men and 21 women, mean age 51 years, with an acute outbreak of symptoms of HD were included in the study. All patients were treated at the day-care clinic of the Department of Dermatology, Karolinska Sjukhuset in Stockholm, Sweden. The following types and numbers of patients completed the study: pustulosis palmo-plantaris (5); pustulosis (1); tylotous eczema (4); atopic eczema (3); dyshydroric eczema (1); allergic eczema (7); non-allergic eczema (1); both dyshydroric and allergic eczema (2).

The occupations of the 30 patients originally included in the study were classified into five categories: light manual labour, heavy manual labour, professional driver and frequent wet/chemical contacts.

Fifteen patients were randomly allocated to treatment with Clobetasol propionate (Dermovate®; Glaxo) solution (DS) and 15 with Clobetasol propionate ointment (DO). Clobetasol propionate solution or ointment was occluded with the thin hydrocolloid dressing (Contreet Derma Cover®; CDC, Coloplast A/S), consisting of particles from sodium carboxymethylcellulose embedded in a matrix composed of a synthetic, resin-like tackifier and a synthetic elastomer. The glucocorticoid preparation was applied twice a week for the first 2 weeks and once a week for the next 2 and during the corresponding time covered with the dressing. If symptoms disappeared within the first 3 weeks, CDC was applied only for 1 week after disappearance of the symptoms. Control visits took place 4 and 12 weeks after start of treatment. By the end of the study, all patients returned a questionnaire concerning their experiences of the treatment.

The symptom severity was characterized by four different symptoms: itching, erythema, infiltration and scaling. These symptoms were graded 15 min after the removal of bandage at each visit on a four-point scale: 0 = no symptom, 1 = mild, 2 = moderate and 3 = severe. Itch was graded by the patient on a 10-cm visual analogue scale. Vesicles and pustules were noted as present or absent but not quantified. A comparison of treatments considering the score of the different symptoms separately and of the sum of the scores at baseline was performed by a t-test. A comparison of treatments considering the profiles of the sum score was performed by repeated measures ANOVA, including diagnosis as a factor on seven levels and three levels, respectively. The ANOVAs were based on data including both observed and imputed values. Comparisons of the treatment groups at each separate visit were performed by exact permutation test.

A comparison of treatments considering healing, relapse rates and experience of disadvantages was performed by Fisher’s exact test. All tests were two-sided.

RESULTS

One patient treated with DO and another treated with DS were excluded due to adverse events, and 4 dropped out of

![Fig. 1. Mean sum scores of visual analogue scale in all patients irrespective of hand dermatosis.](image-url)