Contact sensitivity in Behçet's disease

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Abstract

Context: Behçet's disease (BD) is a multisystemic inflammatory disorder with unknown etiology. Many immunological changes were reported in BD previously and these changes may affect the frequency of contact sensitivity in these patients.

Objective: We aimed to identify whether there is an interaction between contact sensitivity and BD.

Methods: The 'European standard series' with 27 allergens were performed on the upper backs of patients and healthy volunteers according to international standards using the IQ-Chamber. The test units which contain these allergens were removed after 2 days. According to International Contact Dermatitis Research Group Recommendations test areas were evaluated on days 2, 3 and 7 to detect any delayed allergic reactions. The results of both groups were compared by using chi-square test.

Results: One hundred adult persons (50 BDs and 50 healthy controls) were tested. Positive patch test reaction to 1 or more allergens was observed in 13 (26%) patients in BD group and in 12 (24%) persons in control group. There was no statistically significant difference between these two groups.

Conclusions: The frequency of contact sensitivity in BD is not different from healthy persons.

Keywords: Behçet's disease, contact allergy, contact sensitivity, patch test

Introduction

Behçet's disease (BD) is a chronic, relapsing systemic vasculitis characterized by oral and genital ulcers, uveitis and the skin lesions. The etiopathogenesis remains unknown, but the most emphasized hypothesis of the disease pathogenesis is that an altered immune response result from an infectious agent or by an autoantigen such as heat shock proteins in a genetically susceptible host (1). Components of the immune system take an important role at both the beginning and the activation phase of BD. Developing molecular biology shows a large number of immunological changes in this disease (2,3). There is strong evidence that induced overexpression of TH helper (Th1) -1 type cytokines may play an important role in the pathogenesis of BD.

Contact hypersensitivity is a delayed hypersensitivity reaction caused by skin contact with substances in the environment of small molecular weight (4). Recent studies identified an inverse relationship between some diseases in which TH cytokine is important in pathogenesis, and contact allergy. The authors think that presence of an opposite immunological mechanism of these diseases may be responsible for this inverse relation (5,6). Therefore we aim in this study to investigate the frequency of contact sensitivity (CS) in BD and whether there is any relationship between contact allergy and BD.

Patients and methods

The study was conducted following approval by the ethics committee of our hospital. Patients diagnosed with BD according to the criteria of the International Study Group for BD were included in this study. Patients were warned not to take antihistamines, immunosuppressive drugs or systemic corticosteroids for at least four weeks. Fifty patients diagnosed with BD according to the criteria of the International Study Group for BD and 50 healthy volunteers were included in this prospective study. Control group consisted of randomly selected...
hospital staff who did not have any systemic or dermatologic disease. Patients were warned not to take antihistamines, immunosuppressive drugs or systemic corticosteroids for at least four weeks.

Age under 16, pregnancy or breastfeeding were exclusion criteria for both groups in the study. We also did not include patients on active stage of severe internal organ involvement in our study.

The 'European standard series' with 27 allergens (Chemotechnique Diagnostic, Sweden) was performed on the upper backs of the volunteers according to international standards using the IQ-Chamber (Chemotechnique Diagnostic). The test-units were removed after 2 days. The test areas were read on days 2, 3 and 7 according to International Contact Dermatitis Research Group Recommendations.

Chi-square test was used to analyze the results of patch test in BD and healthy volunteers. The degree of positivity of patch test reaction was not taken into account during the analyses. A statistically significant association was considered when the 2 tailed p-value was less than 0.05. All data analyses were performed with SPSS version 11.

Results

Fifty BD patients (31 female, 19 male) and 50 healthy volunteers (25 female, 25 male) were included in the study. All of these patients had oral ulcers, 42 had genital ulcers, 17 had erythema nodosum, 38 had papulopustular lesions, 13 had thrombophlebitis, 6 had uveitis, and 4 had arthritis. None of them had giant vessel involvement.

Age and gender did not differ between BD and control groups.

Positive patch test reaction to 1 or more allergens was observed in 7 (14%) in patient group and in 12 (24%) in control group. There was no statistically significant difference between these two groups (Table 1).

Nickel sulfate was the most frequent allergen in both BD (71.4%) and control (66.7%) groups (Table 1). No significant difference was found when the positivity for each allergen was compared within the patient and control groups.

We found no difference between positivity of the patch test and each finding of BD.

Discussion

The etiopathogenesis of BD remains unknown although genetic and environmental factors, immunological findings and endothelial factors have been interrelated.

Allergic contact dermatitis, one of the most common skin diseases, is a T cell mediated inflammatory reaction that occurs at the site of challenge with a contact allergen in sensitized individuals (7). We thought that contact sensitivity might be different in BD in which there are various immunological changes, apart from healthy controls. As both diseases have common immunological changes in their pathogenesis we concluded that these diseases may affect each other. Furthermore some studies, which have been conducted recently, show the inverse association between CS and some autoimmune diseases. Engkilde et al found an inverse association between CS and inflammatory bowel diseases (4). Another study revealed psoriasis to have inverse relationship within CS (5). It was thought that this opposite condition between autoimmune diseases and CS might be related to shared genetic factors or common environmental determinants (4–6). Similar to this study they also investigated whether there was an association between contact allergy and type 1 diabetes mellitus. They found inverse association again between these subjects (6). Diabetes mellitus and inflammatory bowel diseases are recently accepted in the autoimmune diseases group as also BD is (8,9). Chang et al thought that Th-1 cell mediated disorders may protect against development of Th-2 cell mediated diseases and they found that BD patients had a significantly lower frequency of atopy and significantly low mean values of serum IgE levels and peripheral blood eosinophil counts when compared with control groups (10).

Table 1. Demographic data and the comparison of patch test results in Behçet’s disease and control group.

<table>
<thead>
<tr>
<th></th>
<th>Behçet (n = 50)</th>
<th>Control (n = 50)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (female/male)</td>
<td>31/19</td>
<td>25/25</td>
</tr>
<tr>
<td>Age (year)</td>
<td>33.08</td>
<td>34.50</td>
</tr>
<tr>
<td>Patch test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positivity (4% and over)</td>
<td>7 (14%)</td>
<td>12 (24%)</td>
</tr>
<tr>
<td>Allergen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nickel sulfate</td>
<td>5 (10%)</td>
<td>8 (16%)</td>
</tr>
<tr>
<td>Cobalt chloride</td>
<td>1 (2%)</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Chloro-iodo-quinolon</td>
<td>1 (2%)</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Formaldehyde</td>
<td>0</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>1,2 dibromo-2,4- dicyanobutane</td>
<td>1 (2%)</td>
<td>0</td>
</tr>
<tr>
<td>Paraben mix</td>
<td>1 (2%)</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Sesquiterpene lactone</td>
<td>0</td>
<td>1 (2%)</td>
</tr>
</tbody>
</table>
allergy may be different from normal population. There is only one similar study aiming to investigate relationship between CS and BD, as we know. In this study Gül et al found positive reaction in 35% of their patients, but it was 25% in the control group. Although there was no significant difference in both studies, we found less positivity in BD than control in contrast. Difference between these two studies may be a result of the difference of number of patients.

Nickel sulfate was the most allergic agent to cause contact sensitivity in both BD and controls in our study. This study result was similar with other study results showing the prevalence of sensitization to allergens from most countries of the world; nickel sulfate was mostly seen allergen (18-21). Otherwise Gül et al found positivity mostly due to cobalt chloride.

In our study, frequency of contact sensitivity in BD was less than healthy population although it was not statistically significant. This result can be attributed to insufficient number of the patients. Another limitation of our study was none of our patients was on active stage of disease and delayed treatment of these patients was not ethically appropriate. All of the patients with severe organ involvement were under immunosuppressive treatment as expected. So, we excluded these patients at the beginning of the study.

Conclusions

According to our study results the frequency of contact sensitivity in BD is not different from healthy population. Also frequency of contact sensitivity was not statistically different as compared with each finding of BD.

Declaration of interest

The authors declare no conflict of interest.

References