Uveitis and Lyme borreliosis

J Breeveld, H Kuiper, L Spanjaard, L Luyendijk, A Rothena

Abstract
In a retrospective study 56 consecutive patients with uveitis of unknown origin and 56 consecutive patients suffering from uveitis of established aetiology were investigated. The purpose of this study was to determine the frequency of positive serological tests for Lyme borreliosis among patients with uveitis and to relate laboratory data to clinical findings. The antibody titre for Borrelia burgdorferi was determined by two assays: the indirect immunofluorescent assay and the enzyme linked immunosorbent assay. A positive result according to one or both assays was found for eight patients with uveitis of unknown aetiology (14%) and three patients with uveitis of established cause (5%). On clinical examination, none of the patients fulfilled the CDC criteria for diagnosis of Lyme borreliosis.

(Br J Ophthalmol 1993; 77: 480–481)

Ocular involvement in Lyme borreliosis is increasingly being recognised. Ocular manifestations may affect every tissue within the eye and orbit. Since there are no definite clinical diagnostic criteria for Lyme borreliosis and the interpretation of serological tests is difficult, the prevalence of Lyme borreliosis among patients with uveitis cannot be assessed accurately.

The purpose of this study was to determine the frequency of positive serological tests among patients with uveitis and to relate laboratory data to clinical findings.

Patients and methods
We retrospectively reviewed 56 consecutive patients with uveitis of unknown origin (group 1) and 56 consecutive uveitis patients with an established diagnosis (sarcoïdosis, toxoplasmosis, HLA-related uveitis, Fuchs' heterochromic cyclitis (bilateral), acute retinal necrosis, cytomegalovirus retinitis, Posner-Schlossman syndrome) (group 2). For all patients the diagnostic examination included HLA-B27 typing, serological tests for syphilis (VDRL and TPHA), serum angiotensin converting enzyme, serum lysozyme, and chest x rays. The diagnostic criteria for uveitis were those laid down by the International Uveitis Study Group.

We performed a flagellum enzyme linked immunosorbent assay (ELISA) (Dakopatts, Denmark) for IgG antibodies against Borrelia burgdorferi. The assay was carried out according to the manufacturer's instructions.

Sera were also examined for B burgdorferi antibodies by means of an indirect immunofluorescence assay (IFA). We followed the procedure described by Wilske et al with some modifications. The slides were coated with the German skin isolate PKo (courtesy of Dr V Preac-Mursic, Munich) and incubated with the patient's serum and, after rinsing, with fluorescein conjugated antihuman immunoglobulin. Sera were not absorbed and a titre of 1:160 or higher was considered positive; a titre of 1:80 was considered borderline. All patients had negative VDRL and TPHA tests for syphilis. Patients with positive or borderline serological results were re-examined and questioned about their history, in particular about signs and symptoms associated with Lyme disease. Detailed ophthalmic examinations were performed to determine whether related ocular findings were present.

All patients with positive serological results and those with complaints suggesting Lyme disease were examined and evaluated by a neurologist who was experienced in the diagnosis and management of Lyme borreliosis.

We used the χ² test for statistical analysis. A p value <0.05 was considered significant.

Results
The results of serological tests for anti-Borrelia antibodies among patients with uveitis are given in Table 1.

Eight patients (14%) from the first group were positive, according to one or both assays, compared to three patients (5%) of the second group (difference not significant). The established diagnoses for the latter were HLA-B27-related uveitis (two patients) and cytomegalovirus retinitis (one patient).

Manifestation of the uveitis in the eight patients of group 1 with anti-Borrelia antibodies varied. Three patients had anterior, four had intermediate, and one had posterior uveitis. In the course of the disease five patients developed anterior vitritis with vitreal strings and 'snowball' infiltrates. No other specific symptoms were observed. None of the patients with positive serological results fulfilled CDC criteria for Lyme borreliosis. The patient who was found positive by both assays was referred with posterior uveitis of the left eye. Visual acuity was 0.2 left eye and 1.0 right eye. Ocular findings for the affected left eye consisted of papillitis, vasculitis, a focal chorioretinitis lesion, and cystoid macular oedema. No abnormalities were

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Lyme serology among patients with uveitis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Serological test results</strong></td>
<td><strong>Uveitis of undetermined aetiology</strong></td>
</tr>
<tr>
<td></td>
<td>(n=56)</td>
</tr>
<tr>
<td>Positive IFA and positive ELISA</td>
<td>1</td>
</tr>
<tr>
<td>Positive IFA but negative ELISA</td>
<td>5</td>
</tr>
<tr>
<td>Marginal IFA and positive ELISA</td>
<td>1</td>
</tr>
<tr>
<td>Negative IFA but positive ELISA</td>
<td>1</td>
</tr>
<tr>
<td>Marginal IFA but negative ELISA</td>
<td>10</td>
</tr>
<tr>
<td>Negative IFA and negative ELISA</td>
<td>38</td>
</tr>
</tbody>
</table>

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