Distribution of HLA-B27 in patients with juvenile rheumatoid arthritis

H. MITSUI*, T. JUII†, H. SONOZAKI*, H. SEKI*, AND N. WATANABE‡

From the Rheumatology Unit, Department of Orthopaedic Surgery*, and Department of Blood Transfusion Service, University of Tokyo†; Department of Paediatrics, University of Kyorin, Tokyo, Japan‡

SUMMARY HLA antigens were examined in 27 patients with juvenile rheumatoid arthritis. HLA-B27 was found in none. The result was different from most other previously reported studies. The most likely explanation for this difference is the possibility that some patients with juvenile ankylosing spondylitis may have been included among the patients in the other studies.

Materials and methods

27 patients (7 males, 20 females) with JRA admitted to Tokyo University Hospital were studied. All were Japanese, and in all onset of the disease occurred before the age of 16 years. Diagnosis was based on the criteria (Brewer et al., 1973) for classification of JRA adopted by the American Rheumatism Association (Table 1).

Each patient was carefully observed and underwent a complete examination. Radiological examination was performed on affected joints and on the sacroiliac joints. Duration of follow-up ranged from 1 to 20 years, with 50% studied for more than 10 years.

Accepted for publication May 11, 1976
Correspondence to Dr. H. Mitsui, Department of Orthopaedic Surgery, Faculty of Medicine, University of Tokyo, Hongo, Tokyo, Japan

Table 1 Clinical characteristics of patients with JRA

<table>
<thead>
<tr>
<th>Type of JRA</th>
<th>No. of patients</th>
<th>Males</th>
<th>Females</th>
<th>Mean age at onset (yr)</th>
<th>Positive rheumatoid factor (no. of patients)</th>
<th>Uveitis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute type (Still's disease)</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>4.2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Polyarticular (adult type)</td>
<td>16</td>
<td>3</td>
<td>13</td>
<td>7.8</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Monarticular</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>7.0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Total no. of patients</td>
<td>27</td>
<td>7</td>
<td>20</td>
<td></td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

HLA typing was performed by the microdroplet lymphocyte cytotoxicity test. 22 HLA antigens were examined in 181 normal Japanese controls and in 27 patients with JRA. 41 patients with ankylosing spondylitis were also examined as a control group. The same antisera was used in typing both patients and controls.

Results

The incidence of the first and second sublocus of antigens in our patients was compared to those in the controls (Table 2). Although HLA-B27 was found in 74% of ankylosing spondylitis patients, none of the JRA patients or normal controls showed this phenotype.

Discussion

According to the reports by Rachelefsky et al. (1974), Carpenter et al. (1973), Buc et al. (1974), and Sturrock et al. (1974), HLA-B27 was found more frequently in patients with JRA than in the normal population. However, Gibson et al. (1975) recently reported on the association between HLA antigens and the disease; none was found, but HLA-B7 was found more frequently in patients with JRA demonstrating tenosynovitis than in the population with
JRA with no tenosynovitis, but there was no association with HLA-B27, a finding attributed by the authors to the exclusion of cases of ankylosing spondylitis from their study.

The discrepancy between the findings of most of the above-mentioned authors and our own may be explained by some racial differences between Japanese and Caucasians; however, it is more likely that some patients with juvenile ankylosing spondylitis may have been included among the Caucasian groups. The incidence of HLA-B27 in normal Japanese controls and in 27 patients with JRA was 0%, while it was 74% in Japanese patients with ankylosing spondylitis. These results suggest that the second explanation is the more likely one. We have seen some cases of juvenile ankylosing spondylitis where the early clinical features were almost indistinguishable from those of JRA, but after long-term follow-up these patients showed definite clinical features of ankylosing spondylitis. In fact, diagnosis of ankylosing spondylitis or Reiter’s syndrome eliminated those patients from our study. 2 patients with juvenile ankylosing spondylitis were so eliminated after long-term follow-up. The increased frequency of HLA-B27 reported in other studies could indicate that patients with juvenile ankylosing spondylitis were not excluded from the group of JRA patients.

HLA-B27 was never found in our 181 normal controls. We have typed HLA antigens in over 3000 normal persons or patients with disorders other than rheumatic diseases. However, HLA-B27 has been found in only 6 of these (0.2%). Saito et al. (1975) reported that the incidence of HLA-B27 was 1-5% in 200 normal Japanese and Tsuji and Fukunishi (1973) found 0% in 248. These reports show that the incidence of HLA-B27 in the Japanese population is much lower than in Caucasians. This may be one of the reasons why in ankylosing spondylitis, also, the incidence of HLA-B27 is lower in Japanese patients. The low incidence of ankylosing spondylitis in Japan may be due to the low incidence of HLA-B27 in the Japanese population. However, Amor et al. (1974) and Dick et al. (1975) reported recently that the incidence of HLA-B27 in Caucasian patients with ankylosing spondylitis was 81% and 82-4%, respectively. These figures are closer to ours.

References


Distribution of HLA-B27 in patients with juvenile rheumatoid arthritis.

H Mitsui, T Juji, H Sonozaki, H Seki and N Watanabe

Ann Rheum Dis 1977 36: 86-87
doi: 10.1136/ard.36.1.86

Updated information and services can be found at:
http://ard.bmj.com/content/36/1/86

Email alerting service

Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/