An Increased Expression of High Serum Antirubella Antibodies in Diverse Retinal Diseases

**Colleagues**—Chronic/persistent or latent viral infection as a complication of retinal diseases is not a novel concept. Our data linked the retinal degeneration, retinitis pigmentosa (RP), with possible persistent/chronic infection with rubella virus [1]. We found elevated serum antirubella antibody values, repeatedly, in 60% of 33 RP patients using rubella-specific ELISA [2]. This association led us to expand our study by examining humoral antibody values to six common neurotropic viruses in other forms of retinal diseases. We included diabetic retinopathy, both proliferative and background, rhegmatogenous retinal detachments, and age-related macular degeneration as well as additional patients with RP (table 1). ELISA values of serum antiviral antibodies to rubella, rubeola, herpes simplex viruses I (HSV I) and II (HSV II), cytomegalovirus (CMV), and varicella-zoster virus (VZV) were measured in masked fashion by the Ohio Health Department Virus Serology Laboratory using standard prepared kits (M.A. Bioproducts, Walkersville, MD). Group values were compared by analysis of variance in a statistical computer program (CRISP; IBM) to age-matched normals without retinal disease.

Only in the serum antibody values to rubella virus were there significant differences between averages of all patients with retinal diseases and normal age-matched controls (P < .001; table 1). ELISA-detected antibodies to the other viruses tested (rubeola, HSV I and II, CMV, VZV) showed no statistically significant difference between the retinal disease population and controls. To address the possibility that a single diagnosis of retinal disease might have influenced the total population result, we compared antirubella responses in each individual retinal disease category (table 1). Clearly all groups with eye disease showed higher antirubella antibody values than did age-matched normals, but there were no statistically significant differences between individual retinal disease groups. Antiviral serum antibodies are thought to increase with age so it was interesting that while age-related macular degeneration was the oldest group of subjects, their antiviral responses were no higher than those of other individual groups. The highest antirubella antibody average value was found in retinal detachment patients (average age, 59 years). Moreover, background diabetic retinopathy patients who had the lowest antirubella antibody values showed no statistically significant differences between individual retinal disease groups. Therefore, age does not seem to be the only interacting environmental factor in these high rubella antibody values.

The clinical significance of these data remains speculative. In each of the retinal diseases studied there is a potential break-down in the blood-retinal barrier [3–5] that may provide access to the retina from the systemic circulation by rubella virus. The ubiquitous rubella virus has a known potential for persistent/la-

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**References**

Table 1. Demographic factors of retinal disease groups.

<table>
<thead>
<tr>
<th>Diagnosis of retinal disease</th>
<th>Patient no.</th>
<th>Average age, years, mean (SD)</th>
<th>Average rubella antibody by ELISA, mean (SD)</th>
<th>p*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retinal detachment</td>
<td>11</td>
<td>59 (16)</td>
<td>0.58 (0.15)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Age-related macular degeneration</td>
<td>10</td>
<td>71 (13)</td>
<td>0.52 (0.18)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Background diabetic retinopathy</td>
<td>12</td>
<td>55 (22)</td>
<td>0.43 (0.13)</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Proliferative diabetic retinopathy</td>
<td>12</td>
<td>43 (14)</td>
<td>0.56 (0.14)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Retinitis pigmentosa</td>
<td>30</td>
<td>45 (16)</td>
<td>0.48 (0.19)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Total, retinal disease</td>
<td>75</td>
<td>51 (16)</td>
<td>0.28 (0.18)</td>
<td></td>
</tr>
<tr>
<td>Controls (no eye disease)</td>
<td>50</td>
<td>50 (19)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Statistically different from normal range by paired Student’s test.

Is it possible that increased permeability of the blood-retinal barrier from diverse causes has led to persistent/chronic or latent infection in some adult retinas, represented by elevated serum ELISA antibody values to rubella virus?

Lowell L. Williams, Robert B. Chambers, Ho Min Lew, and Frederick H. Davidorf

Departments of Pediatrics and Ophthalmology, Ohio State University College of Medicine and Children’s Hospital Research Foundation, Columbus

References


Assessment of Hepatitis C Antibody Tests in Homosexual Men with Hyperglobulinemia

Colleagues—Sherman et al. [1] reported antibodies to hepatitis C virus (HCV) in 14 (15.6%) of 90 patients infected with human immunodeficiency virus (HIV) who were tested by ELISA. Eight patients were confirmed reactive by recombinant immunoblot assay (RIBA), giving a “true positive” rate of 8.8%.

Unfortunately the risk factors for HIV infection were not reported. We feel this is critical since one would expect a high prevalence of HCV infection if the principal risk was related to a percutaneous mode of transmission (i.e., intravenous drug abuse), or alternatively a low prevalence would be expected if the mode of transmission was sexual. It is understandable why the risk factors were not determined or reported by Sherman et al. for their study population, since military personnel face potential disciplinary action or removal from the service by admitting to drug abuse or homosexuality.

We performed a similar study to determine the prevalence of anti-HCV in homosexual men with coexistent hepatitis A, B, or delta virus infection. Stored sera (−20°C) from 59 homosexuals (who denied other percutaneous risk factors) were tested for the presence of HCV antibodies with the currently available HCV ELISA (Ortho Diagnostics, Raritan, NJ), which detects antibodies to the recombinant HCV protein c100-3, and by a second-generation RIBA (Chiron [Emeryville, CA] RIBA HCV system). This latter assay can detect the recombinant viral antigens c100-3, s1-1, c33c, and c22-3. Results of this assay are reported as reactive (reactive with at least two antigen bands), indeterminate (reactive with a single antigen band), or nonreactive (no reactive bands). HIV antibody was present in 58% (34 of 59) of the subjects.

Thirty-two (54%) of those tested had anti-HCV detected by ELISA. However, only 4 (13%) of these ELISA-positive samples were reactive with the supplemental RIBA (table 1). In comparison, 26 (96%) of 27 homosexuals with a negative test were nonreactive with RIBA. Indeterminate results were obtained in 4 cases only (3 ELISA positive; 1 ELISA negative). Significantly