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Investigations on reactivity of sera in endemic syphilis from Bosnia 20 years after treatment

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SUMMARY Sera from 225 patients who 20 years earlier had been infected with endemic syphilis and adequately treated with penicillin (PAM 4-8—6 megaunits) at various stages of the disease, were investigated for serological reactivity by the fluorescent treponemal antibody absorption (FTA-ABS), treponemal haemagglutination, and Venereal Diseases Research Laboratory tests. Specific antibodies were found in a large percentage of cases and their presence may be assumed to depend on persisting specific antigen which stimulates their synthesis.

Introduction

Endemic syphilis is found in rural populations with a low standard of education and primitive sanitary and housing conditions. It has a non-venereal mode of transmission indirectly by use of common utensils and directly by daily contact in places where infection is encouraged by poor hygienic conditions. Endemic syphilis, therefore, has the characteristics of a family disease.

Endemic syphilis was introduced into Bosnia and Herzegovina in the eighteenth century. It was more common in the north-western, central, and eastern parts of Bosnia than in Herzegovina. There is no information about the extent of the disease when the region was under Turkish domination, but during the Austro-Hungarian occupation of Bosnia and Herzegovina at the end of the nineteenth century endemic syphilis was widespread.

After the collapse of the Austro-Hungarian Empire the situation was improved by the syphilis control programmes of 1926–33, carried out by the Yugoslavian public health administration. However during the second world war the situation deteriorated with the migration of refugees, a lower standard of living, and poor hygiene, which gave rise to new endemic foci in the rural areas.

After the war the problem of endemic syphilis became one of the priorities of the public health administration in the new Yugoslavia. With technical assistance from WHO and UNICEF a well organised

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Table 1  Results of FTA-ABS, TPHA, and VDRL tests in endemic syphilis according to age

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>No. tested</th>
<th>FTA-ABS reactive</th>
<th>TPHA reactive</th>
<th>VDRL reactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>20–29</td>
<td>7</td>
<td>3  42.9</td>
<td>4  57.1</td>
<td>4  57.1</td>
</tr>
<tr>
<td>30–44</td>
<td>69</td>
<td>52  75.4</td>
<td>62  89.8</td>
<td>31  44.9</td>
</tr>
<tr>
<td>45–59</td>
<td>91</td>
<td>71  78.0</td>
<td>77  84.6</td>
<td>44  48.3</td>
</tr>
<tr>
<td>60+</td>
<td>58</td>
<td>44  75.9</td>
<td>52  89.7</td>
<td>25  43.1</td>
</tr>
<tr>
<td>Total</td>
<td>225</td>
<td>177  75.5</td>
<td>195  86.7</td>
<td>104  46.2</td>
</tr>
</tbody>
</table>

Table 2  Results of FTA-ABS, TPHA, and VDRL tests in endemic syphilis treated 20 years ago

<table>
<thead>
<tr>
<th>Stage of disease at treatment</th>
<th>No. tested</th>
<th>FTA reactive</th>
<th>TPHA reactive</th>
<th>VDRL reactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syphilis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>early</td>
<td>60</td>
<td>44  73.3</td>
<td>58  96.7</td>
<td>29  48.4</td>
</tr>
<tr>
<td>latent</td>
<td>160</td>
<td>124  77.5</td>
<td>133  83.1</td>
<td>71  44.4</td>
</tr>
<tr>
<td>late</td>
<td>5</td>
<td>5  100.0</td>
<td>4  80.0</td>
<td>4  80.0</td>
</tr>
<tr>
<td>Total</td>
<td>225</td>
<td>173  76.9</td>
<td>195  86.7</td>
<td>104  46.2</td>
</tr>
</tbody>
</table>

60+ years). The sera were placed in three groups according to the stage of disease at which the patients had been treated.

The sera were examined by the treponemal haemagglutination (TPHA) test (Tomizawa, 1966), fluorescent treponemal antibody-absorption (FTA-ABS) test using the standard sorbent prepared in our laboratory by the method of Stout et al. (1967), and the Venereal Diseases Research Laboratory (VDRL) test.

Results and discussion

The results related to the present age of the patients are presented in Table 1. With the possible exception of the small number of patients in the youngest age group (20–29 years) there were no marked differences in serological reactivity.

The results presented in Table 2 show that the sera from those first treated in the early stage of infection were reactive in the FTA-ABS test in 73-3%. In those who had been in the latent stage, the immunoglobulins reactive in the FTA-ABS test were present to a slightly larger extent (77.5%). These differences in reactivity, according to the stage of the infection at which treatment was started, are trivial particularly if it is taken into account that treatment was carried out 20 years ago.

The FTA-ABS test gave positive results in all five patients who had had gummatous manifestations before treatment.

Antibodies detected by the TPHA test persisted in a large percentage of treated patients; sera from 96.7% of patients who had been in the early stage of infection before treatment were still reactive, and among those in the latent stage 83.1% were found reactive.

Comparing the results of the TPHA test with the results of the FTA-ABS method it can be seen that in general the TPHA test was positive in a larger percentage.

There were also a surprisingly large number of sera with VDRL reactivity. Of those who had been in the early stage of syphilis before treatment the sera in 48.4% were reactive, and 44.4% in the latent stage were still reactive.

The serological reactivity as assessed by the FTA-ABS, TPHA, and VDRL tests persisting for 20 years after penicillin treatment suggests that the behaviour of endemic syphilis differs from venereal syphilis. Although serological reactivity persisted for many years, clinical cure was achieved.

We have to assume that the presence of specific antibodies in adequately treated patients depends on persisting treponemal antigens; it is not clear if these are live treponemes maintained in a quiescent phase by immunological balance, or residual treponemal material which has not been entirely metabolised.

References


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