NOTES

Color-Coded Antigen for the Automated Reagin Test for Syphilis

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A low-cost, color-coded antigen was developed for the Automated Reagin Test. A comparative study with 3,000 sera showed a sensitivity somewhat greater than the Rapid Plasma Reagin Card antigen. Samples could be traced back by using a specific color-coded antigen on a given autoanalyzer.

The Rapid Plasma Reagin (RPR) Card charcoal antigen developed by Portnoy et al. (2) is employed in the Automated Reagin Test (1). As this antigen is fairly costly, the present study was undertaken to develop similar but color-coded antigens which could be used successfully in the Automated Reagin Test at a comparatively low cost.

The Venereal Disease Research Laboratory (V.D.R.L.) cardiolipin antigen (supplied through the courtesy of R. H. Allen of Laboratory Centre for Disease Control, Ottawa, Ontario) was modified to develop color-coded antigens. The production of the antigen as described by Portnoy et al. (2) was followed except that the charcoal was substituted by different concentrations of differently treated carrier particles (300 mesh and smaller). The particles and their concentration used in this study were: graphite (B. D.H. Chemicals, Montreal, Que.), 1.25 mg; phthalo blue G (Dominion Color Corp., Toronto, Ont.), 1.60 mg; phthalo green B (Dominion Color Corp., Toronto, Ont.), 2.40 mg; and toluidine red (Dominion Color Corp., Toronto, Ont.), 2.20 mg per 10 ml of the respective resuspending solution.

The 3,000 samples used in this study came from individuals referred to hospitals and venereal disease clinics for diagnosis or routine or treatment check-ups. The results of a comparative study using graphite antigen and RPR Card antigen in the Automated Reagin Test are reported in Table 1. A total of 134 (4.4%) sera was found reactive (including 15 doubtful) with graphite antigen compared to 116 (3.8%) with RPR charcoal antigen.

Fifteen sera showing doubtful reactions with the graphite antigen also showed a reactivity in the manual V.D.R.L. technique. Among the three sera in the group of reactive sera (Table 1) detected with the graphite antigen only, two came from African Negroes with no clinical symptoms and a history of syphilis, and the third serum came from a known treated case of secondary syphilis. All these sera were also reactive in the manual V.D.R.L. and complement-fixation tests. The first two sera gave a 1+ and the third a 2+ reaction in the Fluorescent Treponemal Antibody Absorption test. Similar percent (4 to 4.5%) reactivity was found when the three other pigment antigens were used in place of graphite antigen. Marking intensities of different antigens are shown in Fig. 1.

It is concluded that the graphite and color-coded antigens are somewhat more sensitive than those of charcoal.

Table 1. Comparative results obtained with color-coded antigen and RPR charcoal antigen for Automated Reagin Test

<table>
<thead>
<tr>
<th>Test interpretation</th>
<th>No. of serum samples</th>
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<tbody>
<tr>
<td>RPR Card charcoal antigen*</td>
<td>Graphite antigen suspension*</td>
</tr>
<tr>
<td>Reactive</td>
<td>116 (3.8)</td>
</tr>
<tr>
<td>Nonreactive</td>
<td>2,884 (96.2)</td>
</tr>
<tr>
<td>Doubtful</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>3,000</td>
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* Numbers in parentheses are percentages.

This is a weak but definite and slightly stronger reaction than that of a nonreactive serum.
than the RPR Card test antigen and can be employed successfully in the Automated Reagin Test at a cost approximately 80% lower than the commercial charcoal antigen. It is also possible to trace back samples by using a specific color-coded antigen on a given autoanalyzer.

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