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LYME DISEASE AGENT IN EGYPT?

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Lyme disease agent in Egypt?

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We here report our findings after evaluating individuals from various geographical locations in Egypt for exposure to Borrelia burgdorferi.

Our initial screening of sera collected from high-risk individuals with fever of unknown origin (FUO) or meningitis and of low-risk individuals (routine blood bank donors) as controls revealed several reactive samples. To our surprise, all reactive samples were from routine blood bank donors living in an isolated oasis of Egypt. We therefore extended our investigation by assaying 61 individuals from this location, all of whom were either blood bank donors or patients at a clinic for dermatological disorders including sexually transmitted diseases (STD). In Egypt, dermatologists generally care for patients with STDs.

A commercially available indirect fluorescent antibody (IFA) assay (Lyme-check, Diagnostic Technology, Hauppauge, New York, USA) for determination of antibodies to B. burgdorferi was performed on the sera from 145 patients with FUO, STD and meningitis and from routine blood bank donors. Due to the possibility of false positives resulting from prior syphilis infection (Magnarelli et al., 1987), these sera were also tested by the rapid plasma reagin (RPR) test and the fluorescent treponemal antibody absorption (FTA-ABS) test. All sera positive for Lyme disease by IFA were further characterized by Western blot analysis (Barbour et al., 1983) at a dilution of 1:100 with the prototype strain B-31 of B. burgdorferi.

Results indicated that none of the 16 meningitis or 68 FUO cases had been exposed to Borrelia. Of the 61 individuals from Fayoum, a desert oasis some 80 km south-west of Cairo, 14 (23%) were positive with IFA serum titres ranging from 1:256 to 1:2048 when tested with the Lyme disease agent (Table). Western blot analysis of these sera demonstrated that 8 of the 14 sera had specific reactions to 8-14 protein components of B. burgdorferi. Of these Lyme IFA reactive sera, 10 reacted positively to the RPR test; however, all tested were negative by the FTA-ABS test. These RPR-positive sera may represent early stage syphilis, or non-syphilitic disease, but are not likely to be cross-reactions induced by exposure to B. burgdorferi, since patients with Lyme disease alone fail to react in the RPR test (Hunter et al., 1986). However, prior exposure to both Treponema pallidum and other Borrelia is certainly possible and could explain positive titres to both pathogens. Our data indicate that 8 individuals may have been exposed to B. burgdorferi or other species of Borrelia. B. crocidurae is transmitted by the soft tick Ornithodoros erraticus and is widespread in Egypt and other parts of northern Africa (Khalil et al., 1984). The oasis of Fayoum has a large lake and many potential mammalian and avian hosts inhabit or migrate through the area, where ixodid ticks are also present.

We believe that there is serological evidence suggestive that Borrelia infection, and possibly Lyme disease, may be present in this area of Egypt and that further efforts to identify its prevalence, clinical presentation, vectors, animal hosts, and epidemiology are warranted.

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References

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Table. Serological results for 14 patients from Fayoum, Egypt1

<table>
<thead>
<tr>
<th>No.</th>
<th>Age</th>
<th>Sex</th>
<th>Group</th>
<th>IFA</th>
<th>RPR</th>
<th>FTA-ABS</th>
<th>Western blot</th>
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<tr>
<td>05</td>
<td>52</td>
<td>M</td>
<td>STD</td>
<td>256</td>
<td>-</td>
<td>-</td>
<td>Strong +</td>
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<tr>
<td>17</td>
<td>39</td>
<td>M</td>
<td>Donor</td>
<td>256</td>
<td>-</td>
<td>-</td>
<td>Strong +</td>
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<td>90</td>
<td>28</td>
<td>M</td>
<td>Donor</td>
<td>2048</td>
<td>-</td>
<td>-</td>
<td>Strong +</td>
</tr>
<tr>
<td>08</td>
<td>65</td>
<td>M</td>
<td>STD</td>
<td>256</td>
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<td>Moderate +</td>
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<tr>
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<td>F</td>
<td>STD</td>
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<td>23</td>
<td>24</td>
<td>M</td>
<td>Donor</td>
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<td>28</td>
<td>27</td>
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<td>Donor</td>
<td>1024</td>
<td>-</td>
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<td>Moderate +</td>
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<td>88</td>
<td>44</td>
<td>M</td>
<td>Donor</td>
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<td>Weak +</td>
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<td>21</td>
<td>27</td>
<td>M</td>
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<td>2048</td>
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<td>87</td>
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<td>2048</td>
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</table>

1 Abbreviations: IFA, indirect fluorescent antibody assay; RPR, Lyme rapid plasma reagin test; FTA-ABS, fluorescent treponemal antibody absorption test; STD, sexually transmitted disease; QNS, quantity not sufficient for analysis; M, male; F, female; +, positive; -, negative.

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Lyme Disease Agent in Egypt? (UNCLASSIFIED)

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As per attached.

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