Serum angiotensin converting enzyme, ceruloplasmin, and lactic dehydrogenase in anthracosilicosis and anthracosilicotropic tuberculosis

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We have determined the activities of serum angiotensin converting enzyme (SACE), ceruloplasmin (SCP), and lactic dehydrogenase (SLDH) in anthracosilicosis and anthracosilicotropic tuberculosis in order to see if any biochemical changes take place and to find laboratory indices for the early diagnosis and evaluation of the treatment in patients with anthracosilicosis and anthracosilicotropic tuberculosis.

Subjects and methods

Subjects

On the basis of changes seen in the chest x-ray films 95 male anthracosilicotic patients were recruited with the study. They included 24 suspected cases, 25 cases in category 1, 24 in category 2, and 22 in category 3. In addition, the study included 20 cases of anthracosilicotropic tuberculosis. The ages of the subjects ranged from 32 to 73 (mean 48.7 ± 9.1) with a working life from six to 34 years (mean 12.8 ± 4.8) and all had been exposed to both silica and coal dust in coal mines. Twenty four male workers with mixed dust exposure with an age range of 30–63 (mean 48.1 ± 5.3) and 26 healthy men with no dust exposure and an age range of 26–55 (mean 44.3 ± 6.7) served as controls.

Methods

SACE was analysed using ultraviolet spectrophotometry with hippurylglycine glycol as substrate as described by Lieberman et al.1 SCP was assayed using the photoelectrometric method of Bauer et al2 and SLDH by the colorimetric method of Frankel et al.3 The mean and standard deviations were calculated for each variable; comparison between the different groups was carried out using Student's t test for unpaired data.

Results

The results are shown in tables 1 and 2.

Table 1  SACE, SCP, and SLDH values (M ± SD)

<table>
<thead>
<tr>
<th>Group</th>
<th>No of cases</th>
<th>SACE (u/ml)</th>
<th>SCP (u/dl)</th>
<th>SLDH (u/dl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>26</td>
<td>33.44 ± 12.84</td>
<td>299.96 ± 57.41</td>
<td>314.35 ± 78.26</td>
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<tr>
<td>Exposed</td>
<td>24</td>
<td>43.29 ± 16.65</td>
<td>308.50 ± 63.01</td>
<td>313.13 ± 100.47</td>
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<td>Suspected</td>
<td>24</td>
<td>44.22 ± 17.94</td>
<td>357.75 ± 80.17</td>
<td>310.38 ± 94.52</td>
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<tr>
<td>Category 1</td>
<td>25</td>
<td>53.14 ± 18.65</td>
<td>439.00 ± 103.65</td>
<td>347.57 ± 81.59</td>
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<td>Category 2</td>
<td>24</td>
<td>53.53 ± 14.62</td>
<td>395.46 ± 115.13</td>
<td>342.88 ± 77.00</td>
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<tr>
<td>Category 3</td>
<td>22</td>
<td>63.32 ± 23.98</td>
<td>645.68 ± 126.51</td>
<td>373.86 ± 65.18</td>
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<tr>
<td>Anthracosilicotropic tuberculosis</td>
<td>20</td>
<td>48.30 ± 17.00</td>
<td>383.55 ± 118.90</td>
<td>362.30 ± 138.80</td>
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</table>

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**Pulmonary fibrosis.**

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**References**


