Lung function tests in 109 patients with acromegaly

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Introduction

Acromegaly is a chronic disease that affects morphology and organ functions. These changes lead to clinically relevant comorbidities. Untreated acromegaly reduces life expectancy by 10 years, mostly due to cardiovascular events, malignancies and respiratory disorders. We present the results of a series of 109 acromegalic patients at a single institution.

Methods

Lung function tests were performed under standardized conditions in patients with acromegaly treated in our outpatient clinic. Normative data was used to compare our patients (measured value) with healthy controls (predicted value); percentage of predicted value was used to perform subgroup analysis. Criteria of cure were IGF-1 in the age- and sex-adjusted normal range and random GH < 1.0 µg/dl.

Results

<table>
<thead>
<tr>
<th>patients with acromegaly</th>
<th>active, untreated acromegaly n=20</th>
<th>active acromegaly (despite treatment or currently untreated) n=20</th>
<th>biochemically normalized n=29</th>
</tr>
</thead>
<tbody>
<tr>
<td>mean age:</td>
<td>54.6 ± 13.3 y</td>
<td>51.0 ± 12.4 y</td>
<td>58.4 ± 13.4 y</td>
</tr>
<tr>
<td>mean duration of disease:</td>
<td>12.6 ± 11.6 y</td>
<td>17.5 ± 11.7 y</td>
<td>17.1 ± 13.4 y</td>
</tr>
</tbody>
</table>

vs. normative data from healthy controls

(percent of predicted value)

<table>
<thead>
<tr>
<th>ITGV</th>
<th>VCmax</th>
<th>RV</th>
<th>TLC</th>
<th>FEV1</th>
<th>PEF</th>
<th>FEF75</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>p</td>
<td>&lt; 0.001</td>
<td>&lt; 0.001</td>
<td>&lt; 0.001</td>
<td>0.006</td>
<td>&lt; 0.001</td>
<td>0.01</td>
</tr>
<tr>
<td>intra-thoracic gas volume</td>
<td>maximal vital capacity</td>
<td>residual volume</td>
<td>total lung capacity</td>
<td>forced expiratory volume in 1 second</td>
<td>peak expiratory flow</td>
<td>maximum exp. flow when 75% of the FVC has been exhaled</td>
</tr>
</tbody>
</table>

Conclusion

In our cross-sectional analysis of lung function in 109 patients with acromegaly lung function volumes were increased compared to healthy controls. Patients showed signs of small airway obstruction at time of diagnosis, unchanged in remission. Subclinical airway obstruction was significantly more pronounced in female patients.