The Association Between Adenoma Size Classification and the Hormone Hypersecretion in Acromegaly

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INTRODUCTION

• Acromegaly is a chronic disease caused by growth hormone (GH) oversecretion, which anabolic actions are amplified through insulin-like growth factor (IGF-1) secreted by the liver.
• Pituitary macroadenoma is found in mostly of acromegaly patients, but the secretion pattern of GH and insulin-like growth factor 1 (IGF-1) and the natural history of somatotropinomas are heterogeneous.
• The objective of the present study was to evaluate the relationship between tumor size, GH and IGF-1 levels in patients diagnosed with acromegaly.

METHODS

Study Design and Subject
• A cross-sectional, observational, descriptive study was carried out in acromegaly patients (n=25) attending our Neuroendocrinology Outpatient Clinic at the local university hospital.

Variables Analyzed at Diagnosis
• Patients' anthropometric data, biochemical investigations, adenoma size by MRI, basal GH and IGF-1 blood levels (chemiluminescent immunometric assays) were obtained at diagnosis;
• IGF-1 relative to the upper limit of the normal range (IGF-1_ULN) and the mean standard deviation scores (IGF-1_SDS) were calculated for each patient.

Statistical Analysis
• ROC curves analysis were performed to determine the discriminative ability of GH, IGF-1, IGF-1_ULN or IGF-1_SDS in predicting the presence of a GH-secreting macroadenoma (≥ 10 mm).
• The results were expressed as sensitivity (S) and specificity (Sp).

RESULTS

Table 1: Characteristics of 25 patients somatotropinoma carrier assisted at Neuroendocrinology Outpatient Clinic from HC/UEN

<table>
<thead>
<tr>
<th>Variates</th>
<th>Mean±SD</th>
<th>Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>46±17.1</td>
<td>23</td>
</tr>
<tr>
<td>Male/Female</td>
<td>8/17</td>
<td></td>
</tr>
<tr>
<td>IGF-1 level (ng/ml)</td>
<td>88.3±39.6</td>
<td>23</td>
</tr>
<tr>
<td>IGF-1_ULN</td>
<td>3.4±1.55</td>
<td>23</td>
</tr>
<tr>
<td>IGF-1_SDS</td>
<td>5.0±4.20</td>
<td>23</td>
</tr>
<tr>
<td>GH level (ng/ml)</td>
<td>16.5±14.3</td>
<td>23</td>
</tr>
<tr>
<td>Glycaemia (mg/dl)</td>
<td>124.3±36.9</td>
<td>23</td>
</tr>
<tr>
<td>Tumor size (mm)</td>
<td>18.8±10.77</td>
<td>22</td>
</tr>
</tbody>
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ULN: upper limit of the normal range
SDS: mean standard deviation scores

CONCLUSION

• The basal GH level did not discriminate adenoma sizes, while IGF-1 values were able to indicate the presence of macroadenoma.
• The absolute IGF-1 blood concentration was more effective than relative values.

REFERENCES