ACUTE OCTREOTIDE SUPPRESSION TEST IN ACROMEGALY: PREDICTIVE VALUE IN LONG TERM RESPONSE TO LONG-ACTING SOMATOSTATIN ANALOGS

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Introduction
Long-acting somatostatin analogs (SA) are widely used in acromegaly, either as first-line or as adjuvant treatment after surgery.

In the past, acute tests have been designed for predicting long-term response of the tumoral GH secretion to short-acting somatostatin analogs. The usefulness of acute octreotide suppression test (OST) in the selection of patients with acromegaly for chronic long-acting SA treatment is still controversial.

Objective
To investigate the predictive value of OST for long-term responsiveness to long-acting SA.

Methods
Patients
Retrospective study of 25 drug-naïve patients (13 males, median age 50.3 ± 16.55 years, range 25 - 88) with active acromegaly, subjected to an OST. Twelve percent of the patients had microadenoma, 32% a macroadenoma, 52% an invasive macroadenoma and 4% had no image on MRI. Twenty-two patients had undergone non-curable surgery and none had previously been treated with medical therapy.

OST protocol and follow-up
Hourly serum GH concentrations for 8 h were measured in the basal state and again after last administration of subcutaneous octreotide 50 mcg q8h over 48h followed by 100 mcg q8h for 48h.
The mean GH achieved was used for analysis and only patients with a 20% decrease of the mean GH levels were included.
GH nadir response during OST was also evaluated.
For long-term follow-up, serum GH < 1ng/ml and normal IGF-1 (both evaluated as mean of three values) were used as parameters for biochemical control during SA therapy.

Results
RESPONSE TO ACUTE OCTREOTIDE SUPPRESSION TEST LONG-ACTING SOMATOSTATIN ANALOGS

On average, during OST a GH decline of 70±22±3.4% was observed in this cohort. Most patients (72%; n=18) showed a GH decrease greater than 50% during OST - group A, while 28% had ≤50% GH reduction - group B.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean GH</th>
<th>Mean IGF-1</th>
<th>GH reduction (%)</th>
<th>GH &lt; 1</th>
<th>Mean GH reduction (%)</th>
<th>Mean IGF-1 reduction (%)</th>
<th>Normal IGF-1</th>
<th>Normal IGF-1 and/or GH</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>15.6±1</td>
<td>867.6±1</td>
<td>38.9±11.4</td>
<td>7</td>
<td>6</td>
<td>54.6±22.6</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>14.0±1</td>
<td>763.3±1</td>
<td>28.6±9.5</td>
<td>7</td>
<td>2</td>
<td>42±17.9</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Total (n=25) 15.2±2 834.8±2 36% 70.15±23.4 9 64.3±35.6 7 50±22.5 13

Table 1. Percent reduction during OST and post-treatment hormonal profiles in two groups. GH = growth hormone (µg/ml), IGF-1 = insulin-like growth factor (µg/ml).

When comparing controlled and non-controlled acromegalic patients on long-acting SA, a 50% reduction and a nadir GH<1ng/ml during OST didn't show correlation with long-term normalization of serum IGF-1 and/or GH (p=0.106 and p=0.271, respectively).

<table>
<thead>
<tr>
<th>OST</th>
<th>GH reduction &gt;50%</th>
<th>Nadir GH&lt;1 ng/ml</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>61,11</td>
<td>66,67</td>
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<td></td>
<td>71,43</td>
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<td></td>
<td>84,62</td>
<td>46,15</td>
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<td></td>
<td>41,67</td>
<td>75,0</td>
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</tbody>
</table>

Table 2. The positive and negative predictive value (PPV, NPV), sensitivity and specificity of achieving target GH < 1 (ng/ml) and/or normal IGF-1 for sex and age in long-acting SA therapy for different OST criteria.

Conclusions
In this cohort a reduction of 50% and nadir GH<1 ng/ml following an OST weren't predictive of remission on long-term SA as defined by updated criteria.

The limitation of the test is that a poor response to a OST does not preclude a good response to long-term therapy.