GH response to GHRH+GHRP-6 in hypocortisolism

Table 2. Clinical and laboratory data of four patients with newly diagnosed Addison’s disease with and without hydrocortisone, compared with healthy control subjects

<table>
<thead>
<tr>
<th>Patient no.</th>
<th>Sex</th>
<th>Age (yr)</th>
<th>BMI (kg/m²)</th>
<th>Hydrocortisone (μg/day)</th>
<th>Fludrocortisone (μg/day)</th>
<th>Peak GH (μg/L) Before Hydrocortisone</th>
<th>Peak GH (μg/L) After Hydrocortisone (1 month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>M</td>
<td>22</td>
<td>18.5</td>
<td>25</td>
<td>-</td>
<td>26.1</td>
<td>75.7</td>
</tr>
<tr>
<td>2.</td>
<td>F</td>
<td>41</td>
<td>16.7</td>
<td>20</td>
<td>-</td>
<td>35.3</td>
<td>32.8</td>
</tr>
<tr>
<td>3.</td>
<td>F</td>
<td>39</td>
<td>20.2</td>
<td>30</td>
<td>-</td>
<td>15.6</td>
<td>29.9</td>
</tr>
<tr>
<td>4.</td>
<td>F</td>
<td>42</td>
<td>25.0</td>
<td>30</td>
<td>0.1</td>
<td>28.5</td>
<td>24.7</td>
</tr>
</tbody>
</table>

PATIENTS
Mean values ± SE 36.0±4.7  20.1±1.8  26.3±2.4  0.1±0.0  26.4±4.1**  40.8±11.8

CONTROLS
Mean values ± SE 46.0±5.0  21.6±1.1  -  -  61.5±6.0

**p <0.01 (Patients before Hydrocortisone vs. Controls)

Tissue ovarian insufficiency and primary hypothyroidism was receiving adequate replacement therapy with L-thyroxine at doses of 100 μg/day.

The results obtained in the patients were compared with those of a control group consisting of 14 healthy female subjects (age 40.4 ± 3.2 yrs, range 22 – 64 yrs; BMI 23.2 ± 0.8 kg/m², range 18.1 – 30.3). They were free of any medication at the time of the study. The women were tested in the early follicular phase of their menstrual cycles.

2. Isolated ACTH deficiency

Two patients with newly diagnosed isolated ACTH deficiency (both women) were studied. Their mean age was 46.0 ± 5.0 yrs and mean BMI was 21.6 ± 1.1 kg/m².

Study protocol

The GHRH+GHRP-6 test was performed after an overnight fast, and the subjects remained recumbent throughout. One hour before starting the test (0800h), an indwelling catheter was inserted into an antecubital vein and was kept patent by a slow saline infusion. After 3 basal blood samples (-30, -15 and 0 minutes), all subjects received GHRH (1 μg/kg, GRF 1-29 NH2, Geref Serono, Madrid, Spain) + GHRP-6 (1 μg/kg, His-D-Trp-Ala-Trp-D-Phe-Lys-NH2; Clinalfa Laufelfinger, Switzerland). Blood samples were subsequently obtained at 15, 30, 45, 60, 90 and 120 minutes for GH measurements. Normal growth hormone response to GHRH+GHRP-6 was previously defined as a peak GH concentration greater than 15 μg/L. Serum cortisol level was measured at baseline on and off glucocorticoid therapy.

Adrenal insufficiency. Six patients with long-standing Addison’s disease were studied on two occasions, with an interval of at least 30 days between the tests. On the first occasion, they received GHRH+GHRP-6 during their regular hydrocortisone replacement therapy on an out-patient basis. To avoid a possible stimulating effect of acute glucocorticoid administration on GHRH+GHRP-6 induced GH release, on the morning of the test the patients received their dose of hydrocortisone after the test. The second GHRH+GHRP-6 test was performed after 72h withdrawal of hydrocortisone therapy, and the patients were hospitalized. All patients developed clinical signs of adrenal insufficiency during hydrocortisone withdrawal.

Four patients who had newly diagnosed Addison’s disease were studied on two occasions: before hydrocortisone replacement and after one month of hydrocortisone therapy.

Isolated ACTH deficiency. Two patients who had newly diagnosed isolated ACTH deficiency were studied twice with GHRH+GHRP-6 test: before hydrocortisone replacement and after one month of hydrocortisone therapy (30 μg/day in two doses).

Each control subject underwent the GHRH+GHRP-6 test as described above. The local ethical committee approved the protocol and all the subjects gave informed consent.

Methods

Serum GH was measured with a time-resolved flu-