Long-term efficacy and withdrawal of octreotide LAR in acromegaly patients, a prospective single centre study with 4 years follow up

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**Objective**

The aim of this single centre prospective open trial was to evaluate the long-term efficacy of octreotide LAR in acromegaly patients and possibility of withdrawal of this therapy.

**Methods**

In total 17 patients with acromegaly diagnosed at Endocrinology Clinic in Sarajevo, somatostatin sensitive (10 females and 6 males, age range 37-65 years, 6 patients with microadenoma and 10 patients with macroadenoma) were treated with octreotide LAR. Follow-up period was 4 years (2009-2014). Ten patients were treated with surgical and octreotide treatment. One patient was treated with surgical, octreotide and gamma-knife treatment and six patients were treated only with octreotide LAR. The concentration of human Growth Hormone (hGH) and Insulin-Like Growth Factor I (IGF-1) were evaluated before treatment and every 6 months during follow-up period of 4 years, while magnetic resonance imaging (MRI) was taken before the treatment and every year during follow-up period. Thirteen patients received octreotide 30 mg/28 days, two patient received 20 mg and other two 60 mg/28 days. Statistical data analysis includes basic statistics, descriptive statistics and nonparametric statistics (Friedman, Wilcoxon signed ranks test and Mann–Whitney U-test). Statistical significance was set as \( p < 0.05 \).

**Keywords**: acromegaly, human growth hormone, insulin-like growth factor I, octreotide, pituitary adenoma

**Results**

<table>
<thead>
<tr>
<th>Follow-up</th>
<th>n</th>
<th>HGH (ng/ml)</th>
<th>IGF-1 (ng/ml)</th>
<th>Size of adenoma (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>50.87</td>
<td>777</td>
<td>9.57</td>
</tr>
<tr>
<td>6 months</td>
<td>10</td>
<td>1,61 (a)***</td>
<td>305.90 (a)***</td>
<td></td>
</tr>
<tr>
<td>12 months</td>
<td>10</td>
<td>1,85 (a)***</td>
<td>256.99 (a)***</td>
<td></td>
</tr>
<tr>
<td>24 months</td>
<td>17</td>
<td>1,61 (a)***</td>
<td>305.90 (a)***</td>
<td>8 (b)**</td>
</tr>
<tr>
<td>36 months</td>
<td>16</td>
<td>2,11 (a)***</td>
<td>337.33 (a)***</td>
<td>7,2 (b)**</td>
</tr>
<tr>
<td>48 months</td>
<td>11</td>
<td>2,0 (a)***</td>
<td>276 (a)***</td>
<td>6 (b)**</td>
</tr>
</tbody>
</table>

*a* - Friedman test;  
* b - Wilcoxon Signed Ranks Test

\( \*p<0.05; \*\*p<0.01; \*\*\*p<0.005 \)

During the first year of treatment 10 patients were included. In the second year a further seven patients were involved. At one patient treatment was successful discontinued without subsequent recurrence during follow-up. After 2 years, at another 2 patients treatment was off because well-controlled acromegaly, one patient was died due to co-morbidities and at another patients treatment was off due to kidney cancer. After 3 years of treatment one of patient must be subjected to gamma-knife treatment followed by continued treatment with 30 mg of octreotide LAR and at one patient the dose was increased up to 60 mg. During the fourth year of follow-up, the treatment was successful discontinued at another one patient, so currently we followed total of 11 patients; 8 of them used therapy for 4 years and 3 of them used therapy for 3 years. During follow-up period octreotide LAR treatment significantly reduced GH (50.87 ± 10.56 vs 2 ± 0.36 ng/ml, \( p<0.005 \)), IGF-1 (777.66 ± 118.40 vs 276 ± 80.54 ng/ml, \( p<0.005 \)) and adenoma size (from 9.6 to 6 mm; \( p<0.01 \)). After therapy, a GH decrease to less than 2.5 ng/ml was achieved in 82% of cases; tumor size decrease was achieved in 60% while normalization of IGF-1 was achieved in 91% of the patients, respectively. At 12-24 months of follow-up, 23,5% of somatostatin sensitive acromegaly patients had withdrawn treatment, without recurrence.

**Conclusion**

Our findings demonstrated that octreotide LAR treatment is very effective in decrease of GH, IGF-1 and tumor size and their withdrawal, though rare, is possible in well-selected acromegallic patients treated for at least 2 years and considered optimally controlled in hormonal and neuroradiological terms.

**References**
