

The influence of octreotide-LAR treatment on glucose homeostasis in acromegaly.



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Introduction:

Impaired glucose tolerance and insulin resistance are frequently associated with acromegaly.

The aim of this study was to assess the effect of octreotide-LAR treatment on glucose homeostasis in acromegalic patients.

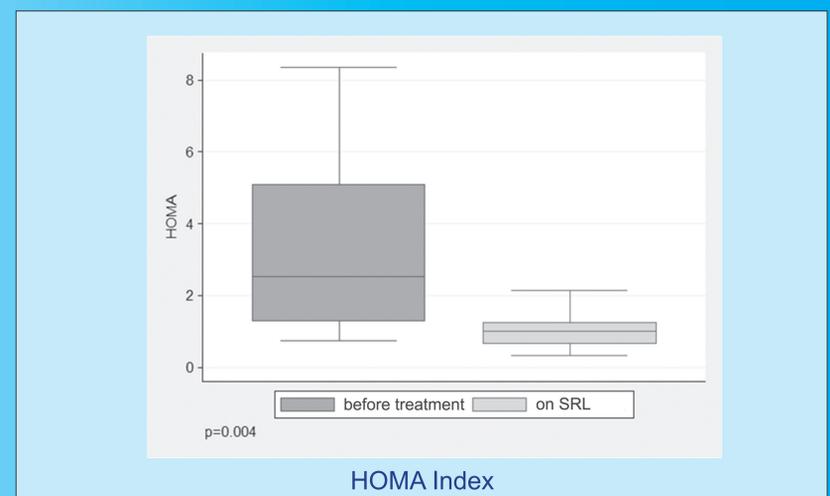
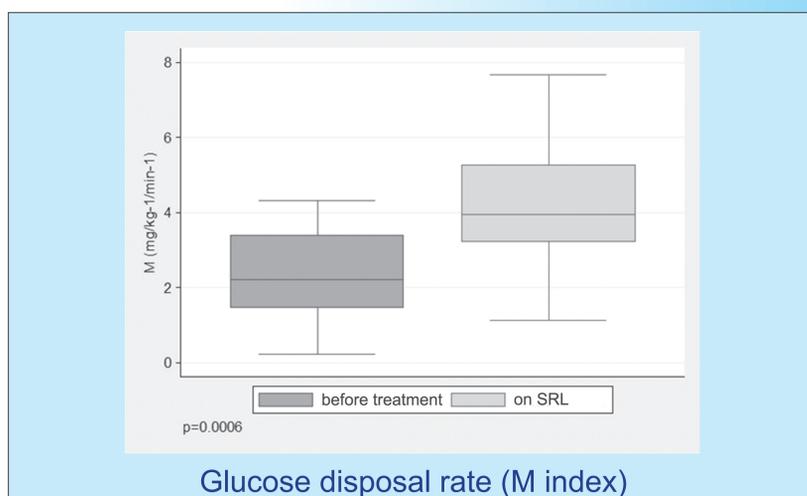
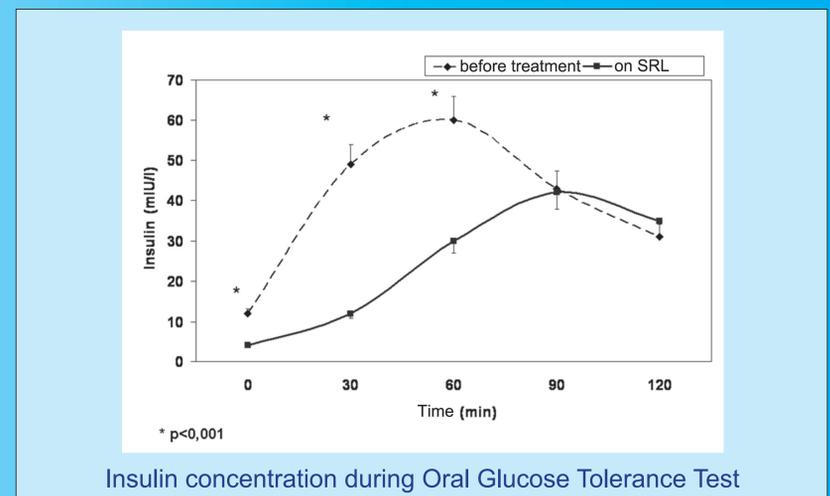
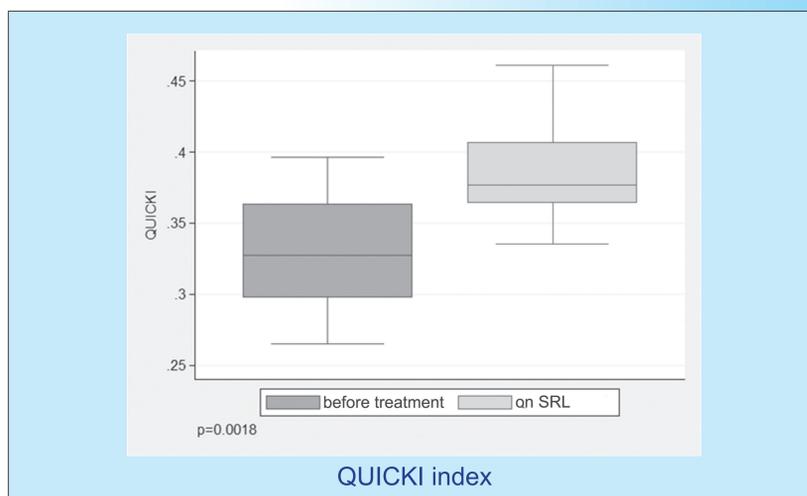
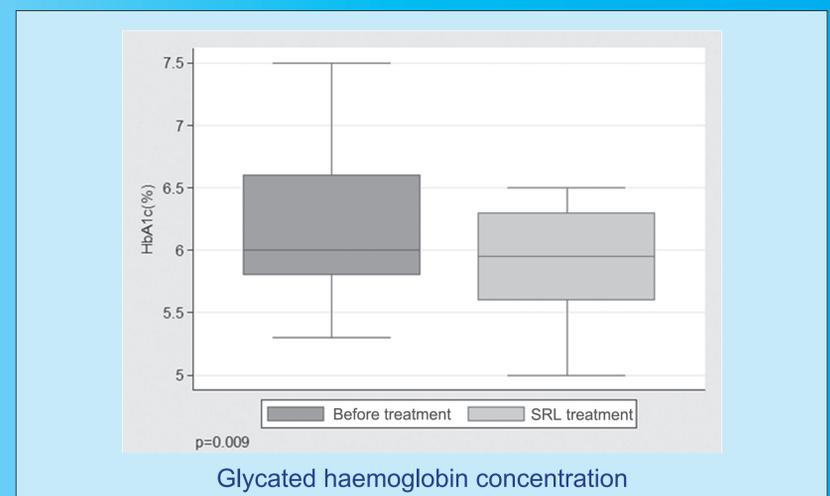
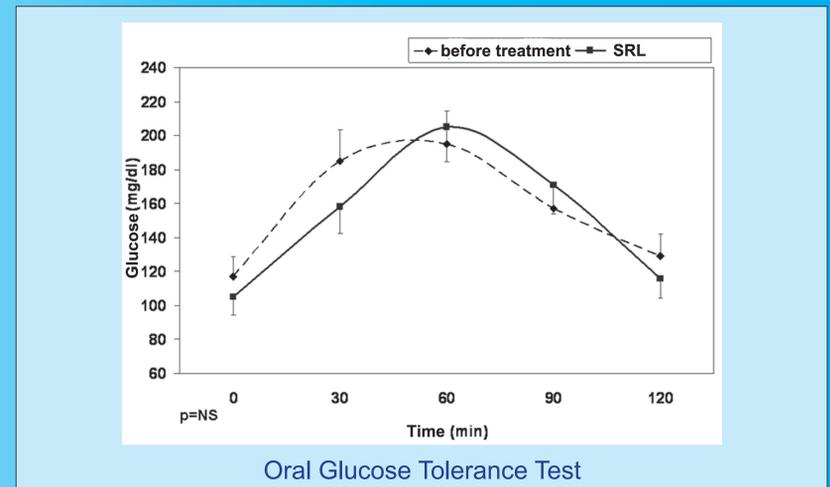
Patients and methods:

In this prospective study 16 naïve acromegalic patients were studied before and after 3-month therapy of octreotide-LAR (20 mg i.m. every 28 days). Diagnosis of active acromegaly was established on the basis of widely recognized criteria.

In each patient glucose and insulin concentrations were assessed during the 75 g oral glucose tolerance test (OGTT) and HbA1c levels were measured. To estimate insulin sensitivity hyperinsulinemic euglycemic clamp method according to DeFronzo algorithm was used and both: homeostasis model assessment (HOMA-IR) and quantitative insulin sensitivity check index (QUICKI) were calculated.

Results:

- After 3 months of treatment no statistically significant change in plasma glucose levels both fasting and during OGTT ($p > 0.05$) was found.
- Significant reduction in HbA1c level ($6.54 \pm 1.72\%$ vs. $6.02 \pm 0.78\%$) was noticed.
- After octreotide-LAR treatment prominent reduction in fasting insulin secretion was found compared to the moment of diagnosis (4.4 ± 2.0 mIU/mL vs. 12.1 ± 9.6 mIU/mL, $p < 0.001$), as well as area under the curve (AUC) for insulin secretion after oral glucose load (5216 ± 1933 mIU/120 min vs. 2239 ± 1397), respectively.
- After treatment, there was a significant reduction in HOMA-IR (0.92 vs. 2.27 , $p < 0.05$).
- Significant increase in QUICKI (0.39 vs. 0.34 , $p < 0.05$) was observed.
- In euglycemic clamp method a statistically significant increase in insulin-mediated glucose disposal rate (4.52 ± 2.34 vs. 2.37 ± 1.24 mg/kg-1/min-1) was noticed.



Conclusions:

We concluded that in acromegalic patients octreotide-LAR therapy significantly improves glucose homeostasis by reducing insulin resistance.