

# Liraglutide as additional treatment to insulin in patient with latent autoimmune diabetes in adults (LADA): a case report.

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## Introduction

LADA exhibits characteristics of both type 1 diabetes mellitus (DM) and type 2 DM. Patients with LADA usually have some components of metabolic syndrome. GLP-1 agonists have been widely used in type 2 DM. GLP-1 agonist therapies have shown some promising glucose lowering effect in T1DM. Almost no information is available on glucagon and incretin secretion in patients with LADA as well as effects on glucose and C-peptide levels.

## Case report

A 40-year old man with BMI 29.4 kg/m<sup>2</sup>, diagnosed with LADA-diabetes (duration 6 months) had GADA and ICA – positive autoantibodies, fasting plasma C-peptide 1,8 ng/ml (1,1-4,4). The patient received insulin treatment. Mixed meal tolerance test (MMTT) was performed before and after treatment with liraglutide 1,8 mg in addition to insulin during next 6 months. Plasma glucose (PG), glucagon and C-peptide were measured at 0 min, 30 and 120 min during MMTT. HbA1c was measured before and after treatment. Informed consent was obtained from the participant. After the treatment HbA1c decreased from 10,5% to 7,4%. Dose of long-acting insulin was reduced and fast-acting insulin was abolished. BMI reduced from 29,4 kg/m<sup>2</sup> to 26,3 kg/m<sup>2</sup>. Plasma glucose decreased from 10,3 mmol/l to 6,2 mmol/l on 30 min and from 9,6 to 8,1 mmol/l on 120 min. Liraglutide reduced glucagon levels from 153,2 – 179,3-226,7pg/ml (on 0, 30, 120 min respectively) to 150-164-138pg/ml. Plasma fasting C-peptide level has become 2,3 ng/ml after 6 months.

Pic.1. Glucagon secretion during MMTT

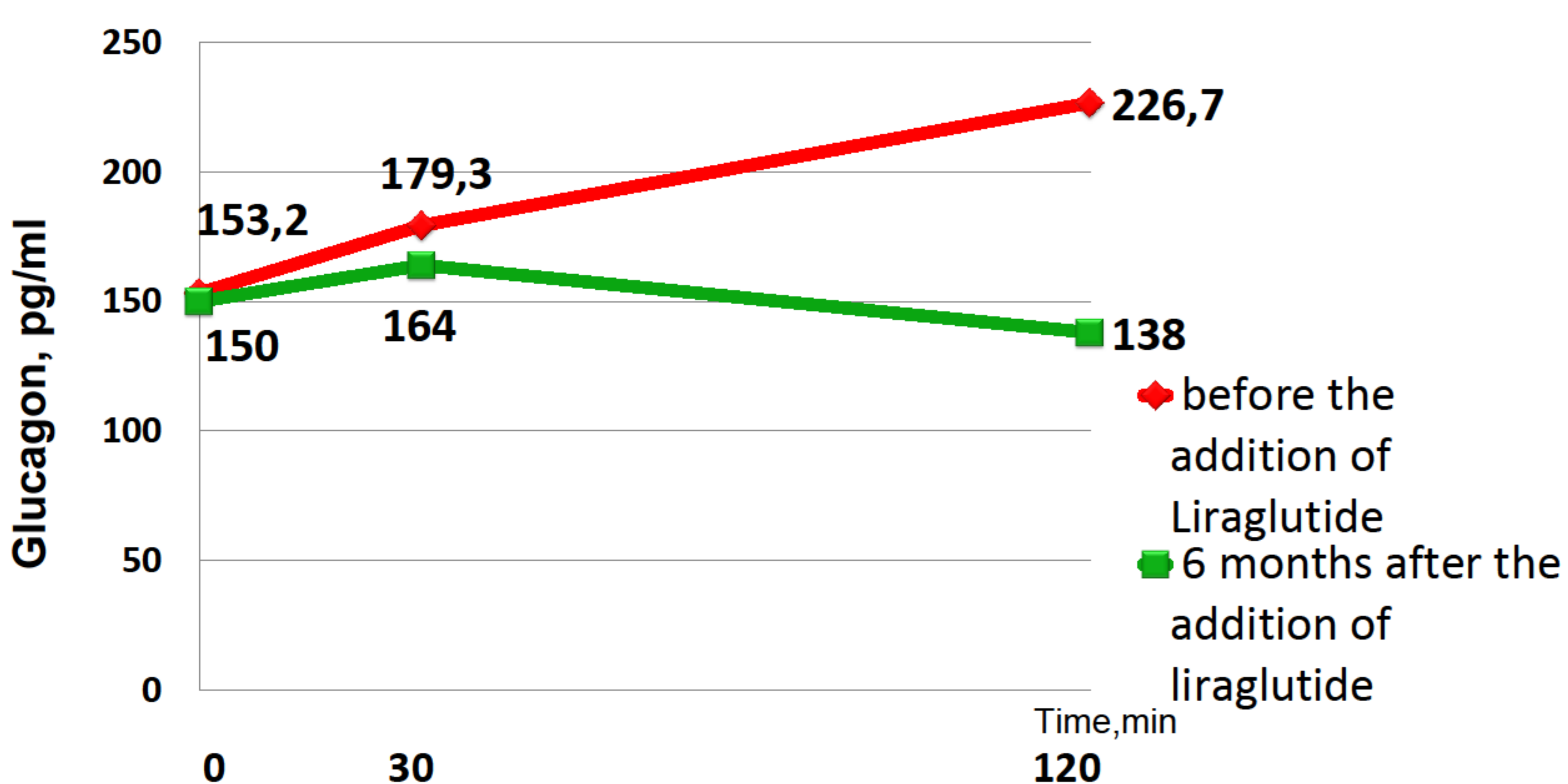


Table 1. Dynamics of clinical parameters before and 6 months after the addition of Liraglutide.

Clinical parameters	Before	After 6 month
HbA1c, %	10,5	7,4
Plasma fasting C-peptide, ng/ml	1,8	2,3
BMI, kg/m <sup>2</sup>	29,4	26,3

Pic.2. Dynamics of plasma glucose during MMTT



## Conclusion

Addition of liraglutide to insulin in patient with LADA leads to improvement in glycemic control, HbA1c and reduction in insulin dose and body weight. It reduces glucagon levels and serves to increase C-peptide.

