Mechanisms of development of carbohydrate metabolism disturbances in acromegalic patients depending on treatment

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**BACKGROUND**

Disturbances of glucose metabolism are frequently observed in patients with acromegaly. Impaired fasting glucose and impaired glucose tolerance, together considered as early carbohydrate metabolism disorders (ECMDs), as well as diabetes mellitus (DM) can be established in up to three-quarters of patients. General risk factors like age and body mass index, and disease-specific risk factors, such as activity of the acromegaly, but also duration of the disease and the specific type of treatment play an important role in the development of disturbances in glucose metabolism.

**AIM**

Assess the effect of SSA on pathogenesis of carbohydrate metabolism disturbance in acromegaly.

**PATIENTS**

103 acromegalic patients were examined (31 men, 72 women; age 54 [46-61] years; 60 had newly diagnosed acromegaly (NA), 23 receiving SSA (SSA group), 20 after transphenoidal surgery (TSS group)). We analyzed IGF-1 level, fasting plasma insulin and glucose levels (FPI, FPG), HbA1c, the Matsuda and HOMA-IR indices, area under insulin curve in the first 30 minutes (AUCins.30) and from 30 to 120 minutes of oral glucose tolerance test (AUCins.30-120). In 23 NA patients we assessed these parameters after 3 and 6 months of SSA therapy (12 patients) and TSS (11 patients).

**RESULTS**

**Prevalence of diabetes mellitus and early carbohydrate metabolism disturbance in patients with acromegaly**

**Indices of insulin resistance**

**Fasting plasma insulin and areas under insulin curves**

**Fasting plasma glucose and HbA1c**

**Prevalence of diabetes mellitus and early carbohydrate metabolism disturbance in patients with acromegaly**

**CONCLUSION**

Despite reduction of IGF1 levels and insulin resistance during SSA therapy and after TSS, the decrease of the first phase of insulin secretion on SSA therapy leads to the development of carbohydrate metabolism disorders.

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