

## Early results of Roux-en-Y gastric by-pass on regulation of diabetes type 2 in patients with BMI above and below 35 kg/m<sup>2</sup>

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### Abstract

The idea of surgical treatment of type 2 diabetes was established in the U.S. and was based on observation of patients after bariatric operations. Performed in cases of morbid obesity exclusion of the duodenum and anastomose the stomach with the central part of the intestines cause shortened absorption of nutrients, what showed a beneficial effect on weight loss, resolution of comorbidities and reduce the risk of developing cardiovascular diseases and cancer. Analysis of the results of surgical treatment of obese patients with type 2 diabetes (DM2) confirmed the usefulness of surgical methods.

**The aim of the study** was to evaluate the impact of Roux-en-Y gastric by-pass (RYGB) on diabetes in patients with BMI below and above 35 kg/m<sup>2</sup>.

**Material and methods:** The study comprised 66 patients with DM2, who underwent Roux-en-Y gastric bypass due to morbid obesity (BMI above 35 kg/m<sup>2</sup>) and three patients with DM2 and BMI below 35 kg/m<sup>2</sup>. In patients with DM2 and BMI < 35 kg/m<sup>2</sup> criteria for inclusion in the operational treatment were: DM2 difficult to be regulated pharmacologically lasting less than 10 years and BMI at the qualification about 35 kg/m<sup>2</sup>. Indications have been determined on the basis of three consecutive measurements of HbA1c values above 7%, and measurements of blood glucose (frequent fluctuations in blood glucose levels on the value of hypoglycemia to hyperglycemia).

**Results:** The criteria for diagnosing resolution of DM2 included the level of HbA1c < 6% and glucose fasting level below 100 mg/ dl. In a group of 66 patients with DM2 and obesity, regression of DM2 was observed in 48 patients (73%) as early as during the hospitalization. In 11 patients (16.7%) glycaemia and HbA1c were stabilized within 8 weeks after surgery. In 7 (10.6%) cases of patients with difficult to control DM2, there was still need for antidiabetic medication, but glycemic control was much more effective. After one year remission was observed in 89% of patients. In all three patients with DM2 and BMI < 35 kg/m<sup>2</sup> total glycemic resolution of DM2 was observed during hospitalization. In this group there has been no postoperative complications. In the group of 66 obese patients with DM2 postoperative complications were found in 7 cases, they were related to infection and prolonged healing of surgical wound. One patient had an intraabdominal abscess located in the left subphrenic region, it was punctured under ultrasound guidance.

**Conclusions:** The ultimate evaluation of this method demands several years of meticulous clinical studies. Despite of that, considering high cost of life-long conservative therapy of DM2 and its complications, severe impact on quality of life and serious consequences of the disease, the surgical metabolic intervention may become the most reasonable solution in many cases.