

CHOOSING SURGICAL TREATMENT TACTICS FOR PATIENTS WITH TYPE 2 DIABETES

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Objective: The use of bariatric surgery in patients with obesity and type 2 diabetes (T2DM) has its own characteristics. This report describes the indications and contraindications for bariatric surgery, including. specific - in the presence of T2DM. Various types of bariatric operations and the mechanisms of their influence on carbohydrate and lipid metabolism are described. The results of restrictive and bypass bariatric surgery in patients with obesity and T2DM are shown. The requirements for bariatric operations are presented and the parameters for assessing their effectiveness are presented, including. remission of T2DM after bariatric surgery. The causes of postbariatric hypoglycemia, as well as the postoperative prognosis of the effectiveness of bariatric surgery in relation to metabolic control in patients with obesity and T2DM, were analyzed. Restrictive (gastro-restrictive) operations are aimed at reducing the volume of the stomach. During restrictive operations, the stomach is divided into two parts, the volume of the upper part does not exceed 15 ml. This can be achieved by vertical stapling of the stomach, leaving a narrow outlet from its small part (vertical gastropasty (VGP), Fig. 1a) or by using a special silicone cuff (adjustable gastric band (AGB)). 1b). A more modern method - longitudinal (sleeve, vertical) gastrectomy - involves removing most of the stomach, leaving a narrow tube with a volume of 60-100 ml in its lesser curvature. The effect of malabsorptive (shunt) and combined operations is based on shunting various parts of the small intestine, which reduces the absorption of food. When bypassing the stomach, most of the duodenum and the initial part of the small intestine are removed from the food passage, and with biliopancreatic bypass, almost the entire jejunum.

Materials and methods of research: With BPS in the Hess-Marco modification ("Biliopancreatic diversion with duodenal bypass", i.e. BPS (diversion) with duodenal bypass), a

pylorus-preserving PRG is performed, and the ileum is anastomotic not with the gastric cavity, but with the initial part of the duodenum. The length of the intestine involved in the passage of food is approximately 310-350 cm, of which 80-100 cm is allocated to the common loop, 230-250 cm to the digestive loop (Fig. 2c). The advantages of this operation include preserving the pylorus and thereby reducing the likelihood of dumping syndrome and peptic ulcer development in the area of the duodenal anastomosis, which is also facilitated by a significant reduction in the number of parietal cells when performing PRP. Recently, established ideas and stereotypes about T2DM in obese patients have been revised. In particular, the claim that a significant loss of body weight after bariatric surgery is the decisive factor in improving glycemic control in T2DM that developed against the background of obesity has been refuted by the fact that a decrease in glycemia is observed from the first day. a few weeks after surgery, i.e. long before a clinically significant decrease in BW. With the widespread introduction of complex types of bariatric surgery (HS, BPS), it has become clear that a decrease in BW is not the only factor determining the predictable improvement in carbohydrate metabolism in obese people with T2DM.

Monitoring results: Normalization of clinical and laboratory indicators in T 2DM means the absence of clinical symptoms of T2DM and the need for taking glucose-lowering drugs, achieving fasting blood glucose levels <5.6 mmol/l, HbA1c $<6\%$; Improvement of the course of T2DM in such patients means the cessation of the need for glucose-lowering drugs and/or a decrease in fasting glycemia from 5.6 to 6.9 mmol/l. Loss of MT by more than 15% of the original; Achievement of HbA1c level $\leq 6\%$; Achievement of total cholesterol <4 mmol/l, low-density lipoprotein cholesterol (LDL-C) <2 mmol/l, triglycerides <2.2 mmol/l; maintenance of blood pressure (BP) $<135/85$ mmHg; Reduction of HbA1c level by more than 20% from baseline; Achievement of LDL-C level <2.3 mmol/l; maintaining blood pressure $<135/85$ mm Hg. According to the 2014 European Interdisciplinary Guidelines for Metabolic and Bariatric Surgery, surgical treatment in the presence of T2DM is considered effective if: the HbA1c level has decreased by more than 0.5% within 3 months or has reached a level of $<7.0\%$; the postoperative insulin dose has been reduced by 25% or more from the preoperative dose; the dose of oral hypoglycemic drugs has been reduced by 50% or more from the preoperative dose. Criteria for remission of T2DM after bariatric surgery; maintaining HbA1c level $<6.5\%$; maintaining fasting plasma glucose levels of 5.6-6.9 mmol / L (100-125 mg / dL) without pharmacotherapy for at least 1 year after surgery; maintaining HbA1c level $<6\%$; maintaining fasting plasma glucose levels <5.6 mmol/L (<100 mg/dL) without pharmacotherapy for at least 1 year after surgery;

Conclusion: Selective malabsorption of fats and complex carbohydrates due to the late addition of bile and pancreatic enzymes to the digestive process, which helps to reduce the concentration of free fatty acids in the portal vein system and, accordingly, reduce insulin resistance, is the most important factor determining the improvement. T2DM; selective reduction of ectopic lipid accumulation in skeletal muscle and liver, which improves insulin sensitivity (since lipid overload in the liver in obesity is associated with a limited ability of adipose tissue to accumulate lipids and increase its volume, which in turn leads to deposition of ectopic fat and lipotoxicity, which creates the basis for dyslipidemia and insulin resistance in T2DM). The experience of using bariatric surgery in obese patients with metabolic disorders and comorbidities allowed Buchwald H. and Varko R. in 1978 to formulate the concept of “metabolic” surgery as a section of bariatric surgery “as a surgical treatment of a normal organ or system to achieve a biological result of improving health.” Subsequently, the many years of practice of using bariatric surgery in patients with obesity and associated T2DM, the goal of which was initially to reduce body weight, showed the serious potential of surgery in achieving compensation for T2DM that developed against the background of obesity.

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