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THE FIRST EXPERIENCE OF SURGICAL TREATMENT OF OBESITY AND METABOLI DESORDERS WITH USING OF MINIMALLY INVASIVE TECHNOLOGY

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Abstract

The results of bariatric interventions in the clinic of the Department of Surgery No. 2 of the KhNMU with the use of mini-invasive interventions that were performed from September 2015: 7 patients (3 women, 4 men) with morbid obesity (7) on the background of diabetes mellitus (1) at the age of 37-55 g. The weight before operation was 125.75 [107-143] kg; BMI - 46.3 [45.2-52.1] kg\m2. The following types of surgical interventions were performed: in 4 patients laparoscopic sleeve resection of the stomach; in 3 laparoscopic gastric bypass. All patients began to eat and walk in 4-6 hours after surgery. There were not complications and postoperative mortality. Patients were discharged in a 7 days from the hospital. Time of observation is from 6 months to 3.5 years.

Evaluation of the percentage of excess weight loss (EWL %) was performed.The results are: on the averaged in patients undergoing after gastric bypass: 1 months - 21%, sleeve gastrectomy (gastric sleeve resection): up to 1 months - on the average of 26,4%. The quality of patients life has improved significantly.

Keywords: surgery of obesity; gastric bypass; gastric sleeve; bariatric operations.

Introduction. Obesity is a disease with complicated pathogenesis, for which the treatment with satisfactory constant result hasn't been found yet. At the same time decreasing of body weight fixes many problems caused by obesity. Even slight loss of weight for 5-7% leads to improvement of the general condition and quality of life of patients.

WHO "forced" the medical public to re-evaluate the problem of overweight and obesity, "cosmetic" concept of the problem. Thus, according to WHO statistics, about 30% of the world's inhabitants are overweight, of which 16.8% are women and 14.9% are men, and until 2025, approximately half of women and more than 40% of men will have obesity. The most common form of obesity is nutritional-constitutional, or primary, which is based on overeating and lack of exercise, which causes excessive energy formation in the human body. Morbid obesity is truly rampant through the inevitable development of severe concomitant diseases, which are in direct causal relationship with overweight [1-3].

It has been established that the most important and regular complications of obesity are hypertension, atherosclerosis and type 2 diabetes mellitus, since their pathogenesis is based on a decrease in tissue sensitivity to insulin (insulin resistance) and compensates for this condition by the overproduction of insulin by pancreatic cells (hyperinsulinism) [1, 2].

At this time, it has been proven that in patients with morbid obesity, the only adequate treatment method that allows to reach constant and persistent weight loss is bariatric surgery. The use of only therapeutic methods (diet, drug treatment, lifestyle modification, physical exercise, psychological correction) does not have the proper effect in patients with morbid obesity. There are a lot of reports in the modern literature that bariatric surgery not only helps to reduce weight, but also allows to significantly suspend the development of type 2 diabetes, and in some cases, completely normalize blood glucose levels and impaired lipid metabolism [3-6] **Material and methods**. At the clinic of the Department of Surgery No. 2 of KhNMU for the period since 2015 surgical methods for treating obesity have been introduced. 7 patients (women - 3, men - 4) for morbid obesity (7) with diabetes mellitus (1) at the age of 37-55 g were operated. Weight before surgery was 125.75 [107-143] kg; BMI - 46.3 [45.2-52.1] kg \ m2. Concomitant pathology was diagnosed in patients: arterial hypertension in all patients; CHD - in 2; Type 2 diabetes - in 2, osteoarthritis of the knee joints in 1 patient.

The clinic performed the following types of surgical interventions: in 4 patients - performed sleeve resection of the stomach ('gastric sleeve'). In 2 patients with type 2 diabetes mellitus, which was not corrected by conservative treatment, gastric bypass surgery

('minigastric bypass') was performed according to Dr. Rutledge. The length of the alimentary loop was 150 cm. In 1 case, traditional shunting was performed ('gastric bypass'). All operations performed by using laparoscopic technology.

When performing surgical interventions, the ECHELON 60 and Signia staplers were used. All patients underwent a comprehensive examination before surgery and in the postoperative period. Anthropometric data were assessed with body mass index (BMI kg \ m2), instrumental studies of the stomach (FGDS, contrast radiography of the esophagus and stomach with determination of evacuation function), ultrasound of the abdominal cavity and heart were performed, and central hemodynamics were determined. A study of carbohydrate metabolism (glucose, C - peptide, insulin, glycosylated hemoglobin, glucose tolerance test) was performed, and the lipid profile was examined. Also, in the preoperative period, patients were examined by a therapist, endocrinologist, psychiatrist, and traumatologist. 1 month after the operation, the percentage loss of overweight (% EWL) was estimated using the formula % EWL = (lost body weight (kg) / overweight (kg)) x100%. Excessive BM (kg) = body mass(BM) patient (kg) -perfect MT (kg).

Results and discussions. There wasn’t any lethality and complications after bariatric operations. In a day after operation patients began to drink water, on the second day used grated food. All patients were discharged on the 7th day from the hospital in a satisfactory condition.

The percent loss of overweight (% EWL) was assessed. EWL% loss of excess body weight after shunting of stomach: for 1 month. - 21% , after sleeve gastrectomy ('gastric sleeve') - (% EWL): for 1 month. - an average of 26.4%. An assessment was also made of the somatic condition of patients after surgery: arterial hypertension, dyslipidemia stabilized in all patients. In patients with type 2 diabetes, blood glucose values in the postoperative period were set equal to 4.9-5.6 μmol / L and did not require using of glucose lowering drugs. After weight loss, a patient with arthrosis of the knee joints noted improvement in well-being, increased physical activity, and refusal to take medication.

All bariatric surgery, depending on their effect on the anatomy of the gastrointestinal tract, can be divided into 3 groups: restrictive, shunt (malabsorbent) and mixed. The choice of surgical tactics depends on the degree of obesity, the specifics of concomitant metabolic disorders and diseases, the psychological characteristics of the patient, the type of food behavior and the patient's readiness for treatment and lifestyle changes. The choice of surgical technique is often determined by the personal experience of the surgeon [7-12].

Restrictive surgery aimed at reducing the size of the stomach. With restrictive operations, the stomach is divided into two parts, leaving the volume of the upper part, which does not exceed 15 ml. This can be achieved either by vertical stapler stitching of the stomach with a narrow exit from its small part (vertical gastroplasty, or by applying a special silicone cuff (regulated banding of the stomach. A more modern technique - longitudinal (sleeve, vertical) resection of the stomach involves the removal of most of the stomach leaving a narrow tube in the zone of its small curvature with a volume of 60-100 ml [10, 11].

The effect of restrictive operations regarding the improvement of metabolic parameters in type 2 diabetes is based on the transfer of patients in the early postoperative period to a low-calorie diet and only in the future - a decrease in fat mass, including visceral, as a source of free fatty acids into the portal vein system during lipolysis, which helps to reduce insulin resistance in the case of 'gastric sleeve' removal of the ghrelin-producing zone of the fundus of the stomach, which promote suppression of hunger and reduce appetite.

Restrictive mini-invasive operations are characterized by relative safety and ease of implement, are well tolerated by patients, but in many cases, especially with over-obesity (or super-fat, in which IMT> 50 kg / m2), their effect is unstable. In the case of loss of the restrictive effect in the long term (for example, with recanalization of the vertical suture, dilatation of a small part of the stomach or dysfunction of the bandage), there is a real likelihood of both ricocheting weight gain and decompensation of diabetes mellitus 2 [10, 11].

The basis of the of malabsorbent (shunting) and combined operations is the shunting of different parts of the small intestine, which reduces the absorption of food. During gastroshunting, a large part of the stomach, the duodenum and the initial part of the small intestine are turned off from the food passage, and during biliopancreatic shunting, almost the entire small intestine [7-9, 12].

Combined operations that unite restrictive and shunt components are characterized by greater complexity and the risk of undesirable consequences, however, they provide a more pronounced and stable long-term result, and also effectively affect the course of metabolic disorders and diseases associated with obesity, which determines them main advantages [7, 10].

Conclusions:

1. Modern bariatric interventions reduce weight quite effectively, influence positively on the correction of metabolic disorders, improve quality of life, professional and social adaptation of patients with obesity.

2. Application of mini-invasive techniques allows to improve results of treatment, to achieve good cosmetic effect and reduce time of staying in a hospital.

3. The protocols of treatment of patients with morbid obesity and metabolic syndrome should include the obligatory consultation of the bariatric surgeon in order to determine the indications to application of bariatric methods of treatment.

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