Central Asian Journal of Medicine

SURGICAL METHODS OF OBESITY TREATMENTS FOR LOWERING BODY MASS INDEX

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ABSTRACT

Introduction. In connection with the upward trend in the number of obese people, new approaches to the treatment of obesity are being explored. Surgical methods of treating severe obesity have become widely used throughout the world in recent decades. The main task of such methods is to influence the course of diseases associated with obesity (bariatric surgery) by means of a significant decrease in body mass.

Material and methods. We studied 72 obese patients who were divided into 2 groups depending on the degree of obesity. In each group, in order to reduce body weight, 3 types of surgical interventions were performed (drain resection, gastric bypass, mini-gastric bypass) taking into account BMI, age, the presence of disorders of carbohydrate metabolism, as well as concomitant pathology. Patient inclusion criteria: patients with II-III degree of obesity, with no persistent decrease in body weight on the background of diet, exercise and drug treatment. All patients underwent BMI (weight in kg divided by the square of the height in meters) and waist measurements.

Results. The largest percentage in the decrease in BMI was in gastric bypass and mini-gastric bypass by 33% and 35%, respectively, in women and 32.7% and 32%, respectively, in men. Draining resection showed the lowest percentage of BMI reductions in women and men at 24% and 18.3%, respectively.

The decrease in BMI and WM significantly exceeded in the group of patients with III degree of obesity, so the level of BMI decreased by 22.8% in the group with II degree, and by 30% in the group with III degree of obesity. Decrease in WM 20% and 22% respectively.

Conclusion. Decrease in BMI was achieved with the use of all types of surgical interventions for obesity treatment. But the most persistent weight loss was observed with gastric bypass and mini-gastric bypass. A significant decrease in BMI and WM after surgical treatment was observed in patients with grade III obesity, which is probably associated with a relatively large initial overweight and the most frequently performed type of surgery in this group - gastric bypass and mini-gastric.

Key words: Obesity, bariatric and metabolic surgery, gastric bypass, mini-gastric bypass, drain resection, body mass index (BMI), waist measurement (WM).

INTRODUCTION

The World Health Organization (WHO) estimates that almost a third of the world's population is overweight. Over 650 million of this are adult generation of the planet suffering from obesity. The number of obese people has tripled over the past 40 years. And if the current trend continues, number will reach one billion by 2025 [18,19]. According to WHO, 46.3% of the population of Uzbekistan are overweight, 14.3% are obese, 8.7% have type 2 diabetes associated with obesity, and 18% of the population are prone to a sedentary lifestyle as the main factor leading to obesity. **[1].**

Obesity is accompanied by metabolic disorders and a whole range of various diseases: diabetes mellitus, atherosclerosis, hypertension, coronary heart disease, cholelithiasis, gout, and chronic varicose veins of the lower extremities develop 5 times more often with obesity as a background. Being overweight increases the risk of developing cancer. Cardiovascular diseases against the background of overweight are more often complicated by the development of heart attack and stroke. [11,12].

In connection with the upward trend in the number of obese people, new approaches to the treatment of obesity are being explored.

Surgical methods of treating severe obesity have become widely used throughout the world in recent decades. The main task of these methods is to influence the course of diseases associated with obesity (bariatric surgery) by means of a significant decrease in body mass.According to modern concepts, the goal of bariatric surgery is not only to reduce the patient's weight, but also to achieve beneficial metabolic effects (normalize glycemia, lipid metabolism). In this regard, most modern bariatric interventions are combined in a concept of "metabolic surgery" [3,14,16]. Bariatric / metabolic surgery is currently one of the most effective methods for obesity treatment, significantly reducing both the

incidence of diseases associated with obesity and the mortality of patients [5,6,13,10].

The most frequently performed bariatric surgeries are longitudinal gastric resection, gastric bypass, mini-gastric bypass with duodenal exclusion as their long-term results are well studied, and the effectiveness in relation to body weight loss and the effect on metabolic parameters have been confirmed by numerous studies with a high level of evidence. [8,15].

Currently, no precise criteria for the appointment of a particular patient of this or that type of operation has been developed. The patient chooses the type of surgery together with the doctor, so indications for surgical treatment arise in the absence of achieving the goal of therapy after several attempts at conservative treatment of obesity or in the presence of contraindications to drug treatment of obesity. Bariatric / metabolic surgery is indicated for patients with the following characteristics:

1. With BMI more than 40 kg/m^2 [7,9,17, 20]

2. With BMI 35–40 kg/m^2 in the presence of diseases concomitant to obesity, in which an improvement should be expected with a decrease in body weight (type 2 diabetes mellitus, diseases of the cardiovascular system, joint damage, OSAS) [2,4,7,17]

The introduction of bariatric surgery practice for obesity treatment in our Republic determined the need for this study.

Objective: to study the effect of various methods of bariatric interventions on BMI reduction in people suffering obesity.

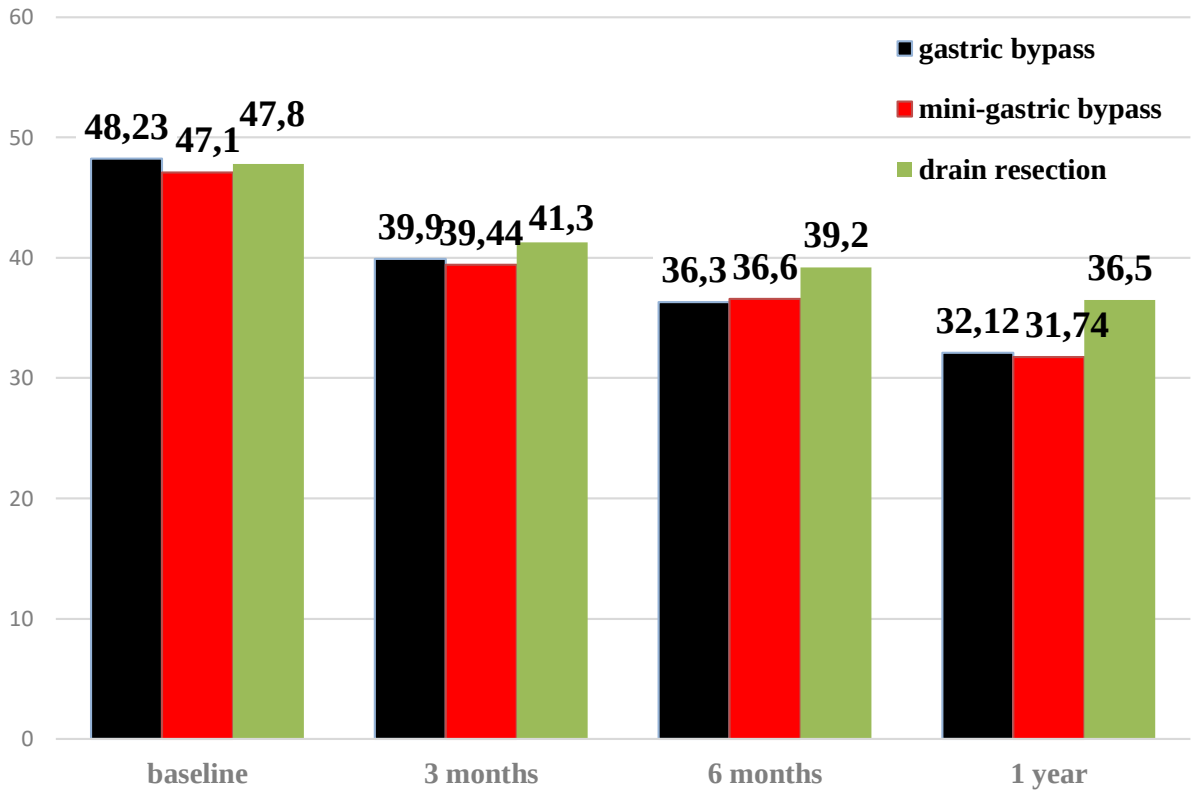
Study methods and materials: The study included 72 obese patients who undergone surgery at Tashkent City Clinical Hospital No.1 (47 of which were female, 25 were male patients). The average age of patients was 43 ± 6.8. Body mass index (BMI) varied from 35 to 54 kg/m^2. Average waist measurements (WM) were 153 ± 12,3. Depending on the degree of obesity, the patients were divided into 2 groups: Group 1 (p.=30) – patients with II degree of obesity; Group 2 (p =42) –patients with III degree of obesity. In each group 3 types of surgical interventions (drain resection, gastric bypass, mini-gastric bypass) were performed in order to reduce body weight depending on BMI, age, presence of carbohydrate metabolism disorders, as well as concomitant pathology.In group 1, 9 people were operated on by the method of drain resection, 10-gastric bypass, 11-mini-gastric bypass. In the 2nd group - 6 people - drain resection, 17-gastric bypass, 19-mini-gastric bypass.Patient inclusion criteria: patients with II-III degree of obesity, with no history of persistent weight loss on the background of diet, exercise and drug

treatment. All patients underwent BMI (weight in kg divided by the square of the height in meters) and waist measurements.

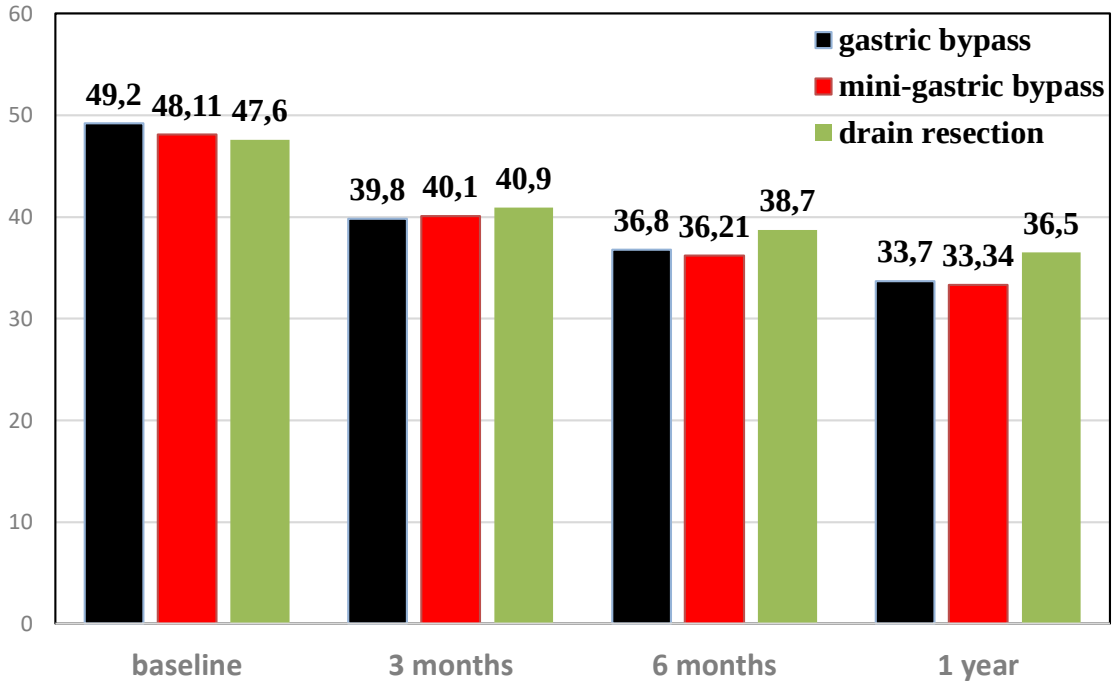
RESULTS AND DISCUSSIONS.

We assessed the decrease in BMI after gastric bypass, mini-gastric bypass and drain resection, in groups of men and women, after 3, 6 months and 1 year.A more prolonged and persistent decrease in body weight was observed after shunting operations (gastric bypass, mini-gastric bypass). With draining resection, which is a restrictive type of surgery, a significant decrease in body weight was observed in the first months after surgery.So, the largest percentage in the decrease in BMI was in gastric bypass and mini-gastric bypass by 33% and 35%, respectively, in women and 32.7% and 32%, respectively, in men. Draining resection showed the lowest percentage of BMI reductions in women and men at 24% and 18.3% respectively.

Efficiency dynamics of gastric bypass, mini-gastric bypass and drain resection among women at different periods of observation in terms of BMI



Efficiency dynamics of gastric bypass, mini-gastric bypass and drain resection among men at different periods of observation in terms of BMI



The percentage of BMI reduction depending on the type of surgery

	Gastric bypass	Mini-gastric bypass	Drain resection
Women	33 %	35 %	24 %
Men	32.7 %	32 %	18.3 %

The decrease in BMI and WM significantly exceeded in the group of patients with III degree of obesity, so the level of BMI decreased by 22.8% in the group with II degree, and by 30% in the group with III degree of obesity. Decrease in WM 20% and 22%, respectively.

Decrease of BMI and WM after surgery

		IIdegree of obesity	IIIdegree of obesity
BMI, kg/m^2	Before	37,4±2,3	47,9±2,6
	After surgery	28,9±2,4	34,3±3,9
WM, cm	Before	116±14,6	142,7±12
	After surgery	92,8±9,7	112,2±8,3

CONCLUSIONS

- With surgical intervention in the treatment of obesity, a decrease in BMI with the use of all types of surgical interventions was achieved. But the most persistent weight loss was observed with gastric bypass and mini-gastric bypass.
- A significant decrease in BMI and WM after surgical treatment was observed in grade III obesity, which is probably associated with a relatively large initial overweight and the most frequently performed type of surgery in this group - gastric bypass and mini-gastric bypass.
- The largestdecrease percentage of BMI were in the gastric bypass and mini-gastric bypass: by 33% and 35% was observed in the group of women and by 32.7% and 32% in the group of men, respectively. Draining resection showed the lowest percentage of BMI reduction in women and men at 24% and 18.3%, respectively.
- An additional advantage of gastric bypass and mini-gastric bypass is the low incidence of postoperative complications, as well as a short rehabilitation period.

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