

Bariatric Surgery in University Clinic Center Tuzla - Results After 30 Operations

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ABSTRACT

Introduction: Project of Bariatric surgery in University clinic center (UCC) Tuzla has been initiated in 2009 as an idea of professor Dešo Mešić and soon after that Bariatric surgical team led by doctor Fuad Pasic has been created. **Material and methods:** Practical team education was realized in Croatia in hospital „Sisters of Mercy“ under supervision of professor Miroslav-Bekavac Beslin. First bariatric operations in UCC Tuzla has been done in 2011 and it was biliopancreatic diversion (BPD) Scopinaro.

Results and discussion: So far there has been done 30 operations and among them there have been used almost all operative modalities - restrictive, malabsorptive and combined (laparoscopic gastric banding-LAPGB, Roux-y mini gastric bypass, open and laparoscopic gastric sleeve resection, and over mentioned Scopinaro's BPD). Beginning results are very promising according to the fact that almost all operated patients after one year stopped using antihypertensive, antidiabetic and antidepressant therapy, that average year's weight loss is 35-100 kilograms and total satisfactions of patients after surgeries is obvious.

Key words: bariatric surgery, laparoscopic gastric banding-LAPGB, Roux-y mini gastric bypass, open and laparoscopic gastric sleeve resection, over mentioned Scopinaro's BPD.

1. INTRODUCTION

Obesity is a chronic, multifactorial, complex disorder that appears under the influence of genetic, metabolic, endocrinologic factors, as well as, environmental factors (1). Epidemiologic fact tells us that since 1980 number of obese people has doubled and obesity have the character of epidemic (2). Today there is 1,9 billions of overweight people in the world and 600 millions are obese. In children populations there is about 42 millions of obese children. As a result of overweight, 2.5 million of people are dying every year (3). A huge number of diseases are directly related to obesity. Before all, diabetes mellitus type 2 makes 90% of all diabetes and it currently affects 200 million of people around the world. Obesity cause heart failure and decompensation, hypertension, metabolic syndrome, and is connected to high rate of different cancers (4-10). Our country, Bosnia and Herzegovina belong to a group of countries with a high rate of morbid obesity. It is considered that about two thirds of Bosnians are overweight and 26% of

them are obese. According to these fact there was established a certain need in Bosnia and Herzegovina to include all medical resources to try to decrease number of obese people.

Bariatric surgery is most functional long term method in the treatment of morbid obesity. Metabolic and bariatric surgery are becoming the most powerful tool in struggle against diabetes type 2. Over 80% of patients a certain period after bariatric surgery remains without therapy they have used before operation (11-12). Best bariatric operation is that which is effective and with a low rate of mortality and complications. Every bariatric operation should create loss of excessive weight, and comorbidity and should be reversible, less invasive and should improve quality of life (13).

UCC Tuzla has become in 2011 first clinic in Bosnia Herzegovina who have done Bariatric surgery and from that period on 30 morbidly obese patients have been successfully operated. Indications for bariatric operations were body mass index (BMI) over 40 or BMI

over 35 in those patients who had some of already verified comorbidities like hypertension, diabetes, hyperlipidemia and so on. Few obese patients with hormonal base of morbid obesity haven't been operated. There hasn't been made any selections of obese patients and they have been operated using standardized bariatric surgeries.

All operated patients had to go through uniform preoperative protocol:

- First surgical examination (physical examinations of abdomen, measuring weight and height - body mass index, and planning of all preoperative steps and eventual surgical modality).
- Endocrinologist examination (basic biochemical hormonal analysis, determining of existence of hypertension, diabetes mellitus type 2, metabolic syndrome, sleep apnea and so on., creating preoperative diet of 800-1200 kkal and verifications of certain hormonal deceases which are contraindication for bariatric surgery).
- Gastroenterologist examinations (biochemical tests, gastroscopy-evaluation of gastric ability to go through certain changes during bariatric operations, placing gastric ballon as an preoperative alternative, medical preoperative treatment of stomach in case of gastritis, dyspeptic syndrome).
- Psychologist and psychiatrist examinations (evaluations of psychic background of every patient and it's readiness to stressful situations and it's ability to stand to severe postoperative diet).
- Anesthesiologist examinations (Physical examinations, ASA scoring, determining if patient can be safely led through general anesthesia).
- Final surgical examinations.

Bariatric surgical team of UCC Tuzla have done almost all types of bariatric operations which are used in the world. Some operations had restrictive purpose and some of them were combination of restriction and malabsorption. These bariatric modalities have been done in UCC Tuzla: Laparoscopic gastric banding (LAPGB), open and laparoscopic sleeve gastrectomy, roux-y mini gastric bypass, Scopinaro's biliopancreatic diversion (Figure 1).

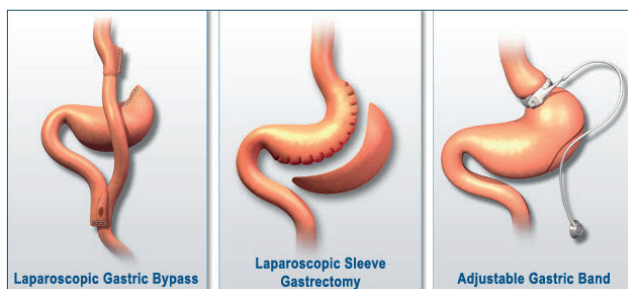


Figure 1. Some of Bariatric surgical modalities performed in UCC Tuzla

Laparoscopic and open sleeve gastrectomy is a restrictive, irreversible procedure, which reduces the capacity of the stomach by 70-90%, and in the same time exclude the secretion of ghrelin-hunger hormone. This surgery has been done on 20 patients (18 laparoscopic and 2 open) in UCC Tuzla and was the most often used procedure.

Biliopancreatic diversion - Scopinaro is most demanding bariatric operation which belong to a group of com-

bined restrictive-malabsorptive operation. It is indicated on super-super obese patients. It can offer the biggest postoperative weight loss but in the same time is connected to rare but severe postoperative complications and often need for supplementation of minerals and vitamins. 4 patients have been operated with this technique in UCC Tuzla.

Laparoscopic gastric banding (LAPGB) is restrictive operation. Silicon band is placed around the stomach, below cardia and it is connected to reservoir placed over muscular fascia in the anterior abdominal wall. Filling or extraction water from reservoir influence diameter of adjustable band and that way control gastric filling. This operation has been performed 3 time in UCC Tuzla.

Mini Roux-Y gastric bypass was done on 3 patients in UCC Tuzla. It belongs to combined restrictive-malabsorptive type of surgery which can produce very high rate of postoperative weight loss and is characteristic for the fact that after this operation blind part of stomach is created through which food is passing no more.

Postoperative protocol for all operated patients in UCC Tuzla included:

- First 24 hours postoperative stay at Intensive care unit.
- 1 postoperative day biochemical analysis, rising and active respiratory physical treatment of patients.
- Radiographic postoperative resection line and anastomosis testing and consecutive nasogastric tube extraction.
- Active wound treating.
- Serious thromboembolism medical prevention.

2. RESULTS

Out of 30 patients operated by Bariatric surgical team in UCC Tuzla, 27 of them were females (90%) and 3 males (10%) (Figure 2). The youngest patient was 21 year old and oldest 45 years. Hospitalization of patients lasted from 3-10 days with an average of 4,5 days. The shortest stay had patients with laparoscopic gastric banding and sleeve gastrectomy while longest was noticed in patients with Scopinaro's operation.

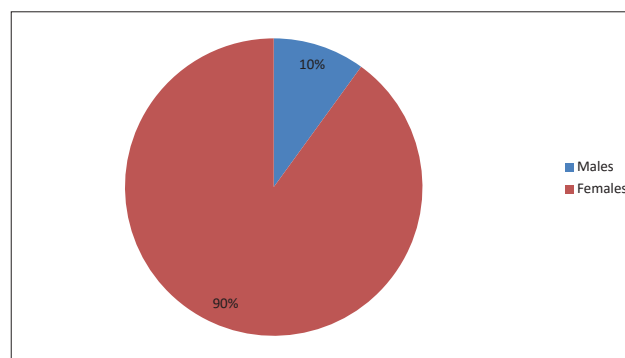


Figure 2. Gender ratio of operated patients in UCC Tuzla

Postoperative screening of patients meant regular surgical, endocrinologic and psychiatric control examinations 1, 3, 6, and 12 months after operation. There have been noticed patients weight and BMI, presence of earlier verified comorbidities (Hypertension, Diabetes, metabolic syndrome, psychological irregularities and deceases and so on).

Preoperative patients weights were from 110 to 260 kilograms and one year after operations weights loss rated from 30-100 kilograms (Figure 3). Biliopancreatic diversion pro-

Preoperative/postoperative ratio	Before bariatric surgery	One year after bariatric surgery
Patients weights and losses	110-260 kg	35-100 kg losses
Diabetes	85%	75% without antidiabetic therapy
Hypertension	83%	90% without antihypertensive therapy
Sleep apnea	60%	90% without symptoms
Depression	40%	90% without symptoms
Satisfaction with surgery results		97% satisfied

Table 1. Preoperative and postoperative comparison one year after bariatric surgery

Operational modality	LAPGB	Sleeve gastric resection	Mini Roux and Y gastric bypass	Bilio-pancreatic diversion-Scopinaro
Numbers	3	20 (18 lap., 2 open)	3	4
Weight loss after one year	30-42	30-51	35-63	42-100
Hospital stay in days	3-5	3-7	5-8	7-10
Operation time In minutes	75-120	120-240	180-240	180-300
complication		1	1	

Table 2. Comparison of used operational modalities

Operational type	Restrictive operations	Restrictive malabsorptive operations
Preoperative BMI	35-50	50-70
BMI one year after operation	25-35	37-50

Table 3. Comparison between two type of operations regarding BMI

duced the biggest weight losses and LAPGB the lowest.

Diabetes mellitus type 2 have been present in 85% of patients preoperatively and 10% of them didn't know they have diabetes. One year after operation 75% of patients stopped using antidiabetic therapy and 10% of them have better regulated diabetes.

Hypertension was noticed in 83% of patients preoperatively. In the one year period 90% of them was completely cured.

Sleep apnea was noticed in 60% and **depression** in 40% of patients before operation. One year after operation 90% of patients didn't show any of symptoms connected to sleep apnea and depression.

There have been noticed **patients satisfaction** with bariatric surgery results one year after operation and only one patient (3%) haven't been satisfied and 29 (97%) of them were (Table 1).

Postoperative complications were noticed in 2 patients. One of them was resection line bleeding after laparoscopic sleeve gastrectomy which demanded reoperation which have been done on the same day of first operation. Second was pulmonal thromboembolism noticed after patient discharge from UCC Tuzla and was successfully treated in another hospital.

One of patients was operated for postoperative ventral hernia and 2 patients were operated in coordination with colleagues from plastic and reconstruction surgery of UCC Tuzla for abdominoplasty 2 years after bariatric surgery.

All 4 operational modalities (LAPGB, Sleeve resection of



Figure 3. Patients before and after laparoscopic sleeve gastrectomy (3a) and biliopancreatic diversion (3b)

stomach, Roux and Y bypass, Scopinaro's operation) for itself created good results one year after operation. In Table 2 there has been made some comparison between them. There has been compared BMI preoperatively and one year after operation for restrictive and restrictive malabsorptive operations (Table 3).

3. DISCUSSION

Results of UCC Tuzla's bariatric surgery team can be considered comparing to another bariatric centers and from the time line. There is no so much centers in the world to begin project of bariatric surgery with biliopancreatic diversion like it was in UCC Tuzla, according to the fact that mostly applied operation in primary phase of metabolic surgery are LAPGB (14, 15). Although the fact that bariatric surgery should be personalized it is obvious that after certain time Bariatric centers mostly use one or two bariatric modalities (16). Results show that two thirds of bariatric operation in UCC Tuzla was laparoscopic and open sleeve gastrectomy which is proposed for patient with mild obesity (BMI 35-40 kg/m²). For super-super obese as it was case in results mostly used Bariatric's operational modalities were Scopinaro's biliopancreatic diversion and Roux-Y mini gastric bypass. Today in high volume Bariatric centers, this two types of surgeries are done too but with so many anatomic and functional changes (Biliopancreatic diversion with duodenal switch for example and others) with a unique goal to individualizing surgery to the patient and be functional and with low morbidity and complications (17).

Facts that more than 80% of patients one year after operation remains without therapy for diabetes, hypertension, de-

pression tells that UCC Tuzla bariatric's begging results are excellent and similar to another centers in our region and Europe. All 3 patients operated with Scopinaro's technique preoperatively had serious an hardly regulated diabetes and they all stopped using antidiabetic therapy one year after operation. It confirms the statement of modern endocrinology and surgery that biliopancreatic diversion is the most successful as a fast and a long term antidiabetic therapy (18). Bariatric surgery complications are unavoidable even in most developed Bariatric centers than ours. Two serious postoperative complication (Gastric resection line bleeding, pulmonal thromboembolism) which are successfully solved are not outside worlds data. Interesting fact that there hasn't been noted even one wound infection which are relatively often in Bariatric patients.

• Conflict of interest: none declared.

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