



Original paper

Improvement in comorbidities after laparoscopic sleeve gastrectomy in patients older than 60

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Abstract

Objective: Increasing prevalence of obesity and aging is clearly visible according to World Health Organization (WHO). The risk of death increases within the gain of body mass. We performed an analysis of the improvement in obesity complications – type 2 diabetes mellitus (DM) and hypertension (HT) – in people above 60 years old, who underwent laparoscopic sleeve gastrectomy (LSG).

Material and methods: A retrospective analysis included 21 patients aged 60 years and over who underwent LSG at the Policlinic Municipal Hospital in Olsztyn from 2013 to 2016. Patients were followed at 6, 12, 24, 36 months after the surgery via personal consultations at the Clinic or telephone conversations. The data analyzed included obesity complications and their improvement or resolution as well as age, gender, pre- and postoperative body mass and body mass index (BMI).

Results: 21 patients above 60 years old, diagnosed with type 2 DM, HT or both, underwent LSG. Twelve patients were diagnosed with both type 2 DM and HT and 9 with HT only. Only 3 patients had not noticed any improvement in obesity complications for the time of follow-up, while the rest at least modified the doses of medications. In 9 cases, at least in one of the diseases, the resolution was observed. The mean BMI after 6 months was 34.4 kg/m², 12 months – 33.7 kg/m², 24 months – 35.3 kg/m² and 36 months – 34.9 kg/m², while the mean %EWL was 42.2%, 44.4%, 40.0% and 42.2%, respectively.

Conclusions: LSG is a valuable and safe method for elderly patients to improve obesity complications as well as to decrease body mass. The outcomes of our study suggest that bariatric surgery may improve patients' quality of life.

Key words: obesity, aging, sleeve gastrectomy, elderly.

Introduction

Increasing prevalence of obesity in Europe and worldwide is clearly visible according to World Health Organization (WHO), especially in developed countries [1]. It is well known that the risk of death increases within the increase of body mass index (BMI). Obesity is a cause of premature death due to its complications such as type 2 diabetes mellitus (DM), hypertension (HT), hyperlipidemia, obstructive sleep apnea and cardiovascular diseases [2,3]. The conservative methods to treat obesity have poor long-term results. The weight loss is noticed and in most cases the weight is gained after a few months or years. We rarely see improvement in obesity complications, whereas the bariatric surgery is said to be effective, durable obesity

treatment [4]. Laparoscopic sleeve gastrectomy (LSG) is one of the most common bariatric procedures and leads to satisfactory body mass loss as well as improvement in obesity complications.

Parallel to the weight gain, the aging is widespread [5]. Since the safety and effectiveness of the surgery for the elderly is still discussed, we performed the analysis of improvement in obesity complications such as type 2 DM and HT in people above 60 years old, who underwent LSG.

Material and methods

A retrospective analysis included 21 patients aged 60 years and over who underwent LSG at the Policlinic



Table 1. The improvement of diabetes mellitus (DM) and hypertension (HT) in analyzed patients

Sex	Age	BMI [kg/m ²]	Before surgery		After surgery	
			DM	HT	DM	HT
M	71	45.3	-	+	-	0
F	70	34.3	+	+	I	I
M	69	37.4	+	+	I	I
F	68	46.1	+	+	R	R
F	68	54.7	-	+	-	0
M	67	53.6	+	+	I	I
F	67	40.9	-	+	I	I
F	67	33.5	+	+	R	0
M	67	49.7	+	+	0	0
M	65	39.8	+	+	R	I
M	63	40.3	+	+	R	R
F	63	53.4	+	+	I	I
F	62	46.1	+	+	R	I
F	61	47.5	-	+	-	I
F	61	38.1	+	+	-	I
F	60	41.8	+	+	R	I
F	60	38.8	-	+	-	R
F	60	38.3	-	+	-	I
F	60	40.9	-	+	-	R
F	60	43.6	-	+	-	I
F	60	39.2	+	+	R	I

I – improvement, R – resolution, 0 – no effect

Municipal Hospital in Olsztyn from 2013 to 2016. All of the surgeries were performed by the same surgical team according to the well-known standard technique: the patient is lying supine in anti-Trendelenburg position and the surgery is carried out with five ports, abdominal insufflation using CO₂ to 12 mmHg. The size of the gastric sleeve was achieved by using 36 F bougie. Patients were followed at 6, 12, 24, 36 months after the surgery via personal consultations at the Clinic or telephone conversations. The data analyzed included obesity complications and their improvement or resolution as well as age, gender, pre- and postoperative body mass and BMI. The resolution of the disease is present when medications could be stopped, while the improvement is established with the reduction of medications.

Table 2. The average body mass index (BMI) [kg/m²] and %EWL after surgery

	6 months		12 months		24 months		36 months	
	BMI	%EWL	BMI	%EWL	BMI	%EWL	BMI	%EWL
	34.37	42.17	33.65	44.38	35.33	40.04	34.92	42.16
F	34.23	42.61	33.59	43.73	34.98	41.30	33.74	44.33
M	36.71	36.08	36.28	39.49	39.73	27.10	42.56	23.86

Results

Twenty-one patients above 60 years old, diagnosed with type 2 DM, HT or both, underwent LSG. There were 6 males (28.6%) and 15 females (71.4%). The mean age of the patients was 64.2 years (60-71). The mean BMI was 43.0 kg/m² (33.5-54.7). The mean follow-up time was 26.9 months (12-36). There were no serious complications among the analyzed group. Twelve patients were diagnosed with both type 2 DM and HT and 9 with HT only. Only 3 patients had not noticed any improvement in obesity complications for the time of follow-up, while the rest at least modified the doses of medications. In 9 cases, at least in one of the diseases the resolution was observed (Table 1). The mean BMI after 6 months was 34.4 kg/m², 12 months – 33.7 kg/m², 24 months – 35.3 kg/m² and 36 months – 34.9 kg/m², while the mean %EWL was 42.2%, 44.4%, 40.0% and 42.2%, respectively (Table 2).

Discussion

In this study we analyze improvement in obesity complications among patients above 60 years old. Most of operated patients at least change the dose of drugs they had used before the surgery. Nine of 13 (69.2%) patients diagnosed with type 2 DM discontinued taking medications, while 4 of 18 (22.2%) stopped using antihypertensive drugs. Only 3 patients had no improvement.

The biggest meta-analysis performed by Wang *et al.* showed similar results. This suggests that older age is not the factor that prevents resolution of obesity complications such as type 2 DM and HT [6]. Reduction in medications can improve the quality of life. Elderly people do not have to remember about the medications every morning, moreover some patients stop using insulin so they do not have to make injections a few times a day. Even a decrease in drugs taken is a goal for a successful surgery.

Although the mean %EWL reached by patients in the follow-up time is said to be poor according to different scales, most of the patients achieve at least good results [7]. The small sample group is the reason of down-averaging the outcome. The weight loss results suggest that the bariatric surgery is a good opportunity for the elderly [6,8].

In our study females had a higher weight loss results than males. The reason for that can be found in the pa-

tients' motivation to the surgery. Women usually associate the surgery with better appearance. They are more motivated to lose weight. These are our observations only; further psychological investigation is needed.

No serious complication was observed among the analyzed patients. It suggests that bariatric surgery and laparoscopy is a safe procedure for the elderly as it reported in previous studies [9].

Limitations of this study include the small sample size. The Polish guidelines for bariatric surgery recommended surgery for the patients aged 18-60 at the time of performing the analyzed LSG [10]. The results of the study may not be generalized to the overall population. However, our outcomes seem to match results of the previous studies, so the effect may also apply in the bigger population.

Conclusions

Laparoscopic sleeve gastrectomy is a valuable and safe method for elderly patients to improve obesity complications as well as reduce body mass. The outcomes of our study suggest that bariatric surgery may improve patients' quality of life.

Disclosure

The authors report no conflict of interest.

References

1. WHO. Obesity and overweight. Fact sheets, June 2016.
2. Smetana GW, Jones DB, Wee CC, et al. Should this patient have weight loss surgery?: grand rounds discussion from Beth Israel Deaconess Medical Center. *Ann Intern Med* 2017; 166: 808-817.
3. Greenberg JA. Obesity and early mortality in the United States. *Obesity* 2013; 21: 405-412.
4. WHO. Ageing and health. Fact sheets N°404, September 2015.
5. Wyleżoń M, Olszanecka-Glinianowicz M. Position of the Bariatric and Metabolic Surgery Section of the Polish Association for the Study on Obesity on the use of pharmacotherapy to support the treatment of obesity before and after surgery. *Nutrition, Obesity & Metabolic Surgery* 2017; 3: 1-7.
6. Wang Y, Yi X, Li Q. The effectiveness and safety of sleeve gastrectomy in the obese elderly patients: a systematic review and meta-analysis. *Obes Surg* 2016; 26: 3023-3030.
7. Oria HE, Moorehead MK. Bariatric analysis and Reporting Outcome System (BAROS). *Obes Surg* 1998; 8: 487-499.
8. Giordano S, Victorzon M. Bariatric surgery in elderly patients: a systematic review. *Clin Interv Aging* 2015; 10: 1627-1635.
9. Michalik M, Dowgiatto-Wnukiewicz N, Lech P, et al. Surgery of the elderly in emergency room mode. Is there a place for laparoscopy? *Videosurgery Miniinv* 2017; 12: 115-119.
10. Wyleżoń M, Paśnik K, Dąbrowicki S, et al. Polish recommendations for bariatric surgery. *Videosurgery Miniinv* 2009; 4: 5-8.