

Male sexual function after weight-loss surgeries in a group of Saudi population

Hossam S. El-Tholoth, Abdalattif K. Bedaiwi, Abdulrahman Binjawhar, Ahmed A. Almulhem, Khaled K. Bedaiwi, Haider Alshurafa¹, Tarek Alzahrani, Ruyof K. Alhussein, Abdulaziz K. Alhussein, Mussa Alnumi

Departments of Urology and ¹General Surgery, Prince Sultan Military Medical City, Riyadh, Saudi Arabia

Abstract

Introduction: Obesity is associated with erectile dysfunction in many studies. This study aims to inspect the impact of weight-loss surgery on the erectile function in the Saudi male population.

Patients and Methods: Forty-two consecutive male patients who underwent weight-loss surgery during a period from February 2013 to July 2016 were included in the study. Unmarried patients were excluded from the study. A designed questionnaire includes the short version of the International Index of Erectile Function (IIEF), usage of phosphodiesterase inhibitors, overall satisfaction before and after the intervention, marriage duration, and fertility postsurgery. All the participants were contacted through phone in July 2018, and then the questionnaire was mailed to them. All the data were analyzed and compared to a control group of married obese patients, who were waiting for the bariatric surgeries, using specific statistical tests.

Results: Thirty patients responded and completed the survey. Their mean age was 41.9 years (range 26–62), and the mean preoperative body mass index (BMI) was 46.3 ± 7.5 , with a significant reduction in the BMI postoperatively to a mean of 30 ± 5.5 . The IIEF score improved, and the overall satisfaction and feelings were better (76.7%). Only 16.7% of cases needed PDEI before and after the operation. Thirteen (43.3%) patients got children after the surgery. Univariate and multivariate analysis showed that age was a significant factor in association with both erectile function and fertility after bariatric surgeries ($P = 0.02$). Fertility was better in patients who underwent laparoscopic sleeve gastrectomy than gastric bypass surgery ($P = 0.01$).

Conclusion: The weight-loss surgeries have a significant effect on erectile function, and they improve patient sexual satisfaction. Most of these patients feel better sexual function after bariatric surgeries. Fertility outcome seems to have a positive correlation with this type of surgery. However, a larger sample size and more elaborate studies are warranted to substantiate this claim.

Keywords: Bariatric surgeries, erectile dysfunction, infertility, obesity, Saudi Arabia, weight-loss

Address for correspondence: Dr. Hossam S. El-Tholoth, Department of Urology, Prince Sultan Military Medical City, Riyadh, Saudi Arabia.

E-mail: urologist_hossam@yahoo.com

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INTRODUCTION

Obesity is a ubiquitous health problem associated with type 2 diabetes mellitus, hypertension, ischemic heart disease, and

dyslipidemia, and it is reported to be the fifth leading cause of mortality worldwide.^[1] In Saudi Arabia, nearly 75% of adults are overweight; this seems to be the highest world's

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rate and has been connected mainly to overeating habits and the sedentary lifestyle.^[2,3] Erectile dysfunction (ED) is defined as the inability to achieve and maintain an erection sufficient to permit satisfactory sexual intercourse. The main indication for bariatric surgery is morbidly obese patients (body mass index [BMI] more than 40) without comorbidity and for those with BMI 35 in addition to other comorbidities.^[4,5] Bariatric surgery is considered the most effective method of weight reduction with a progressive increase in its rate of performance. More than 300,000 bariatric operations are performed yearly in the USA.^[6] The most commonly performed weight-loss surgeries are laparoscopic sleeve surgery, Roux-en-Y gastric bypass, and laparoscopic adjustable gastric banding.^[7] Published reports suggest that bariatric surgery has a beneficial impact on the reduction of obesity-related conditions, such as hypertension and diabetes mellitus type 2.^[8] Researches have proved the impaired male sexual function in obese and overweight persons.^[1] This is contributed to central obesity, hormone disorders, diabetes, insulin resistance, and hypertension, and hence, they are more liable to suffer from ED.^[9,10] It may attribute to the lack of self-esteem, psychological, neurological, hormonal, and arterial or cavernosal impairment, or from a combination of these factors. Bariatric surgery is an efficacious management option for obese individuals.^[11,12] Nowadays, laparoscopic sleeve gastrectomy (LSG) and laparoscopic Roux-en-Y gastric bypass are the most frequent types of weight loss operations.^[13,14] The normalization of hormone levels and resolution of comorbidities, especially hypertension and diabetes, are the beneficial effects associated with weight-loss postbariatric surgeries.^[3] Most of the patients reduce their antihypertensive medications and diabetic drug use in the postoperative period.^[15] An improvement in quality of life is also noted.^[16] Hence, if metabolic abnormality and medical comorbidity are improved after surgery, is there a chance to improve or restore the potency after weight-loss surgery in obese patients with ED?

This study aims to evaluate male sexual function and quality of sexual life after weight-loss surgery in Saudi Arabia.

PATIENTS AND METHODS

Forty-two consecutive male patients who underwent weight losing surgery during a period from February 2013 to July 2016 were included in the study. Unmarried patients were excluded from the study. A questionnaire was designed including the short version of the International Index of Erectile Function (IIEF),^[17] usage of phosphodiesterase inhibitors (PDSI), and overall satisfaction before and after the intervention, marriage duration, and fertility

postsurgery. All participants were contacted through phone in July 2018, and then the questionnaires were mailed to them with a code number not including patient's names or medical number to safe the confidentiality and privacy of the data. All data were analyzed and compared to a control group of married obese patients, who were waiting for the bariatric surgeries, using specific statistical tests adopting SPSS package version 20 (SPSS Inc., Chicago, USA). Each question had five possible responses, to mark the number that suits the best to each subject. The participants were asked to select only one answer for each question.

1. How do you rate your confidence level, that you could keep an erection?
2. When you had erections with sexual stimulation, how often were your erections hard enough for penetration (entering your partner)?
3. During sexual intercourse, how often were you able to maintain your erection after you had penetrated (entered) your partner?
4. During sexual intercourse, how difficult was it to maintain your erection till completion of intercourse?
5. When you attempted sexual intercourse, how often was it satisfactory for you?

Classified them according the Sexual Health Inventory for Men (SHIM) scores:

- 22–25: No ED
- 17–21: Mild EDs
- 12–16: Mild-to-moderate EDs
- 8–11: Moderate ED
- 5–7: Severe ED.

We added questions about the overall feeling of improvement in sexual function in comparison to the preoperative period and the use of PDSI. Did they get children postbariatric surgery? In the control group, we asked about the use of PDSI and the duration of marriage. Did they have children postmarriage?

Statistical analysis: Basic characteristics were explicated in tables; means and standard deviations were conveyed for continuous variables and percentages for categorical variables. Student's *t*-test and Chi-square test were used to show the associations, where appropriate, with a significance threshold of 5%, using SPSS version 20.

RESULTS

Thirty patients responded to all the questions in the survey. Their mean age was 41.9 years (range 26–62), and

the mean preoperative BMI was 46.8, with a significant reduction postoperatively to a mean of 30.4. The IIEF score was improved, and the overall satisfactions were in better (76.7%). Only 16.7% needed PDEI before intercourse postoperative. Thirteen (43.3%) patients got children after the operation. Univariate and multivariate analysis showed that patient age was a significant factor in relation to the erectile function and fertility after bariatric surgeries ($P = 0.02$). Fertility was noted to be better in patients, who underwent LSG than gastric bypass surgery ($P = 0.01$). As shown in results Tables 1-3.

DISCUSSION

The expected improvement in erectile function was suggested, in view of the probable effects of bariatric surgeries on patient comorbidities such as diabetes and hypertension, which have a clear association between them and ED. Besides, the adverse effect of antihypertensive treatment can also cause disturbances in erectile function.^[2] This effect needs to be clarified. Our study evaluated the male sexual function and fertility after weight-loss surgery. Despite the high prevalence of ED and fertility problems in obese patients, the improvement in the erectile function after weight loss has not been explored sufficiently.^[18] Hence, the effect of weight-loss surgeries needs to be reviewed in the perspective and should not be ignored. It is an important issue while counseling the patients regarding these bariatric surgeries. Efthymiou *et al.* evaluated the erectile function for thirty male patients using IIEF in four occasions: preoperative, 1 month, 6 months, and 1 year postsurgery, which showed significant improvement in erectile function, libido, and total satisfaction within 1 year postsurgery.^[19] In a comparative study where the sexual function was reviewed using IIEF presented to 24 men who

underwent bariatric surgery, 14 lean controls revealed no difference between the two groups. However, the ED and overall satisfaction were better than those in the 14 obese controls. However, when the postsurgery patients were compared with that of the lean controls, it was still lower.^[20] In this survey also, it has been found that 11 patients of the postsurgeries group still have a mild degree of ED, and two patients have a mild-to-moderate ED, despite 90% reported postsurgical improvement in the erectile function but may be still have some ED. The published papers showed a significant improvement in erectile function and sexual quality of life in obese patients, who were managed by gastric bypass surgeries when compared to an obese group that was managed by lifestyle modification for 4 months.^[21,22] Mora *et al.* reported the results of 39 men who underwent bariatric surgery, in which the sexual function was evaluated preoperative and 1 year after surgery, and it indicated a significant improvement in erectile function and overall satisfaction scores.^[23] This is coping with our study, however our follow-up duration is longer. In our study, we observed 23 patients who were better in their erectile function after surgeries. When we looked for those who were not improved, some of them were still overweight even after surgery, and some of the patients may have erectile function problem before surgeries which was not reported in preoperative evaluation. Better erectile function (SHIM) score in the postoperative group indicates a better sexual quality of life in patients who underwent bariatric surgery. The improvement in erectile function in the postoperative group was similar to observations made by others.^[19-24] Our study showed the same findings of Jank *et al.*^[25] that IIEF scores were not dependent on the type of surgery. Both procedures have no statistical difference in terms of ED prevalence. Furthermore, they did not notice a relationship between the comorbidities, hometown population or smoking status, and the risk of ED.^[25] The passive effect of obesity on male fertility is gradually established. According to the clinical investigations and animal experiments, obesity is associated with reductions in sperm concentration and motility, an increase in sperm DNA damage, and alternation in reproductive hormone levels. Several mechanisms can illustrate the adverse effects

Table 1: Sociodemographic characteristics of patients

Patients' characteristics	Control group (n=31)	Postoperative group (n=30)	P
Age (years)	38.7±9.4	41.9±9.1	0.21
BMI (kg/m ²)	43.6±6.3	30.4±5.5	<0.0001
Marital status-married (%)	100	100	-

BMI: Body mass index

Table 2: Grades of erectile dysfunction

Grades of ED, n (%)	Control group (n=31), n (%)	Postoperative group (n=30), n (%)	P
Severe ED	0	0	
Moderate dysfunction	3 (9.7)	0	0.08
Mild-to-moderate dysfunction	9 (29)	2 (6.7)	0.02
Mild dysfunction	17 (54.8)	11 (36.7)	0.15
No dysfunction	2 (6.5)	17 (56.7)	<0.0001
Use of PDSI	5 (16.1)	3 (10)	0.48
Fertility	20 (64.5)	13 (43.3)	0.09

PDSI: Phosphodiesterase inhibitors, ED: Erectile dysfunction

Table 3: Grades of erectile dysfunction and fertility adjusted for the type of surgery

Grades	LSG (n=17), n (%)	LRYGB (n=13), n (%)	P
Severe ED	0	0	
Moderate dysfunction	0	0	
Mild-to-moderate dysfunction	0	2 (15.4)	0.09
Mild dysfunction	6 (35.3)	5 (38.5)	0.85
No dysfunction	11 (64.7)	6 (46.2)	0.31
Use of PDSI	2 (11.8)	1 (7.7)	0.71
Fertility postsurgery	10 (58.8)	2 (15.4)	0.01

PDSI: Phosphodiesterase inhibitors, LSG: Laparoscopic sleeve gastrectomy, LRYGB: Laparoscopic Roux-en-Y gastric bypass, ED: Erectile dysfunction

of obesity on sperm functions and male subfertility.^[26] From this survey, delayed fertility has been noticed in the obese patient, and it was related to the patient age and the duration of the marriage. There is also a relation between the age and the postoperative fertility; this may recommend an early management of the obesity problem to help in infertility or delayed fertility in obese patients. Moreover, there is an observation that fertility postoperative in our survey significantly higher in the arm of the laparoscopic gastric sleeve than laparoscopic gastric bypass. This finding to the best of our knowledge was not mentioned before and invites more studies to evaluate the fertility issue after the weight-loss surgeries. Obesity is associated with a higher risk of ED and poor sexual quality of life. The low prevalence of high grade of ED observed in the postoperative group reflects the improvement in male sexual function after bariatric surgery. During patient counseling, sexual function improvement should be considered as an additional advantage of surgical weight loss, besides its influence on comorbidities. The study limitations include lower sample size, lack of correlation between the comorbidities and smoking status to the erectile function, and the infertility problems. The quality of life postsurgery had not been assessed in our survey, which may be expected to improve after surgeries. The short version of the IIEF questionnaire was used to assess the men’s sexual life and erectile function. It is better to be evaluated by nocturnal penile tumescence. The fertility issue can be better evaluated by semen analysis before and after surgeries, and it is in progress in our medical center.

CONCLUSION

The weight-loss surgeries have a significant effect on erectile function, and they improve patient sexual satisfaction. Most of these patients feel better sexual function after bariatric surgeries. Fertility seems to have a positive outcome in relationship to this type of surgery. However, a larger sample size and further studies are needed to prove this concept.

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Conflicts of interest

There are no conflicts of interest.

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