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IMPACT OF NEW COMORBIDITIES ON THE QUALITY OF LIFE OF OBESE POST-BARIATRIC SURGERY

IMPACTO DE NOVAS COMORBIDADES NA QUALIDADE DE VIDA DE OBESOS PÓS-CIRURGIA BARIÁTRICA

IMPACTO DE NUEVAS COMORBILIDADES EN LA CALIDAD DE VIDA DE OBESOS POST-CIRUGÍA BARIÁTRICA

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RESUMO

Objetivo: analisar a influência das complicações na qualidade de vida de obesos submetidos à cirurgia bariátrica. **Método:** estudo longitudinal, prospectivo e analítico sobre pacientes obesos, de ambos os gêneros e maiores de 18 anos, em pós-operatório tardio de cirurgia bariátrica. Foram coletados dados demográficos, epidemiológicos e antropométricos. Houve a aplicação de questionário "Impacto do peso sobre a qualidade de vida" para avaliar a qualidade de vida e as complicações observadas no pós-operatório tardio, que foram classificadas em operatórias ou clínicas, de acordo com a classificação listada no protocolo "*Bariatric Analysis and Reporting Outcome System*-BAROS". Os dados de caracterização da amostra foram analisados por estatística descritiva, obtendo-se médias e desvio-padrão para cada variável. Os testes Qui-quadrado e Exato de Fisher foram utilizados para a análise das variáveis discretas. Para as variáveis contínuas, que não apresentaram distribuição normal, foi utilizado o teste de Mann-Whitney e teste t de Student, para as amostras pareadas, para a análise das variáveis contínuas com distribuição normal. **Resultados:** a amostra foi constituída por 50 indivíduos (masculinos, 5% e femininos, 95%), com média de idade 40,6±9,5 anos. As complicações clínicas e cirúrgicas observadas no pós-operatório atingiram 80% dos pacientes. **Conclusão:** a perda de peso por meio da gastroplastia determina a melhora das comorbidades metabólicas, mas as complicações podem influenciar negativamente a qualidade de vida no domínio da "percepção da saúde".

Descritores: Cirurgia Bariátrica; Comorbidade; Obesidade; Qualidade de Vida.

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ABSTRACT

Objective: to analyze the influence of complications on the quality of life of obese patients submitted to bariatric surgery. **Method:** longitudinal, prospective and analytical study of obese patients of both genders and over 18 years of age in the late postoperative period of bariatric surgery. Demographic, epidemiological and anthropometric data was collected. The questionnaire "Impact of weight on quality of life" was used to evaluate the quality of life and the complications observed in the late postoperative period that were classified as operative or clinical according to the classification listed in the Bariatric Analysis and Reporting Outcome System- BAROS. The characterization data of the sample was analyzed by descriptive statistics, obtaining means and standard deviation for each variable. Chi-square and Fisher's exact tests were used for the analysis of discrete variables. For the continuous variables that did not present normal distribution, the Mann-Whitney test and the Student t test were used for paired samples for the analysis of continuous variables with normal distribution. **Results:** the sample consisted of 50 individuals (male, 5%, and female, 95%), with mean age 40.6 ± 9.5 years. The clinical and surgical complications observed in the postoperative period reached 80% of the patients. **Conclusion:** weight loss through gastroplasty determines the improvement of metabolic comorbidities, but complications can negatively influence the quality of life in the field of "health perception".

Descriptors: Bariatric Surgery; Comorbidity; Obesity; Quality of life.

RESUMEN

Objetivo: analizar la influencia de las complicaciones en la calidad de vida de los obesos sometidos a la cirugía bariátrica. **Método:** estudio longitudinal, prospectivo y analítico sobre pacientes obesos, de ambos géneros y mayores de 18 años, en postoperatorio tardío de cirugía bariátrica. Se recolectaron datos demográficos, epidemiológicos y antropométricos. Se empleó el cuestionario "Impacto del peso sobre la calidad de vida" para evaluar la calidad de vida y las complicaciones observadas en el postoperatorio tardío que se clasificaron en operatorias o clínicas de acuerdo con la clasificación enumerada en el protocolo *"Bariatric Analysis and Reporting Outcome System- BAROS "*. Los datos de caracterización de la muestra fueron analizados por estadística descriptiva, obteniéndose medias y desviación estándar para cada variable. Las pruebas Chi-cuadrado y Exacto de Fisher se utilizaron para el análisis de las variables discretas. Para las variables continuadas que no presentaron distribución normal, se utilizaron las pruebas de Mann-Whitney y la prueba t de *Student* para muestras pareadas para el análisis de las variables continuadas con distribución normal. **Resultados:** la muestra fue constituida por 50 individuos (masculino, 5% y femenino, 95%), con media de edad 40,6 ± 9,5 años. Las complicaciones clínicas y quirúrgicas observadas en el postoperatorio alcanzaron el 80% de los pacientes. **Conclusión:** la pérdida de peso a través de la gastroplastia determina la mejora de las comorbilidades metabólicas, pero las complicaciones pueden influenciar negativamente la calidad de vida en el dominio de la "percepción de la salud".

Descriptores: Cirugía Bariátrica; Comorbilidad; Obesidad; Calidad de Vida.

INTRODUCTION

Obesity is a global public health problem and can be defined as the degree of storage of fat in the body associated with health risks due to its relationship

with various metabolic complications.[1] In Brazil, over 52.5% of the population (above 18 years) is above ideal weight, of these, 17.9% are obese.[2]

Bariatric surgery is currently the most effective option for the treatment of severe obesity and its comorbidities. In Brazil, since 1999 this procedure was included in the table of the Hospital Information System of the Unified Health System (HIS / UHS).[3]

In the study performed at the University Hospital of the Federal University of Alagoas, using the gastric bypass technique, the positive impact of bariatric surgery on weight reduction, body mass index (BMI), abdominal circumference (AC) and frequency of cardiovascular risk after six months and remaining after one year of the procedure.[4]

However, despite the benefits offered by bariatric surgery, there is a risk of complications and mortality.[5] The appearance of surgical complications and / or new comorbidities may compromise quality of life in this group.

Considering the negative impact of obesity on health, the annual increase in the number of gastroplasty performed, its possible complications and the importance of a better long-term follow-up of obese patients submitted to gastroplasty, this study aims to evaluate the frequency of complications after bariatric surgery and their impact on the quality of life of these patients.

METHOD

It is a longitudinal, prospective and analytical study. Sampling was performed for convenience with patients in the late postoperative period between two and four years of bariatric surgery.

Inclusion criteria were: patients submitted to gastroplasty, both sexes, older than 18 years, with follow-up in the outpatient clinic of Cardiology of a University Hospital. Who did not present inclusion criteria was excluded from the sample.

All patients underwent the same type of surgery through the conventional gastric bypass technique performed by the bariatric surgery team of the hospital and submitted to the same research protocol that was divided into four stages.

The first step was to analyze the general database of the research line of "Cardiology evaluation in obese patients with indication of gastroplasty", from the Cardiology Department of the University Hospital, to identify the patients

that included the inclusion criteria. During outpatient care, patients were invited to participate in the study and signed the Free Informed Consent Term (FICT).

In the second stage, the database was used to collect information on the preoperative period of each patient, to identify the demographic data (gender, age, schooling and marital status), epidemiological (comorbidities and quality of life) and anthropometric data (Body Mass Index - BMI, weight, height, Abdominal Circumference - AC).

In the third stage, the analysis of charts for structuring the new database was performed, with intraoperative and postoperative information from the studied group. Epidemiological and anthropometric data was collected.

In the fourth stage, the questionnaire on quality of life and current anthropometric data collection, biochemical measurements, current use of medications (to characterize the presence of comorbidities) and submission to new surgical procedures.

In the measurement of weight and height was used the mechanical balance of the company WELMY and national origin. The patient was instructed to remove shoes and clothing before performing weight measurements. The abdominal circumference (AC) was the largest abdominal perimeter between the last rib and the iliac crest, as recommended by the World Health Organization (WHO). From the weight and height, the BMI (body weight in kilograms per square of height in meters) was calculated for each patient and their classification for obesity grade I was used (BMI = 30.0 to 34.9kg / m^2), II (BMI = 35.0 to 39.9 kg / m^2) and III (BMI> 40 kg / m^2).[6]

For the diagnosis of comorbidities, the parameters included in the I Brazilian Guideline for the Diagnosis and Treatment of Metabolic Syndrome.[7]

The complications observed in the late postoperative period of bariatric surgery were classified as operative or clinical according to the classification listed in the Bariatric Analysis and Reporting Outcome System (BAROS).[8]

The instrument used to evaluate the quality of life in the pre- and postoperative period was the questionnaire "Impact on Weight on Quality of Life-Lite (IWQOL-Lite)", which is a questionnaire with 31 items on quality of life related to (physical function, self-esteem, sexual life, public embarrassment and work), with scores for all items and total score from zero to 100. The lower score indicates a greater impairment of quality of life.[9]

The characterization data of the sample were analyzed by descriptive statistics, obtaining mean and standard deviations. Student's t-test was used for paired samples of continuous variables with normal distribution and Chi-square test or Fisher's exact test for analysis of discrete variables. For the continuous variables that did not present normal distribution, the Mann-Whitney test was used. The significance level adopted was 5% and all analyzes were performed using the software BioEstat, version 5.3.

All individuals signed the Free and Informed Consent Term (FICT). The research was approved by the Research Ethics Committee of UFAL, under the number of the CAAE: 42 778914.3.0000.5013.

RESULTS

From 2004 to 2015, a total of 268 obese patients were referred to the cardiology outpatient clinic, with an indication for gastroplasty for preoperative cardiac evaluation. Of these, 50 were between two and four years of late postoperative period (2011-2013). The sample consisted of two male patients (5%) and 48 female patients (95%), aged between 23 and 61 years, mean of 40.66 (± 9.47), with a higher educational level of eight years of study (64%).

Using the classification of obesity through BMI, it was observed that in the preoperative period 98% of the patients presented obesity III and in the late postoperative period only 8% of the patients continued in this group, and there was statistical significance in this change in the anthropometric profile (Table 1).

Table 1. Degree of obesity determined by Body Mass Index (BMI) in the preoperative and postoperative periods of bariatric surgery.

BMI (kg/m^2)	Classification	Preoperative N (%)	Postoperative N (%)	P
Lower than 25	Normal	0 (0.0)	2(4.0)	0.2057**
25|—29.9	Overweight	0 (0.0)	8(16.0)	0.0023* [i]
30 |— 34.9	Obesity I	0 (0.0)	29(58.0)	<0.0001* [i]
35 |— 39.9	Obesity II	1(2.0)	7(14.0)	0.0103* [i]
Higher than 40	Obesity III	49(98.0)	4(8.0)	<0.0001* [i]

The main comorbidities present in the preoperative period were maintained after bariatric surgery, but at a lower frequency, with a statistically significant decrease in these frequencies, as shown in table 2.

Chi-square test * was used; Fisher's exact **; ɨ refers to the statistically significant difference (p <0.05)

Table 2. Frequency of comorbidities in the preoperative and late postoperative periods of bariatric surgery.

Variables	Preoperative N (%)	Postoperative N (%)	P
DM	11(22.0)	5(10.0)	0.1714**
Dyslipidemias	19(38.0)	3 (6.0)	0.0003* ɨ
SAH	35(70.0)	18(36.0)	0.0028* ɨ
MS	37(74.0)	13(26.0)	<0.0001*ɨ
No comorbidities	6(12.0)	21(42.0)	0.0016* ɨ

SAH: Systemic Arterial Hypertension; DM: Diabetes Mellitus; MS: Metabolic Syndrome. Chi-square test *; Fisher's exact test **; ɨ refers to the statistically significant difference (p <0.05)

The complications and new comorbidities observed in the late postoperative period of bariatric surgery occurred in 40 patients (80%) and only ten patients (20%) did not present. The new comorbidities were classified into operative complications and clinical complications. The main operative complications were incisional hernia (36%) and cholelithiasis (28%); the clinical complications were vomiting (42%) and hair loss (20%). The distribution of these complications is presented in table 3.

Table 3. Absolute and relative frequency of complications and new comorbidities in the late postoperative period of bariatric surgery.

Variable	N	(%)
Operative Complications		
Incisional hérnia	18	36
Cholelithiasis	14	28
Suture dehiscence	1	2
Bowel obstruction	2	4
Gastrogastric fistula	1	2
Anastomosis Stenosis	1	2
Reflux esophagitis	1	2
Clinical Complications		
Pneumonia	1	2
Severe depression	2	4
Vomiting	21	42
Hair loss	10	20
Anemia	2	4

Table 4 shows the means and standard deviation of the score for each domain of the questionnaire of the group of patients evaluated comparing the pre and postoperative period.

Table 4. Mean values and standard deviation of each domain, referring to the quality of life (IWQOL-Life) of patients in the pre and postoperative period of bariatric surgery.

Domain	Preoperative M DP	Postoperative M DP	P
Physical Function	24,36 ± 23,09	90,32 ± 7,98	<0,001 ǂ
Self esteem	35,71 ± 32,14	94,50 ± 9,66	<0,001 ǂ
Sexual Life	50,38 ± 41,94	92,88 ± 19,89	<0,001 ǂ
Embarrassment in public	22,50 ± 27,96	97,70 ± 6,56	<0,001 ǂ
Job	40,00 ± 35,47	98,50 ± 4,65	<0,001 ǂ

Mann-Whitney test; ǂ refers to the statistically significant difference ($p < 0.05$)

In table 5, the mean and standard deviation of the score can be observed, comparing patients who presented complications (operative and clinical) and those who did not, and there was a statistically significant difference in the physical function domain ($p < 0.003$).

Table 5. Mean values and standard deviation of each domain, referring to the quality of life (IWQOL-Life) of patients with and without complications in the late postoperative period of bariatric surgery.

Domain	With complications M DP	Without complications M DP	P
Physical Function	88.40± 8.39	94.88±4.65	0.003**ǂ
Self esteem	93.65 ±10.39	96.42±7.61	0.199*
Sexual Life	92.28± 21.76	94.27±12.90	0.383*
Embarrassment in public	97.37± 7.41	98.75±2.26	0.472**
Job	98.10± 5.29	99.47±1.80	0.324**

Student's t-test was used for variables that presented normal distribution and Mann-Whitney ** for those who did not present; ǂ refers to the statistically significant difference ($p < 0.05$)

DISCUSSION

In this study, the majority of patients undergoing bariatric surgery were females, a characteristic also evidenced in other studies, because there is a greater motivation of obese women than obese men to lose weight, as a consequence of social pressures regarding aesthetics.[10-1]

High educational level is also a determining factor for the search for treatment, since it contributes to the persistence and choice of strategies to achieve therapeutic alternatives to maintain weight, but also provides a better understanding of the information provided during consultations and educational interventions.[12]

Bariatric surgery is considered successful if there is a loss of at least 50% of the excess weight at the time of the operation and if the individual has BMI outside of the obesity classification III.[13] A significant reduction in mean body weight from 121 kg to 83 kg was observed, while the mean BMI increased from 48 kg / m^2 to 33 kg / m^2, which represented a statistically significant transition in the classification of obesity III of 98 % of patients in the preoperative period to only 4% in the postoperative period.

In relation to the comorbidities (Systemic Arterial Hypertension, Diabetes Melitus, Dyslipidemia, Metabolic Syndrome), a significant reduction in its frequency was evidenced, reflecting a significant improvement in the clinical health of the operated individuals. In the Swedish Obese Subjects (SOS) study, a cohort of 14 years of follow-up, it was shown that bariatric surgery was associated with a reduction in the number of deaths due to cardiovascular diseases and a lower incidence of cardiovascular events in obese adults.[14]

Despite the undoubted improvement of metabolic comorbidities in the postoperative period of bariatric surgery, there is a concern about the possibility of early and late complications, and there is a variation in the incidence rates of these complications in the different studies. The immediate complications occurred in 9.6% of patients postoperatively, reported a complication rate of 17% and a reoperation rate of 7%, with gastric bypass being the most effective in weight loss, although more associated with complications.[10-15]

Most patients developed complications (operative and / or clinical), representing 80% of the sample, this may be related to some factors such as the type of pathway used (laparotomy) or the difficulty in making an early diagnosis of complications, weight still present or the difficulty of carrying out imaging tests in the scenario of the Unified Health System.

The main operative complication found was incisional hernia (36%), which is common in abdominal surgeries and especially after open bariatric surgery. Other studies have reported lower rates of this complication, which may be

explained by the increasing use of minimally invasive techniques that decrease the incidence of this complication.[16-8]

Cholelithiasis occurred in 28% of the patients in the study, a higher rate when compared to other studies performed in the country, with rates of 12.1% and 15.3%, but also show that cholelithiasis is a complication prevalent in post-operative of bariatric surgery and that also needs, like the incisional hernia, a new hospital management.[19-20]

The most frequent clinical complications were vomiting (42%) and hair loss (20%).[21] that qualitatively assessed the surgical and clinical complications of patients after surgery, using the formal system of classification of the BAROS protocol and detected changes related to food intake, such as nausea, vomiting and hair loss in the group that used the gastric bypass technique, among the postoperative clinical manifestations. These data demonstrate that postoperative complications are frequent, requiring professionals to be prepared to make early diagnosis and treatment.

Before the surgery and because of the excess weight, the individuals showed a seriously impaired quality of life in all domains evaluated (physical function, self-esteem, social relations, professional relationships and sexual life) after bariatric surgery, there was a significant change in the quality of life assessment score in all domains, with the perception of those assessed for a better quality of life. This ratifies the importance of bariatric surgery as an effective procedure for the treatment of obesity, since it determines important weight reduction and improves comorbidities, generating, as a consequence, a perception of improvement in the quality of life in all domains evaluated.

This study corroborates that compared the impact of weight loss and recovery of lost weight on the quality of life of the obese, using the IWQOL-Lite at three-month intervals.[12] These authors observed that quality of life improved, in the same proportion, for each unit of lost weight and deteriorated for each unit of weight recovered.

Stated that bariatric surgery proves to be an effective procedure in the treatment of morbid obesity and in the control of comorbidities and that quality of life was positively evaluated in 93.2% of the patients through the BAROS protocol.[18]

Using the BAROS protocol for their evaluation, found that 79% of patients in the late postoperative period of bariatric surgery affirmed a significant

improvement in quality of life after surgery.[12] Despite the improvement in quality of life when individuals were compared in the preoperative and postoperative periods, when the postoperative group analyzed the patients who developed some complication (clinical and / or surgical) in relation to those who did not present them, it is observed that the perception of improvement in the quality remains in all domains, except in that of the physical function. This domain allows the patient to evaluate their quality of life regarding the perception of their own health, which in this case is compromised by the occurrence of new situations that require clinical and / or surgical treatment.

When weight loss stabilizes, but digestive symptoms persist and new operations due to complications are necessary, these situations are viewed as new comorbidities, thus determining a negative impact on quality of life that has substantially improved with weight loss.

CONCLUSION

The results demonstrate that the treatment of obesity is not concluded when the maximum weight loss is obtained, considering that the occurrence of new conditions that require clinical and surgical interventions compromise the patient's health and perception of health. Thus, preoperative planning, with the choice of techniques that reduce the occurrence of early and / or late complications, is mandatory in programs that treat severe obese patients and prepare them for gastroplasty. It is necessary to incorporate in the management of these patients the understanding of the importance of their multidimensional evaluation, very evident in their perception about their quality of life that with the loss of weight improves considerably in all domains, but is compromised in the perception of "feel healthy," when weight loss is accompanied by new diseases.

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