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Profile of patients submitted to gastroplasty in the university hospital of Maringá - Paraná State during 2008-2009

Kazuyuki Hashimoto* **and Mirian Hideco Takahashi**

*Departamento de Medicina, Universidade Estadual de Maringá, Av. Mandacaru, 1590, 87080-000, Maringá, Paraná, Brazil. *Author for correspondence. E-mail: kazuhashimoto@irapida.com.br*

ABSTRACT. This study evaluated the profile of patients submitted to gastroplasty in the University Hospital of Maringá during 2008-2009. Clinical charts were analyzed to obtain clinical and laboratory data of all patients with morbid obesity submitted to gastroplasty. During the study period, 28 surgeries were performed, 57% of the patients lived in Maringá, 82% female, 40 years average age, with mean body mass index (BMI) of 46.7kg m^{-2}. It was verified that 39% of the patients maintained an usual non-hypocaloric diet, 25% had quoted dietary reeducation, 36% were sedentary, and 29% practiced some physical activity, and remaining 1/3 of patients presented no data about lifestyle. Regarding associated pathologies, 79% were hypertensive, and 71% of patients presented fasting glucose above 100 mg dL^{-1}, but only 12 of them had diagnosis of Type 2 diabetes mellitus. The hospital stay length was 4 days for 89% of the patients, and 11% had surgery complications. In this group of subjects, there was a clear preponderance of females and high prevalence of other pathologies. Identifying the profile of obese patients contributes to more effective decision-making and emphasizes the crucial role of multidisciplinary approach to health promotion and prevention of early and late complications of morbid obesity and gastroplasty.

Keywords: morbid obesity, metabolic syndrome, bariatric surgery.

Perfil dos pacientes obesos submetidos à gastroplastia no hospital universitário de Maringá – Estado do Paraná, 2008- 2009

RESUMO. Conhecer o perfil dos pacientes submetidos à gastroplastia no Hospital Universitário de Maringá no período de 2008-2009. Foram analisados os prontuários verificando os dados clínicos e laboratoriais de todos os pacientes com obesidade mórbida submetidos à gastroplastia neste período. Foram realizadas 28 cirurgias, 57% dos pacientes eram residentes no município de Maringá, 82% eram do sexo feminino, a idade média foi de 40 anos e a média do índice de massa corporal foi de 46,7 kg m^{-2}. Observou-se que 39% dos pacientes mantinham dieta habitual e não hipocalórica, 25% citaram re-educação alimentar, 29% realizavam atividade física e 36% eram sedentários, os demais pacientes não apresentavam estes dados. Em relação às doenças associadas, 79% eram hipertensos e 71% pacientes apresentavam glicemia de jejum maior que 100 mg dL^{-1}, mas somente 12 deles referiam diagnóstico de diabetes *mellitus* do Tipo 2. Em 89% dos pacientes, o período de internação foi de quatro dias e 11% tiveram complicações após a cirurgia. Nos pacientes com obesidade mórbida submetidos à gastroplastia, houve predomínio do sexo feminino e alta prevalência de comorbidades. Identificar o perfil destes pacientes contribui para a tomada de decisões e reforça a importância da equipe multidisciplinar na promoção à saúde e prevenção de complicações imediatas e tardias da obesidade mórbida e gastroplastia.

Palavras-chave: obesidade mórbida, síndrome metabólica, cirurgia bariátrica.

Introduction

The alarming increase of obesity poses a major challenge for Public Health in Brazil and worldwide for its chronic nature and especially by association with other diseases like type 2 diabetes mellitus, hypertension and cardiovascular disease. It has been considered a pandemic with an upward trend in both men and women, exposing these individuals to greater risk of illness and death.

The increased prevalence of obesity and comorbidities has led public health authorities to establish and implement programs of prevention and health promotion.

In Brazil, from 1974 remarkable changes have taken place in nutrition field, with epidemic rising of overweight and obesity in adults. In opposite direction to the marked decrease of children malnutrition, the obesity in adult men almost tripled between mid-70's and early 2000, increasing over 50% in women (BATISTA FILHO et al., 2008). According to World Health Organization (WHO, 2010) in Brazil the estimate prevalence of overweight and obesity (BMI ≥

25 kg m^{-2}) for men over 15 years is 54% and for women, 60.3%.

In Consumer Expenditure Survey (IBGE, 2010), the excess of weight for men was 50.1%, and for women, 48%. As for obesity, the prevalence was 12.4% for men, and 16.9% for women (IBGE, 2010).

The most used method to measure obesity and estimate the magnitude of risk is the Body Mass Index (BMI), the ratio of weight in kilograms divided by height squared. The BMI from 25 to 29.9 kg m^{-2}, considered pre-obesity, has moderate risk, the BMI from 30 to 34.9 kg m^{-2}, obesity level I, has high risk, the BMI from 35 to 39.9 kg m^{-2}, obesity level II, has very high risk, and BMI greater than 40 kg m^{-2} has extreme risk (CLAO, 1998).

Visceral fat has metabolic characteristics different from gluteal-femoral subcutaneous fat. Several studies reveal the close relationship between abdominal adiposity and impaired glucose tolerance, insulin resistance and hyperinsulinemia, hypertriglyceridemia, and hypertension, with increased risk of cardiovascular death by around 2.5-fold (RIBEIRO FILHO et al., 2006; LAKKA, 2002).

The criteria of the I Brazilian Guideline for Diagnosis and Treatment of Metabolic Syndrome (MS) follow those defined by the National Cholesterol Education Program (NCEP) and are shown in Table 1. For diagnosis, are necessary three of the five clinical characteristics.

Table 1. Criteria NCEP-ATPIII used for diagnosis of metabolic syndrome.

	Criteria NCEP-ATPIII *
Blood pressure (BP)	Systolic BP > 130 mmHg and/or diastolic BP > 85 mmHg or under pharmacological treatment
Fasting triglyceride levels	> 150 mg dL^{-1} or under pharmacological treatment
HDL cholesterol levels	< 40 mg dL^{-1} for men < 50 mg dL^{-1} for women
Waist circumference	> 102 cm for men > 88 cm for women
Fasting glucose	> 100 mg dL^{-1} or under pharmacological treatment

*NCEP-ATPIII - National Cholesterol Education Program's Adult Treatment Panel III.

The reduction of weight with dietary adjustment associated with a program of physical exercises is the basis of treatment for metabolic syndrome, which however are measures of low adherence by the patient. Thus, it is essential the joint work of multidisciplinary staffs of health, such as doctor, nutritionist, physical education teacher, nurse, psychologist, social worker and pharmacist (BRANDÃO et al*.,* 2005).

The obesity is considered as a chronic disease, usually of genetic character and intensified by inadequate lifestyle. Frequently, the treatment with modifications in lifestyle has low effectiveness; the drugs available in Brazil have very limited effect and in severe cases, there is indication of surgical treatment. Although it is a minority of obesity cases (< 10% of total), the group with morbid obesity (BMI > 40 kg m^{-2}) is the fastest growing in Western world (TINOCO et al., 2002).

The indications preconized to perform a bariatric surgery, adopted by Health Ministry, for adults between 18 and 65 years are: BMI ≥ 40 kg m^{-2}, adults with BMI ≥ 35 kg m^{-2} with one or more associated comorbidities, resistance to conservative treatments conducted regularly for at least two years with multidisciplinary team (diet, psychotherapy, pharmacological treatment and physical activity), motivation, acceptance, knowledge about the risks of surgery and absence of contraindications (ABESO, 2009).

The contraindications for bariatric surgery determined by the World Health Organization, based on consensus, physiological studies or animal models are: treatable endocrine causes of obesity, dependence on alcohol or illicit drugs, severe psychiatric disorders, without control, surgical and anesthetic risk classified as ASA-IV, patients with difficult to understand risks, benefits, expected results, alternative treatments, and changes in lifestyle required by bariatric surgery.

The Fobi-Capella technique, a vertical gastroplasty with Roux-en-Y gastrojejunal bypass, has been one of the most used (CAPELLA et al*.,* 1991). The success and effectiveness of bariatric surgery are defined by a BMI < 35 kg m^{-2} or by a loss greater than 50% of preoperative overweight. The mortality of Roux-en-Y gastric bypass ranges from 0.5 and 1.5%, and the complications after surgery are approximately 10% (BRANDÃO et al., 2005).

The University Hospital of Maringá is a reference center in bariatric surgery registered in the Brazilian Unified Health System (BRASIL, 2001), and in February 27th, 2007, 344 patients were awaiting a bariatric surgery in this service (BRASIL, 2008a).

Given the above, this study evaluated the clinical and laboratory characteristics of patients with morbid obesity submitted to gastroplasty in the University Hospital of Maringá.

Material and methods

The study population consisted of patients with morbid obesity that underwent gastroplasty in the period between January 2008 and December 2009, at University Hospital of Maringá.

For developing this study, the project was approved by the Research Ethics Committee of the State University of Maringá.

The study design was cross-sectional, with analysis of medical records verifying the clinical and laboratory data of all patients with morbid obesity submitted to gastroplasty. The analysis of the medical records for data collection was performed by the researcher.

The variables examined were: age, gender, blood pressure, laboratory tests, BMI, associated diseases, waist circumference, and lifestyle.

Results

During the period between January 2008 and December 2009, 28 bariatric surgeries were conducted in morbidly obese patients in University Hospital of Maringá.

Regarding their origin, 16 patients resided in the municipality of Maringá (57%), and the other patients lived in several municipalities of Paraná State.

In relation to the gender, 23 patients were female (82%) and five, male (18%). The age ranged from 22 to 61 years, with an average of 40 years and median of 39 years.

BMI higher than 40 kg m^{-2} was observed in 26 patients (93%), and BMI between 35 and 39.9 kg m^{-2} were described for two patients (7%). The average BMI was 46.7 and median was 46.3. In the examined records, there were no measures of waist circumference of the patients.

It was described 27 records (96%) whose patients were obese for several years, only one record does not have this information. Concerning treatment attempts, 24 patients (86%) reported that made several attempts to treat their obesity, two did only diet, and two records have no information about it.

Considering the diet, 11 patients (39%) kept regular diet without caloric restriction, seven patients (25%) referred dietary reeducation, four patients (14%) do not consume fruit, vegetable or sweet, one patient (4%) mentioned that eat late at night, one patient (4%) reduced the intake of fries and sweet, four records did not mention the diet of the patients.

Only eight patients (29%) performed physical activities, ten patients (36%) were sedentary; the other records did not describe whether the patient performed or not physical activities.

Twenty-five patients (89%) had no severe psychiatric disorders, and three records did not mention whether the patient had or not psychiatric disorders.

In this study, 22 patients (79%) were hypertensive, confirmed by systolic BP > 130 mmHg and/or diastolic BP > 85 mmHg or under pharmacological treatment.

Although the diagnosis of type 2 diabetes had been made for only 12 patients (43%), other eight patients had fasting glucose above 100 mg dL^{-1}, considered high, without confirmation if they were diabetic or only intolerant to glucose. All the other patients had glucose level < 100 mg dL^{-1}.

Only 13 medical records described results of lipid profile and among them seven had fasting triglyceride level > 150 mg dL^{-1}. Five female patients presented HDL cholesterol < 50 mg dL^{-1}, but no male patient had HDL cholesterol < 40 mg dL^{-1}, and these patients were not taking any medication for dyslipidemia.

The sequence of surgeries for 2008 and 2009 was conducted according to the number in the waiting queue listed in Table 2.

Relative to the length of hospital stay, 25 patients (89%) remained hospitalized for four days, and three patients (11%), five days. Through the medical record, it was observed that three patients (11%) had complications with rehospitalization after the surgery: two incisional hernias, and one case of wound dehiscence and hernia, all corrected.

Table 2. Number in waiting queue and BMI of morbidly obese patients in University Hospital of Maringá, submitted to bariatric surgery in 2008-2009.

Sequence of surgery	Number in waiting queue	BMI
1	219	51.0
2	277	50.0
3	239	47.5
4	274	44.9
5	207	53.5
6	209	61.0
7	283	50.8
8	269	46.1
9	277-2	41.3
10	288	49.2
11	291	45.0
12	290	40.0
13	-	48.7
14	307	42.5
15	305	53.0
16	321	47.0
17	343	43.5
18	352	46.5
19	307	36.8
20	341	41.5
21	320	37.5
22	351	49.0
23	1	43.5
24	337	41.0
25	3	53.0
26	-	46.0
27	-	51.8
28	-	45.0

BMI – Body Mass Índex. Source: Medical records of the University Hospital of Maringá (2008-2009).

Discussion

Despite the similarity in estimate prevalence of overweight and obesity in men and women, there are studies showing that 80% of bariatric surgeries are executed in women, which was confirmed in our study with remarkable predominance of female.

In the present study it was observed the average age of 40 years ranging from 22 to 61 years and the

mean BMI of 46.7 kg m^{-2} ranging from 36.8 to 61 kg m^{-2}. Porto et al. (2002), analyzing the profile of morbidly obese at the Obesity Clinic of a University Hospital of Salvador, state of Bahia, found similar data with predominance of female, and close values of age and BMI.

Twenty-six patients had BMI greater than 40 kg m^{-2} and two patients had BMI between 35 and 39.9 kg m^{-2}. Of the two patients with BMI lower than 40 kg m^{-2}, both had been registered for bariatric surgery in the University Hospital of Maringá for eight years. The first did not take medications, but had fasting glucose of 104 mg dL^{-1} and blood pressure of 130/100 and BMI of 37.5, with indication for surgery due to associated diseases. The second patient initially had BMI of 41.5, in addition to diabetes and hypertension. While waiting for the surgery, was diagnosed with hypothyroidism and lost 11 kg with the treatment and on occasion of surgery, this patient presented BMI of 36.8.

The patients of this study were accompanied by the multidisciplinary staff in the ambulatory of surgery for morbid obesity for two years or longer, with several attempts of treatment, by means of diet, physical activities, and/or drugs. Nevertheless, around 1/3 affirmed to be sedentary (10 patients), and kept regular diet (11 patients). Despite several efforts of treatment during the period accompanied by the ambulatory, many of them have failed in the treatment. They met the inclusion criteria for bariatric surgery, but did not carry on the physical activities and diets.

These factors are essential to contribute to a healthier life; even they have failed in the attempt of weight loss. Therefore, public health policies that promote conditions for physical activity and dietary guidelines will contribute to the health, especially for morbidly obese patients, monitored by health professionals.

The present study evidenced the high prevalence rate of hypertension and altered fasting glucose in patients with morbid obesity.

Among the study population, 79% were hypertensive, a value similar to those verified by Porto et al. (2002) with 66% hypertensive and 7.3% with blood pressure controlled with drugs. These values are quite higher than found in general population. Population studies have estimated the prevalence of hypertension in Brazil around 20% in adult population, with progressive increase with age (BRASIL, 2008b; AZEREDO PASSOS et al., 2006).

It was verified that 71% of patients presented fasting glucose above 100 mg dL^{-1}, however the diagnosis of diabetes was confirmed for only 12 patients (43%), much greater than the estimate for general population and other similar studies (BRASIL, 2008c; PORTO et al., 2002).

The inadequate filling of the charts, without measures of waist circumference and incomplete records of laboratory tests prevented the appropriate assessment of the prevalence of metabolic syndrome in this studied group, since the waist circumference measure and lipid disorders are included in NCEP criteria for metabolic syndrome diagnosis.

According to Geloneze and Pareja (2006), almost all morbidly obese patients are insulin resistant and have visceral adiposity. Considering the severity of obesity in this group and inferring that all had waist circumference above recommended levels, 17 (60%) of the 28 patients would be diagnosed with metabolic syndrome only using clinical and laboratory data. Among these 17 patients, seven (21%) did not use the waist circumference criterion, and 11 patients (39%) with waist circumference inferred as being altered. Of the total of 17 patients with MS, 15 are female, and two male. The other 11 patients could not have a confirmed diagnosis of MS.

The main limitation of this study was the lack of data on the records which prevented the profile analysis, and undermined the quality of the records. Greater attention should be given to the medical records to avoid future problems with audits, due to the gap of essential information as to the actual conducts adopted in the protocols of gastroplasty procedures in patients with morbid obesity.

The bariatric surgery results in weight loss that varies between 20 and 70% of initial weight, being the most effective method for sustained weight loss in morbidly obese people, with significant improvement in MS or even cure (BRANDÃO et al., 2005; GELONEZE; PAREJA, 2006). Thus, the indication for surgical treatment of obesity is the ineffectiveness of other treatments and the high risk of death when the clinically severe obesity is not treated.

In recent years, Health Ministry issued several Ordinances with the purpose to reduce the obesity and its complications (BRASIL, 2007a and b). In response to these Ordinances, the Paraná State has worked to implement technical regulations, including seeking the accreditation of hospitals to increase the performance of bariatric surgeries (BRASIL, 2008a).

In the present study, we verified that in the period of 2008 and 2009, 28 surgeries were made, but the goal for these two years was 96 surgeries. And despite the waiting queue organized by the Health Department of Maringá, there was no record of priority criteria to select the surgeries, once the patients occupied a number in the waiting queue that ranged from 01 to 351, without following a sequentially increasing order or justification of risk.

The complications after surgery observed in this study were observed in 11% of patients, similar to described for large samples (CAPELLA, 1997 apud FERRAZ et al., 2003). The complications related to surgical procedures can be immediate or delayed; as immediate, occurred a case of wound dehiscence after the bariatric surgery (6 days after the surgery, which can occur in 3% of patients and in some cases it requires reoperation) which subsequently had developed to a hernia (delayed complication after 1 year). Two other patients were submitted to herniorrhaphy within one year after surgery, therefore consisting in delayed complications of bariatric surgery.

Conclusion

The profile of our population with morbid obesity submitted to gastroplasty is similar to those described in other services, with high prevalence of associated disorders. The inclusion of the waist circumference measure, and in general, the more careful record of data in the medical charts can improve the quality of information of future patients to be treated in University Hospital of Maringá.

Identify the profile of these patients contribute to decision-making and reinforces the importance of multidisciplinary staff in health promotion and prevention of immediate and delayed complications of morbid obesity and gastroplasty. Meantime, only the bariatric surgery does not ensure the healthy loss of weight and it is necessary the active participation of the patient throughout the process after the surgical procedure, through dietary reeducation, changes in lifestyle and emotional balance.

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