

Influence of a preoperative food education program on weight loss a year after bariatric surgery.

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Summary:

Preoperative weight loss (PPP) has surgical benefits, but little is known about its postoperative effect. Our objective was to study whether preoperative weight loss affects weight loss one year after the intervention. The Basurto University Hospital incorporates a preoperative group session where the preoperative diet is explained.

A retrospective study was performed out of the 156 patients who were submitted to surgery between January 2016 and December 2017, collecting the weights from the day of the session, the day of the surgery and the year of the session. 82% of the 85 patients who attended the preoperative session lost weight before surgery. 45% lost more than 3 kg, and 25% more than 5 kg. One year after the surgery, the weight loss was higher in those who attended the preoperative session, although without statistical significance.

We observe that when the PPP is greater than 3kg and 5kg, a higher post-surgery loss is obtained, although without statistical significance. However, when calculating the total weight loss (previous plus surgery) it reaches significance. This study demonstrates that pre-surgical preparation through group sessions is effective in obtaining greater weight loss after bariatric surgery.

Keywords:

- Bariatric surgery
- Group intervention
- Previous weight loss

Introduction

Bariatric surgery is an effective treatment in the weight loss of morbidly obese patients, reducing mortality and comorbidities of these patients (1), in addition to saving health resources (2). One of the most used measures to optimize the results of this surgery is the preoperative weight loss. Several studies have shown that a 10% loss of excess weight causes a decrease in liver size and intra-abdominal fat that facilitates the surgical technique, since 90% of patients who are candidates for BS have hepatic steatosis and also, the left lobe of the liver makes it difficult to visualize the upper part of the stomach, the esophagogastric junction and the gastric area (3). On the other hand, by facilitating the surgical technique, the surgical intervention time (4) is reduced, the risk of complications, hospital stays, healthcare costs (5) and comorbidities (6) are also reduced.

As for the type of preoperative diet, there is no standardized diet, but a low-calorie and carbohydrate (HC) diet that provides between 30-130g HC / day is recommended, since low-carb diets appear to be more effective in weight loss than low fat diets (7). Within the dietary strategies, we could highlight three: low-calorie diets with conventional foods, which provide between 800 and 1500 kcal / day; Very low calorie diets (Very Low Calorie Diet) that provide 600 kcal / day based on specific commercial preparations for bariatric surgery; and the intragastric balloon, especially for superobese patients with a body mass index (BMI) > 50.

Regarding the follow-up time of the preoperative diet, some authors indicate that very low calorie diets followed

for two weeks, produce a decrease in the liver volume and therefore, it is recommended to be followed for a minimum of two weeks, but that in an ideal way, it should be followed for six weeks. (8,9).

However, little is known about the effect of a preoperative diet that involves weight loss, in post-intervention weight loss. Some studies have shown that preoperative loss is a good indicator of a better response to postoperative dietary modifications and that losses of between 5 and 10% of excess weight are associated with a faster post-surgery loss as well as a greater loss of weight per year of surgery (10).

Objective

To study whether weight loss is a result of attending a preoperative session in which a low calorie and carbohydrate diet is scheduled, affects weight loss one year after the intervention.

Material and methods

Nutrition education prior to surgery is essential (11). This education can be done both individually and, in a group, (12) and aims to inform the patient of the dietary changes to be made. Therefore, since 2015 the Basurto University Hospital has incorporated a preoperative group session within its follow-up protocol in bariatric surgery. This consists of a session given by a Dietitian-Nutritionist, which lasts one hour, and includes all the patients who will be intervened in the next 30 days. It explains the dietary treatment before surgery and the different later stages, from the liquid diet to the progression to soft diet, the need

for protein and vitamin-mineral supplementation, as well as the follow-up calendar with the multidisciplinary team. The previous treatment consists of a conventional 1000kcal diet that responds to the following distribution: 47% carbohydrates, 24% lipids and 29% proteins. The example diet can be seen in table 1.

BREAKFAST	To choose among the following:	To choose among the following:		
	<ul style="list-style-type: none"> 200 ml of skim milk 2 skim yoghurts 100 g fresh skim cheese 	<ul style="list-style-type: none"> Whole meal bread 30 g 20 g sugarless cereal, oatmeal or puffed corn or wheat 		
LUNCH	200 g of fruit			
MEAL	1ª dish, to choose among the following:	2ª dish, to choose among the following:	Dessert to choose among the following:	
	<ul style="list-style-type: none"> 100 g potatoes 20 g pasta/rice 30 g bread 80 g fresh peas 20 g de dried legumes 120 g fresh green beans + Vegetables (150g)	<ul style="list-style-type: none"> 100 g non-skin chicken rabbit or turkey 100 g veal 120 g white fish 100 g blue fish, seafood 100 g eggs 120 g squid, sepia or mussels 	<ul style="list-style-type: none"> Skim milk 100 ml 1 natural skim yoghurt 50 g Burgos cheese 	
SNACK	200 g fruit			
SUPPER	1ª dish	2ª dish		
	Vegetables 150g	<ul style="list-style-type: none"> 100 g non-skin chicken rabbit or turkey 100 g veal 120 g white fish 100 g blue fish, seafood 100 g eggs 120 g squid, sepia, or mussels 		
SNACK	To choose among the following:			
	<ul style="list-style-type: none"> 1 natural skim yoghurt Skim milk (100 ml), you may add coffee 50 g skim fresh cheese If you want, you may skip the snack and take it as dessert at the time of supper.			

Table 1. Example of diet

A retrospective study of the 156 patients who underwent surgery between January 2016 and December 2017 was performed. Weights of the day of the session (PS), the day of the intervention (P0) and the year of the session (P1) were collected.

Results

Data were obtained from 85 patients who attended the pre-surgery session (Group 1) and 55 who did not (Group 2). 16 patients were excluded due to lack of data. The previous BMI of those who attended was greater than that of those who did not, 46.55 kg / m2 vs 45.56 kg / m2. 70 patients (82%) of the group that attended the program lost weight, 10 patients gained weight (12%) and 5 patients (7%) maintained their weight. Out of these, 43.5% (37) lost more than 3 kg and 26% (22) more than 5 kg. See table 2.

One year after the intervention, the loss from P0 to P1 was greater in those who attended the session measured as Total Weight Loss TWL 32.2% (42 Kg) vs 29.7% (37.8 Kg), although without statistical significance. When analyzing the previous weight loss, when it is greater than 3 kg, the loss is greater in the group that participates in the program 32% (43.6 Kg) vs. 29.7% (37.8 Kg), although without reaching significance (p = 0.2). However, when calculating

the total weight loss (loss of PS + P1) it reaches significance: 34.8% (49.4 Kg) vs 29.7% (37.8 Kg) (p = 0.012).

If the PPP is greater than 5 kg, a greater loss is also observed 32.9% (46.7 Kg) vs 29.7% (37.8 Kg) without reaching significance (p = 0.18), which is significant (p = 0.008) considering the total loss 36.16% (53.7 Kg) vs 29.7% (37.8 Kg).

	N	PS (Kg)	P0 (Kg)	P12M (Kg)	TWL (%) P0-P1	TWL (%) PS-P1*
GROUP 1	85	132.6	129.4	87.4	32.2	33.6
GROUP 1>3 Kg	37	138.7	133.1	89.4	32.0	34.8
GROUP 1>5Kg	22	146.2	139.2	92.5	32.9	36.2
GROUP 2	55	-	126.1	88.2	29.7	29.7

GROUP 1: group attending the pre surgery session

GROUP 1> 3 Kg: group that attends the pre-surgery session and loses 3 kg or more before the intervention

GROUP 1> 5Kg: group that attends the pre-surgery session and loses 3 kg or more before the intervention

GROUP 2: Group that does not attend the pre-surgery session

TWL (%) P0-P1: Total weight lost from the day of the intervention until 12 months

TWL (%) PS-P1: Total weight lost from the day of the session until 12 months

* Statistical significance p <0.05

Table 2. Distribution of results by groups

Discussion

The preoperative session is an effective strategy to achieve a weight loss prior to surgery that also requires few resources in terms of time and personnel. On the other hand, it meets the objective of the study that sought to determine whether attending group sessions means greater weight loss one year after surgery. As limitations we could highlight that the period of time from the preoperative group session until the day of surgery is not the same in all patients, which may mean that those who have less time to diet lose less weight and, for that For this reason, we have stratified according to weight loss in more than 3 or 5 kg, in order to observe if there is a relationship between a greater weight loss before surgery and total loss.

The results of our study demonstrate that presurgical preparation through group sessions is effective to obtain a greater weight loss in patients who show greater involvement before surgery, particularly when the preoperative weight loss exceeds 3 kg and even more with losses of more than 5 kg.

This work suggests the need to establish and protocolize the group programs of pre-surgical dietary intervention to improve the involvement, adherence and follow-up of patients given the good results of our study

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