The undesirable weight loss: malnutrition in bariatric patients

A case presentation
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BENEFITS OF PREOPERATIVE WEIGHT LOSS:

• Decrease in liver size and intra-abdominal fat
• Fewer post-operative complications
• Improvement of comorbidities (DM2, HTA,..)
• Improves surgical field and intra-operative view
• Indicator of better response to postoperative dietary modifications
INDICATOR OF BETTER RESPONSE TO POSTOPERATIVE DIETARY MODIFICATIONS:

• A program of preoperative weight loss may motivate patients to acquire healthy dietary and physical activity habits  

• No consensus on the effect of preoperative weight loss in predicting medium or long term results after bariatric surgery  

1. Ali et.al; Alavardo et.al; Alger-Mayer et.al; Alami et.al; Van de Weijgert et.al; Still et.al  
2. Busetto et.al; Huerta et.al; Jamal, Mrad, Riess et.al; Carlin et.al; Taylor et.al
WHEN SHOULD DIETARY INTERVENTION START AND HOW MUCH WEIGHT SHOULD BE LOST BEFORE SURGERY?

• Dietary intervention should start 6 months prior to surgery in order to monitor and redirect eating habits.

• A very low calorie diet (VLCD) should be started 2 weeks before the procedure to achieve a greater reduction in liver volume.

• A 5 to 10% weight loss is advisable.
IMPORTANCE OF DIETARY INTERVENTION BEFORE BARIATRIC SURGERY

- Assessment of dietary habits
  - Dietary and nutritional history
  - INDIVIDUAL NUTRITIONAL EDUCATION
  - NUTRITIONAL EDUCATION GROUP

- Personalized dietary intervention
  - Improve preoperative nutritional behaviour
  - Education for post-operative nutritional adaptation

- Achieve preoperative weight loss (surgical and nutritional benefits)
HOW DO WE ASSESS DIETARY HABITS?

- Quantify dietary intake with a 24h dietary recall and the Food Frequency Questionnaire.

- Determine patient habits (how much do they eat, when, how, where, how do they feel)

- Eating behaviour: binge’s, bigg’s, sweets, snakers, fast food…

- Shopping habits:
  - Frequency, planification
  - Manufactured, fresh, frozen, precooked
  - Home-meals, take-away, restaurants...
NUTRITIONAL EDUCATION:

Elaborate a personalized dietary intervention according to daily routine and habits:

Balanced diet (55% CH, 15% prot and 30% fat)

Facilitate behavioral strategies to achieve dietary modifications.

Educational support groups
NUTRITIONAL EDUCATION GROUP

OBJECTIVES:

- Optimize the dietary management of patients with MO for BS
  - Promote dialogue and empathy between patients.
    - Treat emotional aspects of patient
  - Help patients achieving maximum weight loss
  - Preventing weight regain after BS
NUTRITIONAL EDUCATION GROUP

- Composition of the groups
  - 8 patients.
  - Mixed groups
- Schedule
  - 5 sessions in consecutive weeks
    - 1 per week, 1 hour duration
**TOOLS:**

- 3-day dietary records (at the beginning and at the end of the programme)
- Physical activity record
- Recipes
- Interpreting food labels

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etiqueta del paciente
MODIFICATION OF EATING HABITS:

• Encourage slow eating and chewing food
• Planning meals and snacks
• Avoid eating and drinking at the same time
• *Education food groups and portions of meals*
• Avoid skipping breakfast
• 5 dietary intakes per day
• Serve food on a smaller plate
• Ensure the nutritional quality of the diet
• Avoid alcohol and carbonated drinks
• Increase the amount of fiber in the diet
• Reduce sweet and fat consumption.
Combining support groups with individual treatment is the most recommended nutritional intervention strategy in presurgical obese patients.
### First phase: **Liquid diet**
- **Duration:** 2 weeks: from discharge until the next follow-up visit
- **Amount:** 50-100 ml per intake / 6 per day
- **Foods:** skimmed milk and yoghurt, juice, broth, tea
- **Hyperproteic nutritional supplements and protein powder. Multivitamin preparations.**

### Second phase: **Mashed diet**
- **Duration:** 2 weeks: follow-up visits 1-2.
- **Amount:** 100-150 ml per intake/ 6 per day
- **Foods:** Mashed cooked vegetables, cereals, fish, eggs and *cooked* fruit
- **Supplements:** Protein powder. Multivitamin supplements

### First phase: **Regular solid diet**
- **Duration:** 1 month
- **Amount:** Dessert plate / Intakes: 6 per day
- **Foods:** as prescribed by nutritionist
- **Supplements:** Multivitamin preparations
DIETARY INTERVENTION FOR NUTRITIONAL COMPLICATIONS AFTER BS

• Nausea and vomiting:
Eat slowly and savor each mouthful in a quiet atmosphere, eat adequate amounts of food, do not drink and eat at the same time, choose recommended food according to the phase and texture.

• Dumping:
Avoid eating simple sugars, fatty foods and liquids with meals. Frequent small meals are important.

• Constipation:
Increase fluid intake, dietary fiber intake and avoid sedentary lifestyle.
Life-long nutritional education and dietary follow-up are key factors for long-term success of surgical treatment of obesity

High saturated and trans fats and cholesterol foods
High sugar foods
Carbonated and/or alcoholic beverages

Cereals: rice, pasta: 90 gr*; breakfast cereals, bread and toast: 30 gr.
Legumes: lentils, peas, black and white beans, soybean: 80 gr*.
Tubers: patate, sweet potato: 85 gr*.
* cooked weight

Servings: 2/day

Fruit: • Low sugar fresh fruit: (melon, water melon, strawberry, grapefruit, apple, orange, etc.): 140 gr.
* High sugar fresh fruit: (grape, apricot, banana, cherry, nectarine, medlar, lychee): 70 gr.
Vegetal oil: (preferably olive oil): 1 teaspoon
All types vegetables: 85 gr.

Servings: 2-3/day of each food group

Low fat meat: chicken, beef, pork: 60 gr.
Fish: blue: 60 gr.; white: 85 gr.
Low fat or fat free dairy products:
Legumes: lentils, peas, black and white beans, soybean: 80 gr*
Eggs: 1 large: 50 gr.
* cooked weight

Servings: 4-6/day

Daily nutritional supplements:
Calcium and Vitamin D
Iron
Vitamin B12
Ensure daily water or non-cafeine fluid intake

DON'T FORGET EVERY DAY
GOALS TO ACHIEVE

- NEGATIVE ENERGY BALANCE
- ADEQUATE PROTEIN INTAKE
- LOW FAT INTAKE
- LIMITED CARBOHYDRATE INTAKE

NEGATIVE ENERGY BALANCE

Successful weight loss after surgery largely relies on appropriate calorie restriction.

Balancing energy intake and energy expenditure is essential for weight management.
ADEQUATE PROTEIN INTAKE

• BS is associated with a greater loss of fat-free mass when compared to other forms of caloric restriction
  • An elevated protein intake improves fat-free mass (Recommended protein intake: 0.8-2.1 g/Kg ideal body weight)
  • Patients choosing high-protein foods are more likely to maintain a low-energy intake over time because of the satiation while they ensure they meet their protein needs

50% of patients present intolerance to high-protein foods
LOW FAT INTAKE

30% of total energy

Olive oil and oils rich in W3
LIMITED CARBOHYDRATE INTAKE

Bread, rice and pasta are poorly tolerated after bariatric surgery

Dumping syndrome:
~ 25-50% but only 5-10% develop clinically significant syndromes
~ Avoid simple sugars, increase fiber intake and complex carbohydrates
~ Six meals a day
~ Avoid fluid intake during meals
NUTRITIONAL DEFICIENCIES

Are common in the obese population before surgery and frequently go untreated due to:

• Poor eating habits
• Low nutritional quality of meals

And after the surgery:

Iron, calcium, vitamin D, vitamin B12 and folate are the most common due to:

• Food intolerance
• Restricted portion size
• Intestinal malabsorption

Nutritional deficiencies vary depending on:

- Pre-operative nutritional status
- Type of surgery and degree of malabsorption
- Patients dietary pattern
- Individual food tolerance
A life-long Multivitamin-mineral supplement is recommended after BS.

The intervention and follow-up of a nutritionist specialized in BS is essential to prevent nutritional deficiencies.
FACTORS THAT INFLUENCE WEIGHT MAINTAINANCE OR REGAIN:

- Type of surgery performed: restrictive, malabsortive...
- Presence of binge eating disorders: Psychological factors less weight loss
- Patient adherence to support groups: Support groups lead to better control and less nutritional complications
- Frequency of follow-up visits: more control, less weight regain
- Presurgical body mass index: Higher BMI less weight loss
Weight regain can be anticipated, in part, during the preoperative evaluation and potentially reduced with self-monitoring strategies after BS.
HOW TO AVOID WEIGHT REGAIN?

• Encourage lifestyle changes
  • Nutritional education and follow-up
    • Regular structured exercise
  • Increased lifestyle physical activity
    • Stress management
  • Realistic weight-goal setting