

Metabolic surgery: revisiting the concept.

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Content

Obesity is, probably, the oldest metabolic disease as it seems to be already present in the Paleolithic era. Hippocrates, and his pupil Galeno, described it in the Ancient Greece, as a sickness condition, consequent of a lack of discipline in life.⁽¹⁾ Unfortunately, nowadays, obesity is being looked upon with the same prejudice and is subjected to social bullying.⁽²⁾

There is still a stigma attached with 'obesity'. Obese people are often considered to have flaws, be weak minded and unable to control their bad wills. In the opposite side the slim bodies cult improved the disapproval and blame of the "fat" people who are usually discriminated and mistreated, with individual and social unfortunate consequences.

But obesity is a real disease, hormonal and metabolic, with genetic etiology although strongly influenced by the epigenetic, in the environment.

In 2007, the World Health Organization (WHO) has recognized "obesity" as a pandemic and defined it in terms of weight excess using the Body Mass Index (BMI) as a parameter to measure the morbidity and mortality risk.⁽³⁾ Obesity grade III (BMI > 40 Kg/m²) is known as "morbid obesity" as it predisposes at least some of the possible 236 comorbidities.⁽⁴⁾

Currently obesity is considered a pandemic and one of the major public health challenges.⁽⁵⁾ Bariatric surgery is the unique effective treatment with proven long-lasting good outcomes and should be used more frequently as it provides multiple benefits for patients and the also has favorable cost-benefit outcomes.^(6,7,8)

The criteria for bariatric surgical treatment are very well defined by IFSO (International Federation for Surgery of Obesity).⁽⁹⁾ Although BMI is not a good predictor of severity of disease or comorbidities, it is simple, quick and practical parameter and hence universally used. Any patient with a BMI $\geq 40\text{kg/m}^2$ or $\geq 35\text{kg/m}^2$ with associated comorbidities (Hypertension, type 2 diabetes mellitus, dyslipidemia, osteoarthritis, obstructive sleep apnea) are eligible to receive surgical treatment. Actually, there is a need for a different name for this disease. Along with the weight (bariatric is related to weight and pressure) we want a cure or at least improvement in the comorbidities with the surgical approach. Severe obesity is a much better name.

Bariatric surgery together with surgery for 'diabetes' are the most common metabolic surgeries performed today. Let's emphasize the definition of metabolic surgery was created by Buchwald and Varco, in a book published in

1978⁽¹⁰⁾ as an "operative manipulation of a normal organ or organ system to achieve a biological result for a potential health gain". In a modern view metabolic surgery focuses more "on altering normal organs to change the body's neurohormonal milieu". So, operations like vagotomy for peptic ulcer, portal diversion for glycogen storage disease, pancreas transplantation for type 1 diabetes or splenectomy for idiopathic thrombocytopenic purpura, can be all classed as metabolic operations.⁽¹¹⁾

Although metabolic surgery is usually considered a tool to help patients adapt to a better lifestyle, eating more rationally and being physically more active, one should emphasize that surgery implies a sort of specific hormonal, neurohormonal, biologic and biochemical effects which are independent of the patient's rational decision. And this is the key for success.⁽¹²⁾ These physiologic improvements are mediated through modifications at the digestive hormonal modification (incretin effect), biliary salts absorption and distribution, microbiome changes and neurophysiologic induction of a more convenient balance between hunger and satiety.⁽¹²⁾

To treat type 2 diabetes mellitus or severe obesity we are now using new metabolic operations, trying to trigger metabolic effects in a quick way, with just a reduced restriction, less hypo absorption and less or no bowel exclusion. These new procedures are slowly gaining popularity and all the different proposals are based more on the metabolic/incretin effect than in the classic concepts of restriction or malabsorption. This is the case of ileal interposition⁽¹³⁾, the bowel bipartition⁽¹⁴⁾, or "sleeve gastrectomy plus side-to-side jejunoileal anastomosis".⁽¹⁵⁾ These operations re-route the usual alimentary route but don't exclude bowel segments, reduce the nutritional deficits and require less amounts of vitaminic and mineral supplements. Moreover, all digestive segments are still accessible to endoscopic observation.

Altogether, provided the patient remains compliant with the multidisciplinary team recommendations, these effects will lead to significant weight loss, comorbidities control and better quality of life.

Metabolic surgeries are not aesthetic procedures and surgeons should resist to perform these operations when very enthusiastic but not realistic patients ask for it. Specially, lower BMI patients should be managed to adjust their expectations and turn to restore their self-image. They need to appreciate that they don't need to take even those small risks of surgery because they don't have significant pathologies. In our practice, in such cases, we ask them to be followed by our nutritionist and eating disorder psychologist first, being followed by our



endocrinologist later for consideration of pharmacotherapy if they were successfully able to achieve some weight loss with the previous counseling. A strong commitment from patients and team, are naturally essential for a good outcome.⁽¹⁷⁾

It's worth remembering that metabolic teams should be multi-disciplinary and includes nutritionists, psychologists, endocrinologists or internists, physiotherapists, gastroenterologists and preferably a plastic surgeon. All should work under the leadership usually but not necessarily that of the bariatric surgeon. All the members must have a common policy and a common language.

Endocrinologists will evaluate and optimize diseases like type 2 diabetes mellitus, hypothyroidism, Cushing syndrome, polycystic ovary syndrome among others.

Psychologists have the mission of keeping the patient motivated, exclude eating behavioral disorders and provide mental health support pre and post operatively.

The nutritionist is definitely very important. They will first teach patients about changing the dietary pattern, to advice about the nutritional deficiencies symptoms and prescribe the supplements they need to take. The nutritionist will also promote methods and behavioral techniques driving people to the proper dietary habits as a very important part of a lifestyle modification.

The physiotherapist assists the patients with an appreciation of his/her physical capacity and has the mission to find new and interesting physical activity options during the post-operative period.

Awareness, reflection, self-determination and responsibility for caring one's life are landmarks for all the team members when trying to remodel the patient perspective and behavior.

If we want to have an effective treatment for obesity, then both the patient and the doctor need to build a skillful and empathetic communication where almost all aspects of the future advantages and disadvantages should be anticipated.

With that point of view, it is wise to advice patients about issues like need for lifelong supplementations, the medications they should avoid or how to deal with the sagging skin when it appears.

The patients and the team will follow the same road for a long time. The destiny, a surgical success, relies on significant behavioral modifications that are not easy for majority of the patients to adopt.

Each person has its own capacity to build a new relation between healthy food and physical regular activities. It's a long lasting, time consuming and difficult process with advances and setbacks. Patients need to be pushed forward, emptied of guilt and misleading labels. We should look at them not as "obese people" but as people with a terrible disease hitting all aspects of their physical, psychological and social life.

If one wants to understand obesity, present in more than 600 million people all over the world, we need to face obesity as a real disease defined by the excessive accumulation of fat. And we know that adipocyte has an important role in a range of different processes related to the metabolic homeostasis, producing substances (adipocytokines: interleukin 6, tumor necrosis factor- α ,

leptin, resistin, visfatin and adiponectin, among others) able to control different functions like nutritional intake, carbohydrates metabolism and inflammatory pathways.⁽¹⁶⁾

These pathways turn obesity a disease with a strong impact on individual health leading people to have a tendency to more fat accumulation, insulin resistance, arterial hypertension, dyslipidemia, sleep apnea (the metabolic syndrome), and a chronic inflammatory state.⁽¹⁸⁾ The future understanding of, at least, some of those complex pathways, will allow us to undertake better strategies and therapeutic weapons facing an improved and successful treatment.⁽¹⁹⁾ Team support will always be necessary for a long duration because a chronic disease needs a chronic treatment.

Obesity has no cure, but it has a treatment and we should strive to provide it in a serious effective pattern!

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