Obesity: knowledge, care, and commitment, but not yet cure

Obesidade: ainda sem a cura, mas necessitando de conhecimento, cuidados e comprometimento

Bruno Geloneze[1], Marcio C. Mancini[2], Walmir Coutinho[3]

"The devil has put a penalty on all things we enjoy in life. Either we suffer in health or we suffer in soul or we get fat."
Albert Einstein

"I'm fat, but I'm thin inside... there's a thin man inside every fat man."
George Orwell

The management of obesity is a major public health and economic global concern. Few diseases or conditions are as common or have the health implications of obesity. Although obesity can be simply defined as a disorder of excess body fat, the major pathobiology occurs in other tissues such as hepatic, vascular system, musculoskeletal, etc (1). Obesity is undoubtedly an important risk factor for serious diseases such as cardiovascular diseases, type 2 diabetes and certain types of cancer (2).

Additionally, the percentage of the world population affected by obesity is increasing at an alarming rate. Worldwide, an estimated 1.6 billion adults (aged 15 years and older) were overweight (BMI: 25-30 kg/m^2), and 400 million were obese (BMI > 30) in 2005. By 2015, it is expected there will be 2.3 billion overweight and more than 700 million obese adults worldwide (3).

Given the financial burden and the essential clinical infrastructure needed to treat this high-risk population, major resources will be required to provide adequate care (4). Furthermore, the globalization of obesity-related diabetes requires that healthcare providers are kept up-to-date with the latest advances in obesity management strategies. This supplement contains a series of state-of-the-art reviews and some original research articles in the field of obesity and related conditions. The overall knowledge of this content provides a concise, to-the-point, theoretical and pragmatic approach, which will make possible to provide optimal care for obese patients, reinforcing our commitment and hope of finding a, not yet available, cure for obesity.

Environmental factors, such as social networks and global "westernization" with respect to dietary preferences and sedentary lifestyle have a strong influence on obesity pandemics. There is a new player on this scenario. The gut microbial flora (microbiota) plays a role in converting nutrients into calories. Glycans, such as plant polysaccharides, cannot be digested with human enzymes, so bacterial enzymes are needed. The gut microbiota differs in obese and non-obese people. Weight gain in the human population grossly follows the level of antibiotic usage possibly modifying our gut microbiota. Probiotics can be defined as living organisms (*Lactobacillus*, for example) which beneficially affect the host by improving its intestinal microbial balance. Probiotics are increasingly used in human food. Yogurts and other fermented foods now commonly contain *Lactobacillus* and *Bifidobacterium*. Probiotics are used as adjuvant in many treatments for conditions ranging from diarrhea to the prevention of intestinal diseases (5). Their role in long-term weight gain must be evaluated.

[1] Laboratório de Investigação em Metabolismo e Diabetes (Limed), Universidade Estadual de Campinas (Unicamp), Campinas, SP, Brasil; Instituto Nacional de Pesquisa em Obesidade e Diabetes, Unicamp, Campinas, SP, Brasil
[2] Grupo de Obesidade e Síndrome Metabólica, Serviço de Endocrinologia e Metabologia, Hospital das Clínicas da Faculdade de Medicina da Universidade de São Paulo (HC-FMUSP), São Paulo, SP, Brasil
[3] Instituto Estadual de Diabetes e Endocrinologia (Iede), Rio de Janeiro, RJ, Brasil

Correspondence to:
Bruno Geloneze
Laboratório de Investigação em Metabolismo e Diabetes (Limed), Unicamp
Rua Carlos Chagas, 420,
Cidade Universitária – Barão Geraldo
13081-970 – Campinas, SP, Brasil

Over consumption of saturated fats and trans fatty acids or carbohydrates with poor nutritional value may also constitute another important factor contributing to body fat accumulation. Nevertheless, even though it is important to educate people towards healthier food habits and a more active lifestyle, personal responsibility is neither the only nor perhaps even the primary determining factor for success. Indeed, considering that people live in complex social frameworks, that can potentially limit their personal choices, long term health concerns are not usually the main determinant of eating behavior.

The physiological processes which drive all of us to seek and ingest food and limit energy expenditure during periods of negative balance provide an irresistible drive to regain lost adipose stores in weight-reduced obese individuals. This provides a potential basis for the well-recognized difficulty of maintaining weight loss. For this reason, prevention of obesity and identification of factors that promote the development of central neural pathways which enhance the sensitivity to negative feedback signals from the periphery should be a major focus of research. The overall goal should be targeted to a better understanding of the central mechanisms underlying body fat accumulation and weight regain, which might lead to the development of new therapeutic strategies, based on preventing the whole process, rather than dealing with its consequences in already obese individuals.

Bariatric surgery is an alternative and extreme approach for treating severely obese patients. Data are commendable and underscore the redefinition of the field of bariatric surgery. The resolution of the metabolic syndrome and, in some cases, the resolution or control of type 2 diabetes within such a short period is nothing short of remarkable when comparing this with all available medical alternatives. The impressive results of these studies, remind us that this is, indeed, a metabolic surgery, and not just a weight loss surgery (6). On the other hand, it is time for some caution. Metabolic surgery classical techniques: open or laparoscopic gastric bypass and biliopancreatic diversion have impressive results and they must not be replaced by new techniques, unless they prove to be superior in efficacy and safety terms. Hence, bariatric surgery could be defined as a programmed undernutrition and safety should always be viewed as a major concern.

This discussion reinforces the need of considering all the efforts to assist our patients, but always based on robust scientific evidence. The practice of evidence-based medicine requires the conscientious and judicious application of the best available evidence from clinical research to support the whole clinical decision making process. It requires expertise in order to understand the context of the patient and to incorporate the patient's values and preferences into evidence-based decisions (7).

Endocrinologists are considered cognitive specialists, physicians who use their intellect to diagnose, prognosticate, and treat patients with endocrine or metabolic disorders. For the most part, the use of genomics, molecular biology, physiology, pathophysiology, and pharmacology distinguishes these clinicians from their colleagues. With the advance of evidence-based medicine, endocrinologists are faced with two new challenges: first, to incorporate this approach to their practices, and second, to sensitize other specialists to embrace pathophysiology-based decision making into their practices.

Although experts agree that obesity management requires long-term behavioral, medical, or surgical intervention, there are still a large number of approved and non-approved commercial weight-loss treatments and programs used to influence vulnerable and susceptible consumers, mostly exploring unrealistic expectations and false beliefs. It is time we put an end to this nonsense practice. Health professionals must be taught evidence-based principles of obesity management to ensure they can understand and provide weight management treatments with proven safety and efficacy.

Finally, we need to expand our efforts towards primary prevention, by advocating healthier lifestyle and eating habits. Every resource available should be incorporated, much beyond scientific manuscripts, such as lay media campaigns, school and workplace based partnerships and legislation initiatives.

We hope this Obesity Research supplement in Brazilian Archives of Endocrinology and Metabolism can provide clinicians, clinical and basic researchers with useful insights into the complex obesity problem, and remind us of our role in the fight against this challenging epidemic.

REFERENCES

1. Lordelo RA, Mancini MC, Cercato C, Halpern A. Hormonal axes in obesity: cause or effect? Arq Bras Endocrinol Metabol. 2007;51: 34-41.
2. Zalesin KC, Franklin BA, Miller WM, Peterson ED, McCullough PA. Impact of obesity on cardiovascular disease. Endocrinol Metab Clin North Am. 2008;37:663-84.
3. Ford ES, Mokdad AH. Epidemiology of obesity in the western hemisphere. J Clin Endocrinol Metab. 2008; 93:s1-s8.
4. Sichieri R, do Nascimento S, Coutinho W. The burden of hospitalization due to overweight and obesity in Brazil. Cad Saude Publica. 2007;23:1721-7.
5. Turnbaugh PJ, Ley RE, Mahowald MA, Magrini V, Mardis ER, Gordon JI. An obesity-associated gut microbiome with increased capacity for energy harvest. Nature. 2006;444:1027-31.
6. Geloneze B, Pareja JC. Does bariatric surgery cure the metabolic syndrome? Arq Bras Endocrinol Metabol. 2006;50:400-7.
7. Bray GA. Is new hope on the horizon for obesity? Lancet. 2008; 372:1859-60.