

# Bioethical analysis of indicating bariatric surgery for children and adolescents

Cynthia Meira de Almeida Godoy<sup>1</sup>, Galeno Egydio José de Magalhães Neto<sup>2</sup>, Marcelo Falcão Santana<sup>3</sup>, Sérgio Flavny Brandão de Menezes Correia<sup>4</sup>, Josimário João da Silva<sup>5</sup>

## Abstract

Bariatric surgery is becoming more and more established as an effective form of weight loss and method of treating comorbidities related to this condition. The short and long-term risks and benefits for adults have been well documented in literature, but no accurate data exists for children and adolescents. Given the significant changes in lifestyle habits and diet involved, the decision to undergo surgical treatment is a delicate one, requiring the participation of the entire medical team and the patient's family. For this reason the doctor in charge must be aware of the major bioethical aspects involved, and the steps required to effectively manage cases where bariatric surgery is the preferred option.

**Keywords:** Bariatric surgery. Bioethics. Child. Adolescent.

## Resumo

### Análise bioética nas indicações de cirurgia bariátrica em crianças e adolescentes

A cirurgia da obesidade vem sendo reconhecida como tratamento eficiente para perda de peso e melhora das comorbidades a ela associadas. Em adultos, os riscos e benefícios de curto e longo prazo já são bem conhecidos na literatura; contudo, em crianças e adolescentes não existem dados precisos. Por envolver mudanças significativas nos hábitos de vida e na alimentação, a decisão pelo tratamento cirúrgico para essa população ainda é delicada e necessita da participação de toda a equipe médica, além do envolvimento familiar. Para isso, o médico responsável deve conhecer os principais aspectos bioéticos implicados na questão a fim de ponderar sobre os passos necessários para conduzir melhor os casos em que a cirurgia bariátrica é a opção mais adequada.

**Palavras-chaves:** Cirurgia bariátrica. Bioética. Criança. Adolescente.

## Resumen

### Análisis de la bioética para las indicaciones de cirugía bariátrica en niños y adolescentes

La cirugía de la obesidad es reconocida últimamente como un tratamiento eficiente para la pérdida de peso y la mejora de las comorbidades que se la asocian. En los adultos los riesgos y beneficios a corto y a largo plazo ya son bien conocidos en la literatura, pero en los niños y adolescentes no existen datos precisos. Por conllevar alteraciones significativas en los hábitos de vida y en la alimentación, la decisión del tratamiento quirúrgico para esta población aún es delicada y necesita la participación de todo el equipo médico y el involucramiento familiar. Para eso el médico responsable debe conocer los principales aspectos bioéticos implicados en la cuestión con el fin de ponderar los casos en los cuales la cirugía bariátrica es la opción más adecuada.

**Palabras-clave:** Cirugía bariátrica. Bioética. Niño. Adolescente.

1. **Mestranda** cynthia@equipeunicad.com 2. **Mestrando** galenomn@hotmail.com 3. **Mestrando** dr.marcelofalcao@gmail.com 4. **Mestrando** serciocorreia@gmail.com 5. **Doutor** josimario.bioetica@gmail.com – Universidade Federal de Pernambuco, Recife/PE, Brasil.

## Correspondência

Josimário João da Silva – Rua Walter Duarte Pereira, 1.715, Capim Macio CEP 59082-470. Natal/RN, Brasil.

Declararam não haver conflito de interesse.

Today obesity is a worldwide epidemic, so much so that it has become a public health problem. Particularly pediatric obesity has significant short and long range impacts on the health and welfare of children and adolescents. Its incidence has increased in most industrialized countries, as well as many developing countries <sup>1</sup>.

According to the World Health Organization (WHO) <sup>2</sup>, for almost four decades obesity in childhood has been growing all over the world. Diseases such as type II diabetes, hypertension and respiratory problems, associated with obesity, are present in many cases. The obese have a greater propensity to develop coronary, lung, psychological and endocrine diseases, many of which persist through adulthood <sup>2,3</sup>.

In Brazil, in the period from 1974 to 1997, the incidence of overweight and pediatric obesity more than tripled among children and adolescents (from 4.1% to 13.9%). Thus children constitute one of the main target groups for the application of strategies of prevention and control of overweight and obesity, not because of their characteristics as a risk group, but because of their chances of success <sup>1</sup>.

The incidence of metabolic syndrome is high among children and adolescents, and increases with the worsening of obesity. Bio-markers of risk with cardiovascular events are already present among these youth.<sup>2</sup> According to data from the American Health Association (AHA), between 2003 and 2006 36.8% of African American men and 52.9% of African American women would be obese, with a body mass index (BMI) of 30 kg/m<sup>2</sup> or more. Among the population of European origin, 32.3% of men and 32.7% of women are obese, also with a BMI of around 30 kg/m<sup>2</sup> or more. Among the population of Hispanic origin, 26.8% of the men and 41.9% of the women are obese, also with a BMI of around 30 kg/m<sup>2</sup> or more. The American Academy of Pediatrics (AAP) classifies the BMI of children and adolescents by percentile, considering overweight when the readings are between the 85th and the 95th percentile. The AAP affirms that in the past thirty years the population of obese children has been increasing in the United States, and obesity is now estimated to afflict 20% percent of the child and adolescent population <sup>2,3</sup>.

Other studies have shown that pediatric obesity has tripled in the past 25 years, with significant differences among ethnic groups and by socio-economic status. From 2003 to 2006, 16.3% of all American children and adolescents from 2 to 19 years of age were classified as obese, and 31.9%

as overweight. The sum of these two percentages, which indicate the existence of the problem in different degrees, is a surprising 48.1%, almost half of all the children and adolescents in the country.

The factors causing obesity and overweight have been studied, and what is observed is an association between socioeconomic status and weight gain. On the one hand, lower income children and adolescents have a greater propensity to gain weight. Their parents' double work days and changing habits have led to greater consumption of industrially processed foods and *fast food*. Furthermore, it has been observed that schools also serve more caloric foods, with low nutritional value. Given the increase in pediatric obesity, there will be inevitable consequences for health and the economy in the future, reinforcing the mutual relationship among education, income and health <sup>4</sup>.

The first ethical question that may be raised concerns changing dietary habits and encouraging less sedentary behaviors. Such issues have come to the forefront of the concerns of physicians and authorities in the field of public health policy, because of the rapid expansion of the problem. Generally speaking, an effective tool for primary treatment would be to prevent unhealthy habits or make behavior changes related to obesity. In the United States, the efforts of the health authorities to combat pediatric obesity through changes in eating habits, emphasizing the consumption of healthy foods, especially in the schools and fast food chains, have been noted.

Ages 5 to 7 constitute one of the most vulnerable phases for the development of obesity. In that period, the body mass index increases rapidly following a period of reduced adiposity, during the preschool phase; thus precocious, rapid or intense reposition of adiposity can be an indicator of increased risk of obesity in subsequent periods of life <sup>1</sup>.

But how can parents be required to offer their children a healthier diet if their time for providing such necessities is reduced by work schedules that are often rigid, with exhausting work loads? How can children and adolescents be encouraged to develop a taste for healthy food when advertising ceaselessly offers industrialized "novelties", generally with little fiber, high sodium content and sugars and calories but, in compensation, very simplified preparation? How can sedentary life styles be minimized in a world fascinated by the media and interactive games that lead participants to spend hours seated, playing via the mental simulation of movements?

Children have little control over their milieu (for example, the availability of foodstuffs in the home), and may also be strongly influenced by the dietary habits and physical activity of their parents and other family members, as well as being subjected to changes in dietary and behavioral patterns at school<sup>1</sup>.

However, considering that there is not one single response to any of these questions (whether because of its own characteristics, the different ways the different ethnic groups and socioeconomic strata are affected, or the fact that changing habits takes time to produce results), it is necessary to have recourse to treatment for the effects of the problem once installed. Thus with regard to the field of treatment, the main question is whether bariatric surgery is a therapeutic option. Would not a change of habits, including physical activities and diet, resolve most cases? Is not obesity in children and adolescents the result of various factors related to human behavior in today's society? If that is true, wouldn't it just be medicalization of behavior?<sup>5</sup>

The traditional clinical treatment for obesity in children and adolescents exists, and various kinds of intervention can be made: hypocaloric, hypoglycemic and high protein diets, the "stoplight" diet, physical activity and behavior change with strategies for change in the family's everyday life. However, for patients with serious obesity and metabolic issues involved, these treatments tend to fail. In this scenario, in which the available therapies have limited and non-lasting results, bariatric surgery stands out as an efficacious treatment with lasting results<sup>6</sup>.

In adults, the risks of this treatment alternative are well defined in the literature. However, the papers published on bariatric surgery in children and adolescents are not of very good quality, and we still do not know the long term results<sup>7,8</sup>. Surgical treatment is said to be indicated only for specific cases, because the suggestion of surgery in this age range is rather controversial<sup>8</sup>.

In 2009, the International Pediatric Endosurgery Group (IPEG) published a series of guidelines proposing bariatric surgery for adolescents with a BMI above 35 kg/m<sup>2</sup>, associated with type II diabetes, moderate obstructive sleep apnea syndrome, cerebral pseudo tumor, or BMI above 40 kg/m<sup>2</sup> by itself<sup>8</sup>. Additional criteria for bariatric surgery in adolescents include Tanner stage 4 or more, bone maturity of 95% or more, a demonstrated commitment to changing one's life style and a stable psychosocial environment. In addition, the patient must clearly understand the implications, through a

process of explanation that culminates in the signing, by the legally responsible party, of a free and clear statement of consent, a document in which the information, risks, benefits and responsibilities should be well defined<sup>9</sup>.

Despite the IPEG proposal, bariatric surgery in adolescents remains controversial, whether because of the immediate risks of surgery or of the long term ethical implications and the long term complications associated with the procedure. There are uncertainties regarding the effectiveness of this operation in young adults and concerning the moment at which young patients will be capable of observing the diet after surgery and making the changes in life style required for maintaining the success of the bariatric surgery<sup>10</sup>. Compared with conventional therapy, bariatric surgery does seem to be a viable option in the treatment of obesity, resulting as it does in long term weight loss, a healthier life style and, with the exception of hypercholesterolemia, a reduction in risk factors<sup>11</sup>.

With obesity, the control of type II diabetes and hypertension resulting from behavior change are evident; however, for the population under consideration, the issues involving weight and self esteem are clear. For example, many adolescents wind up developing psychosocial problems that affect their socialization and their life with the family and society.

In this paper, it is our intention to reflectively analyze the bioethics of prescribing bariatric surgery for children and adolescents.

## Method

A literature review was undertaken using the Brazilian virtual health network BVS for 2004-2014. The descriptors employed were as follows: "bariatric surgery", "adolescent", "child" and "bioethics."

### *Surgical techniques employed*

In Brazil, four modes of bariatric and metabolic surgery (along with the intra-gastric balloon, which is not considered a surgical procedure)<sup>7</sup> have been approved.

### *Gastric bypass (gastroplasty with intestinal bypass in a Roux Y)*

Because of its safety and efficacy, this is the most widely used technique in Brazil (75% of the total). The patient can lose 40% or more of the ex-

cess weight. It basically consists of a reduction of the stomach and in an intestinal bypass, in order to promote an increase in the hormones that give a sensation of satiety and reduce hunger. Consequently, the reduced ingestion and the increased satiety make the patient lose weight, as well as controlling diabetes and other diseases associated with obesity.

### Adjustable gastric band

Represents only 5% of the procedures in Brazil. Does not promote hormonal change, but is quite secure and efficacious in weight reduction (20 to 30% of excess weight), and can be of help in the treatment of type II diabetes. It involves installation of an adjustable silicone ring around the stomach - which, by squeezing the organ, makes it possible to control the gastric emptying <sup>11</sup>.

### Vertical gastrectomy

The stomach is reduced, retaining a capacity of approximately 80 to 100 ml. Weight loss is similar to that of the gastric bypass and greater than that of the adjustable gastric band. The procedure is relatively new, having been performed in Brazil since 2000. It shows good results in the control of arterial pressure, cholesterol, triglycerides and certain diseases associated with obesity.

### Duoenal switch

This technique, which is responsible for only 5% of bariatric interventions in Brazil, associates vertical gastrectomy with the duodenal bypass. In it, 85% of the stomach is removed, but the basic physiology of the stomach and its emptying is maintained. Weight reduction is much greater, and one of the reasons is the reduced absorption of nutrients. Weight loss is 40 to 50% of the excess weight.

After review of the literature and the investigation of the results of certain studies, the WHO concluded that in Europe the gastric band is the most common procedure for the treatment of obesity in children and adolescents, because it is less invasive <sup>4</sup>. However, according to that literature review, the evidence for doing bariatric surgery in that age range is still insufficient, especially with regard to long term results.<sup>7</sup> Roux's Y gastric bypass is considered efficacious for treating morbidities related to obesity in adolescence. For best results, a multi-professional team of specialists in pediatrics is required, for making decisions both before and after surgery <sup>12</sup>.

## Ethical aspects

According to Annex I of Ordinance 492/2007, of the Health Care Secretariat of the Ministry of Health, the patient candidates for bariatric surgery are:

- a) Patients with morbid obesity with BMI (body mass index) equal to or greater than 40 kg/m<sup>2</sup>, without co-morbidities, and that have not responded to conservative treatment (diet, psychotherapy, physical activity, etc.), conducted for at least two years, under the direct or indirect orientation of a hospital team trained and credentialed as an intensive care unit for obese patients;
- b) Patients with morbid obesity, with BMI equal to or greater than 40 kg/m<sup>2</sup>, with life-threatening co-morbidities;
- c) Patients with BMI between 35 and 39,9 kg/m<sup>2</sup>, with chronic disease unleashed or aggravated by obesity.

However, the following criteria must be observed:

- a) *Exclude cases of obesity derived from endocrine disease (for example, Cushing's syndrome due to supra-renal hyperplasia);*
- b) *Limit the age range to 18 to 65; surgical treatment must not be conducted before the growth epiphyses are consolidated in youth;*
- c) *The patient must have the intellectual capacity to understand all aspects of the treatment, and have available continual support from his or her family;*
- d) *The patient and the relatives that support him or her assume a commitment for post-operative care, which must be maintained indefinitely;*
- e) *The patient must not suffer from alcoholism or chemical dependence on other drugs, or a serious psychotic disturbance, or have recently attempted suicide <sup>5</sup>.*

Aged patients and youth from 16 to 18 may be operated on in special circumstances, after careful cost-benefit analysis <sup>7</sup>. After a survey of studies of obese patients submitted to bariatric surgery <sup>9</sup>, we concluded that in accordance with the first results obtained in patients who had undergone surgery, the criterion for recommending surgical treatment of children and adolescents must take into consideration aspects such as the following:

- 1) Verification of the stage of development of the individual, much more than his or her chronological age;

- 2) BMI readings of 40 kg/m<sup>2</sup> or 35 kg/m<sup>2</sup>, as well as the existence of co-morbidities (diabetes, hypertension and sleep apnea, among other diseases that affect the individual's quality of life or increase the risk of death);
- 3) At least six months of prior clinical care, during which time changes in life style, weight loss and family involvement are observed;
- 4) A process of explanation of the surgical intervention, culminating in the signing by the legally responsible person of a declaration of free and informed consent;
- 5) Confirmation by the parents and other family members that the patient is motivated and informed about the surgery (especially its risks), aware of family support and emotionally stable;
- 6) A psychological evaluation of the patient and family;
- 7) Capacity and good will on the part of the family to help the patient and adhere to the treatment after the surgery;

## Discussion

Like obese patients from 18 to 65 years of age, the pediatric and adolescent population may have contraindications for surgical treatment. In the case of adults, one may cite pregnancy or breast feeding, use of alcohol or illicit substances, the Prader-Willis syndrome or other conditions of hyperphagia.<sup>8</sup>

Jorge Filho<sup>13</sup> discusses the importance of pondering ethical parameters in prescribing bariatric surgery. The author points out the limited access to the procedure, and consequently the mismatch between the demand for and supply of treatment, and the implications in terms of failure to observe the principle of distributive justice. If treatment brings real benefits, every patient who needs it should have easy access to it - which doesn't happen in practice. For the author, the main bioethical problem is the lack of resources allocated to perform the procedure.

The patient must be aware of the changes he or she must make in life style, as well as making a commitment to follow the short and long term dietary orientations. Helping the patient to understand the anatomical changes involved and how the surgery works should be another concern of the surgeon. It is also important for the family to understand the actual risks and benefits of the surgery; and for that to happen, it is necessary to promote extensive dis-

ussion with the patient and family members prior to surgery.<sup>14</sup>

Ibele and Mattar<sup>15</sup> affirm that the patient's autonomy must be preserved, and that the information about the surgery provided to the patient and family should give an optimistic view of the outcome, without, however, failing to show the problems and risks that may occur. Bariatric surgery is a complex procedure which, besides involving a multi-professional team, can provoke serious nutritional problems over the years. The role of the team vis-à-vis the patient must be clear and objective; and the patient, in turn, should be aware of the changes, both real and virtual, that will occur after the surgery.

The Brazilian Ministry of Health makes the treatment available through the SUS (Single Health System), but has not been giving the necessary support to patients. All those who submit to this kind of surgery must take dietary supplements for the rest of their lives, but many are not in a position financially to acquire them. For its part, the SUS does not provide that kind of supplements free of charge, because of the absence of a specific program to monitor patients submitted to bariatric surgery.

Like every surgical procedure, indication to perform bariatric surgery depends on well defined criteria; nevertheless, many health professionals do not take into account the social aspect associated with the financial criterion in the post-operative period, as an important factor impeding the feasibility of the surgery, particularly in younger patients. If there are so many difficulties for adult patients, how much more so for children and adolescents. With regard to prescribing surgical treatment for this population, professionals should adopt the following rules, as indispensable conditions for performing the procedure: obtain the consent of the minor who is to be submitted to surgery and his or her parents, have available a specialized interdisciplinary team, and compare the cost-benefit with and without surgical treatment<sup>4</sup>.

According to Caniano<sup>14</sup>, the four fundamental principles of biomedical ethics (beneficence, non-maleficence, autonomy and justice) should be considered guides from a bioethical perspective. In the context of bariatric surgery in pediatric patients, the heteronomy and dependence of these patients vis-à-vis a responsible adult should be added. As it is an innovative treatment with ethical implications for results evaluations and clinical research, bariatric surgery requires rigorous guidelines, including these principles and defining the role of each party in the process. Thus,



- 1) It is up to the surgeon to prescribe surgery in specific cases;
- 2) Deciding on the performance of the surgery is the duty of the patient and his or her family.
- 3) It is the responsibility of the hospital, which should be a recognized reference hospital for this kind of treatment, to establish a program of pediatric surgery for obesity.

Surgical interventions with dietary restrictions, physical activity programs and behavior therapy are effective measures to assist with weight loss and improvement in disorders associated with obesity; this favorably influences the adoption of this approach. However, with patients with BMI above 40 kg/m<sup>2</sup> and who, when submitted to clinical treatment, reduce their BMI by only 3% in one year of care - a rate that is insufficient to reverse the co-morbidities - the treatment should be considered, with a focus on the principle of beneficence and with a view to the overall welfare of the patient <sup>14</sup>.

Given the risks involved in the surgery, prolonged care is required. This makes it possible to more rigorously evaluate the changes in metabolic and psychological parameters that may occur with weight loss. The benefit of weight loss prior to surgery, together with a medical and behavioral program, has also been shown to help patients and their families in aspects concerning dietary education and life style <sup>14</sup>.

Both the patient and his or her family must have an opportunity to familiarize themselves with the surgical options and the risks and benefits associated with them. Furthermore, they should be counseled regarding diet restrictions and receive other necessary instructions following surgery, with a view to meeting weight loss goals. For patients who are able to lose weight through non-surgical treatment, and who show improvement in co-morbidities, the conduct would be medical care. For those who are not successful with that approach, surgical intervention will depend on the principle of beneficence, the objective of which is to improve not only co-morbidities, but also the health and welfare of the patient. Violation of this principle occurs in the following situations: preoperative evaluation performed in an inappropriate manner, in patients with co-morbidities and/or insufficient weight loss with medical treatment; medical team and hospital without high quality expertise, lacking secure care in the perioperative period and in the long term <sup>14</sup>.

Nevertheless, it is worth asking whether it would be beneficent to consider only surgical treat-

ment in patients with severe obesity, even when obesity is accompanied by serious co-morbidities. The response, both short and long term, of young patients submitted to a surgical procedure, the intention of which is to restore their health and well being, is still unknown. Given the paucity of information, it would be very difficult to construct a risk-benefit matrix regarding what the therapeutic response of the child would be to any of the restrictive or disabsorptive surgical procedures, in the short or long term <sup>11</sup>.

Beneficence also supports the inclusion of low risk children in clinical research trials with validated tests that permit weight loss with the use of medication. In surgical treatment for obesity, the risk of harm before and after surgery, the probability of attaining the desired result and the potential for unforeseen complications are factors that lead us to emphasize non-maleficence.

The risk profile for the two most frequently performed surgeries (gastric bypass in Roux's Y and the adjustable gastric band) has already been established in adult patients and a few cases of adolescents. With the gastric bypass, a procedure that can be performed by laparoscopy or open surgery, the earliest and most lethal complications after surgery are leakage of an anastomosis, local bleeding and pulmonary embolism. Other complications include infection of the operative wound, narrow anastomosis, marginal ulceration, ventral hernia, symptomatic cholelithiasis and insufficient weight loss.

The long term nutritional risks involve calcium, vitamin D, iron, foliate, vitamin B1, vitamin B6 and vitamin B12 deficiency, and their negative consequences for health make it necessary for the patient to commit to taking micro-nutrient supplements. Perturbing symptoms of dumping and other frequent intestinal movements, particularly after eating sweets, such as nausea, vomiting and diarrhea, are recurrent in some patients submitted to the gastric bypass in Roux's Y.

The risk after surgery with the gastric band is tied to mechanical complications and infections. The band may be poorly positioned, with sliding away from the original place; this may occur precociously or in the long term.

From the bioethical viewpoint, the priority of autonomy is to value individual choice, especially with regard to the body. The pediatric patient's autonomy depends on the assumption that the parents will consent to the operation on the minor. It is

necessary for medical treatment and nutritional orientation to be available to the patient; they should be attempted even for those with diseases associated with obesity, such as type II diabetes.

The patient must be able to comprehend and adhere to the lifestyle modification program before surgery, and to understand the nutritional changes after surgery. Failure to comply with the tasks proposed may lead to an unsuccessful experience. For adolescents, rules are hard to follow; and it is questionable whether bariatric surgery would be advisable for someone at that stage of life <sup>16</sup>.

The desire to have a socially acceptable body, free from co-morbidities, may interfere with comprehensive knowledge of the risks and long term consequences of the surgery, such as the outcomes of gastric bypass in Roux's Y, which are irreversible in nature. In this context, providing all detailed information for knowledge of and consent to the intervention is the responsibility of the chief surgeon and his or her team.

The provision of information to the candidate for bariatric surgery, with a view to subsequent authorization obtained through free and informed consent, should occur over a long period, of up to several months. During that period, the patient and his or her family participate in programs related to clarification and behavioral and dietary change, through frequent meetings with the surgeon responsible and his or her entire team. In these encounters, besides clarifying the surgical procedure, the long and short term risks and the uncertainties regarding the results of treatment over the years, the surgeon and his or her team must seek to discover the patient's main objective, as well as his or her capacity to keep promises.

It is up to the bariatric surgery team to make available a psychologist who can help not only to determine the motivation leading the patient to want to submit to weight loss surgery, but also to help him or her to make complicated decisions and overcome his or her fears about the procedure. Furthermore, the medical team must verify whether the patient really wants to submit to the procedure and understands the aims of the intervention, or whether he or she is under the influence of third parties, such as parents and/or relatives.

Although bariatric surgical interventions do not routinely involve social workers, a good outcome of the evaluation depends on an evaluation by that professional of the various characteristics of the patient's family milieu, such as the existence of a supporting

domestic environment during the period of post-operational diet and for taking the vitamin supplements. The social worker should also guarantee to the patient and companion transportation to the regular medical consultations, as well as seeing to the appropriate supervision for the parents and/or other adults.

Furthermore, it may be helpful for the patient to hear reports from people who have already had the procedure and others who did not agree to do it. Studies have shown that patients submitted to bariatric surgery do not remember information related to postsurgical complications. Often such information is transmitted to the patient on the internet, having been taken from websites of medical centers of health professionals. This influences the quality of the information, making its contents quite varied and making it hard to understand the seriousness of the problems that may arise after surgery <sup>16</sup>.

The presence of depression, which is common in adolescent patients suffering from severe obesity, may make it difficult to comprehend the changes and risks after bariatric surgery. Obesity is associated with psychiatric problems, which can also reduce the cognitive and verbal ability of the patient in question <sup>15</sup>. The principle of justice allows for each person to receive a fair share of resources for health and equivalent treatment. The type of assistance rendered to patients by pediatric hospitals and services should neither transgress nor violate the just distribution of resources. In the mission and values of general pediatric hospitals and services is anticipated the provision of health care to all patients, regardless of their socioeconomic level.

Awareness raising for the pediatric hospital system, both in its local context and vis-à-vis the community in general, will be the driving force capable of promoting a better distribution of justice for children and adolescents. Efforts to maintain multidisciplinary treatment and behavior therapy should be the constant goal, along with bariatric surgery programs that require professional leadership, with the support of the state and federal authorities. Recalling that any pediatric program that excludes patients for lack of insurance or financial resources will be violating the principle of justice, as well as violating a legal right: to guarantee their dignity as a human person.

### Final considerations

Papers covering the topic of bariatric surgery in cases of obesity in children and adolescents show

that there is no consensus about doing the surgery with this population<sup>15</sup>. In general, this procedure should be considered when all other approaches have proven ineffective. The fact that children and adolescents are developing and are, therefore, subject to changes in their human dimensions, should not be ignored.

The surgery is not the end of treatment for obesity; quite the contrary, it signifies the start of a period of nutritional and behavioral transformation, with regard to dietary education and exercise, with regular monitoring by the multidisciplinary team of health professional<sup>16</sup>. The importance of reflection by professionals on the ethical aspects of prescribing the procedure is reinforced when one notes that discussions in that regard are underway in societies of bariatric and metabolic surgery, endocrinology and diabetes, as well as the Brazilian College of Surgeons<sup>17</sup>. Dissemination of part of this information by the media may induce an intensification of the desire for surgery, which would appear to be an almost “magical” solution for a problem, the resolution of which calls for a true transformation in the attitudes of everyday life.

Acting with prudence, taking into account all the ethical aspects of each case, becomes the guidepost to be observed in the indication of conduct. The surgeon and his or her entire team must evaluate well each case, verifying the seriousness and the post-surgical risks, especially in the long term. In

considering the surgical act, the physical risks take on larger dimensions, because of the anatomical and physiological changes they imply. However, being a procedure that depends on the participation of the patient and family for better adaptation, resulting as it does in changes of behavior and dietary habits, the surgery involves risks along the emotional, social and spiritual dimensions - which, although present, must never be greater than the benefits.

Making patients and family members aware of all the stages of the process and their implications in the short and long term is highly relevant to the success of the procedure. Establishing a relationship of co-responsibility among the among the team, the patient and the family members emphasizes the commitment to a change of attitude concerning dietary choices and life habits, promoting those changes that are indispensable to the accomplishment of the intended results.

The dignity of the person is one of the greatest foundations of society and consists, above all else, of seeing the human being in his or her specificity, in order to be able to appropriately respond to his or her needs. To attain this goal, respect is the greatest ingredient. In clinical practice, it permits the patient to submit to the indications, aware of its risks and benefits and choosing the option that is in his or her best interest, consciously taking into consideration the scientifically proven and ethically acceptable principles of medicine.

## Referências

1. Mondini L, Levy RB, Saldiva SRDM, Venâncio SI, Aguiar JA, Stefanini MLR. Prevalência de sobrepeso e fatores associados em crianças ingressantes no ensino fundamental em um município da região metropolitana de São Paulo, Brasil. *Cad Saúde Pública* (Rio de Janeiro). ago 2007;23(8):1.825-34.
2. Ogden CL, Flegal KM. Changes in terminology for childhood overweight and obesity. *Natl Health Stat Report*. 2010;25:1-5.
3. Weiss R, Dziura J, Burgert TS, Tamborlane WV, Taksali SE, Yeckel CW *et al*. Obesity and the metabolic syndrome in children and adolescents. *N Engl J Med*. 2004;350(23):2.362-74.
4. Palermo TM, Dowd JB. Childhood obesity and human capital accumulation. *Soc Sci Med*. 2012;75(11):1.989-98.
5. Secretaria de Atenção à Saúde (Ministério da Saúde, Brasil). Portaria nº 492, de 31 de agosto de 2007. [Internet]. 2007 [acesso 26 ago 2012]. Disponível: <http://dtr2001.saude.gov.br/sas/PORTARIAS/Port2007/PT-492.htm>
6. Carvalho MA, Carmo I, Breda J, Rito AI. Análise comparativa de métodos de abordagem da obesidade infantil. *Rev Port Saúde Pública*. 2011;29(2):148-56.
7. Levine MD, Ringham RM, Kalarchian MA, Wisniewski L, Marcus MD. Is family-based behavioral weight control appropriate for severe pediatric obesity? *Int J Eat Disord*. 2001;30(3):318-28.
8. Aikenhead A, Knai C., Lobstein, T. Do surgical interventions to treat obesity in children and adolescents have long- versus short-term advantages and are they cost-effective? HEN synthesis report june 2012. [Internet]. Copenhagen: WHO Regional Office for Europa; 2012 [acesso 25 jan 2014]. Disponível: [http://www.euro.who.int/\\_\\_data/assets/pdf\\_file/0009/165825/e96550.pdf](http://www.euro.who.int/__data/assets/pdf_file/0009/165825/e96550.pdf)
9. Pratt JS, Lenders CM, Dionne EA, Hoppin AG, Hsu GL, Inge TH *et al*. Best practice updates for pediatric/adolescent weight loss surgery. *Obesity* (Silver Spring). 2009;17(5):901-10.
10. Hsia DS, Fallon SC, Brandt ML. Adolescent bariatric surgery. *Arch Pediatr Adolesc Med*. 2012;166(8):757-66.



11. Sjöström L, Lindroos AK, Peltonen M, Torgerson J, Bouchard C, Carlsson B *et al.* Lifestyle, diabetes, and cardiovascular risk factors 10 years after bariatric surgery. *N Engl J Med.* 2004;351(26):2.683-93.
12. Inge TH, Garcia V, Daniels S, Langford L, Kirk S, Roehrig H, *et al.* A multidisciplinary approach to the adolescent bariatric surgical patient. *J Pediatr Surg.* 2004;39(3):442-7.
13. Jorge Filho I. Aspectos éticos e legais da cirurgia bariátrica. *Einstein.* [Internet]. 2006 [acesso 25 jan 2014];4(Supl 1):S125-S9. Disponível: <http://apps.einstein.br/revista/arquivos/PDF/268-125-129.pdf>
14. Caniano DA. Ethical issues in pediatric bariatric surgery. *Semin Pediatr Surg.* 2009;18(3):186-92.
15. Ibele AR, Mattar SG. Adolescent bariatric surgery. *Surg Clin North Am.* 2011;91(6):1.339-51.
16. Hofmann B. Bariatric surgery for obese children and adolescents: A review of the moral challenges. *BMC Med Ethics.* [Internet.] 2013 [acesso 5 mar 2015];14:18. Disponível: <http://www.biomedcentral.com/1472-6939/14/18>
17. Folha de S. Paulo. [Internet]. Médicos defendem ampliar indicações de redução de estômago. [acesso 7 mar 2015]; C7. Saúde + ciência. Sábado 7 de março 2015. Disponível: <http://www1.folha.uol.com.br/equilibrioesaude/2015/03/1599486-medicos-defendem-ampliar-indicacoes-de-reducao-de-estomago.shtml>

#### Participation of the authors

Cynthia Meira de Almeida Godoy, Galeno Egydio José de Magalhães Neto, Marcelo Falcão Santana e Sérgio Flavny Brandão de Menezes Correia performed the literature review and planned the structures of the article. Josimário João da Silva participated in all stages as study supervisor.

