Evaluation of statural growth and puberty of children and adolescents with overweight and obesity

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ABSTRACT: Introduction: Childhood obesity is one of the main public health problems in Brazil and worldwide and is a risk factor for many other metabolic diseases. Furthermore, studies show that being overweight influences growth and puberty. Objectives: In females, being overweight is associated with the anticipation of puberty. However, in males, few studies have been done and they are controversial. Therefore, this study aimed to evaluate growth and puberty in overweight boys and girls. Methods: In this retrospective study, we analyzed the medical records of patients aged 5 to 19 years, overweight or obese, from the pediatric endocrinology clinic of the Irmãode Misericórdia, Santa Casa de São Paulo. The data collected were: height (H) and weight, body mass index (BMI), expressed as z-scores (height SDS and BMI SDS, respectively). Pubertal staging was evaluated according to Tanner's criteria. Final height was considered when the growth rate was less than 2 cm/year and/or bone age was over 15 years. Results: Ninety girls were evaluated, with mean (SD) chronological age (CA) at puberty onset of 9.8 (1.2) years. Girls had higher stature compared to the family pattern, but their final height was equal to the genetic target. Eighty-two boys were evaluated, with a mean (SD) CA at puberty at 11.7 (1.2) years. Boys were above family height at the onset of puberty, but reduced height SDS during puberty evolution. There was a reduction in BMI SDS from beginning to end of puberty, different from what was observed in girls. Discussion: In this group evaluation, the onset of puberty occurred within the expected average age for a general population, in both genders, with no pubertal anticipation or delay being observed. Both groups showed taller stature compared to the familiar target at the beginning of puberty, however, they reached the end within the genetic pattern, suggesting that growth is accelerated in the prepubertal phase and then lowered during puberty. Furthermore, in girls, there was no difference between BMI SDS at the beginning and at the end of puberty, indicating that these patients do not show any worsening in weight after menarche. Boys, on the other hand, reduced BMI SDS during puberty, suggesting, therefore, that treatment should be individualized, since body composition is different according to gender.

Keywords: Obesity; Puberty; Statural growth.