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Obesity since childhood as a risk factor

Obesidad desde la infancia como factor de riesgo

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INTRODUCTION

Obesity (OB) is a public health problem. Its prevalence in women is higher than in men. The consequences related to cardiovascular diseases (CVD), type 2 diabetes mellitus (DM2), hypertension, and others, involve increased morbidity and mortality. In addition, pregnant women should have a more significant number of complications during pregnancy, as well as intergenerational transmission of OB to their children. Being a reversible cardiovascular risk factor, OB can be treated.

OBESITY IN CHILDHOOD AND ADOLESCENCE

The most frequent cardiovascular risk factors (CVRF) associated with obesity in childhood include an increase in body mass index (BMI), elevated concentrations of serum lipids, high blood pressure, rapid weight gain, and severe obesity. All these factors predict subclinical atherosclerosis, heart disease, and increased morbidity and mortality in adulthood.[1] Pediatric obesity is a consequence of chronic positive energy balance and programming during fetal life and lactation, among other causes.[2]

The worldwide frequency of overweight/obesity (OW/OB) in adolescents is 17 and 32%, respectively, similar in boys and girls.[3] Likewise, the pathophysiology of pediatric obesity is the same in boys and girls. However, in adolescents, OW/OB acquires greater relevance in girls due to the risk of complicated pregnancies. Latin America and the Caribbean have the second highest adolescent pregnancy rate (66.5 births per 1,000 girls aged 15-19).[4] This fact is significant from a clinical and public health point of view because obese pregnant girls have a greater risk of miscarriage, gestational diabetes, preeclampsia, preterm birth, depression, and birth complications and are less likely to be able to breastfeed their babies.

In addition, through the placenta and milk, these girls transmit biochemical and metabolic information to the product, programming an imbalance in the hormones of hunger and satiety, greater adiposity, inflammation, insulin resistance, and a greater risk of obesity in adulthood, becoming a vicious circle.

To prevent pediatric obesity, the World Health Organization (WHO) recommends acting from an early age, promoting adequate weight at the beginning of pregnancy, exclusive breastfeeding for six months, and adopting a healthy lifestyle. It is advisable to increase the consumption of fruits, vegetables, whole grains, and nuts, limit the intake of fats, refined sugars, and industrialized foods, change saturated fats to unsaturated ones, and eliminate the consumption of trans fatty acids. In addition, salt intake should be limited, ensuring it is iodized. Other therapeutic lifestyle changes include avoiding smoking, engaging in moderate physical activity for at least 60 min a day, limiting screen time and sedentary activities, and promoting good sleep habits.[5]

For the treatment of obesity in children and adolescents, the scientific evidence

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suggests, instead of restrictive diets, changes in lifestyle that include diet, exercise, and behavior modifications (eating habits, exercise, sleep). Furthermore, the greater the intensity of the intervention, it is expected to achieve more significant weight loss and a more remarkable improvement in cardiovascular risk.[3]

OBESITY IN WOMEN OF CHILDBEARING AGE

OB is a prevalent, preventable, and reversible risk factor (RF). During the last decades, the prevalence of OW/OB has progressively increased, reaching pandemic dimensions. According to WHO estimates,[5] in 2016, 1.9 billion adults aged 18 years and older had excess weight. Of these, 650 million were obese. Thirty-nine percent (39% of men and 40% of women) of adults aged > 18 had OW, and 13% (11% of men and 15% of women) had OB.

According to the NHANES[6] study, from 2015 to 2018, in adults > 20 years old, the prevalence of OB in men was 39.9% and 41.1% in women. On the other hand, severe OB (BMI ≥ 40 kg/m^2) affected 6.2% of men and 10.5% of women. The prevalence in women was higher in Black people and Hispanics.

According to age, the prevalence of OB in adults between 20-39 years was 40.4%, and 42.8% between 40-59 years, with no significant differences between men and women. There are more than twice as many obese adults in the Americas as in the rest of the world, with women being the most affected (prevalence of 29.6 and 24% in men and women, respectively).[7]

High BMI is a RF for the leading non-communicable diseases such as cardiovascular disease, DM2, osteoarthritis, and some types of cancer.[6] OB is a chronic, complex disease characterized by excess body fat, which in the long term, has medical complications that reduce life expectancy.[8] In addition, environmental, genetic, biological, and socioeconomic factors are involved.[9] For the control of OW/OB, the recommendations aim to achieve changes to healthier lifestyles. Only women who do not reach the established goals will require pharmacological and surgical treatment.[10]

CONCLUSION

OB is highly prevalent from childhood, increasing with age. This condition is associated with high morbidity and mortality, particularly from non-communicable diseases. The Americas is the region with the highest rate of OB compared to the rest of the world, with greater affectation in children and women, for which programs at the governmental, institutional, and individual levels are required to achieve control of this pathology.

REFERENCES

1. Steinberger J, Daniels SR, Hagberg N, Isasi CR, Kelly AS, Lloyd-Jones D et al. Cardiovascular health promotion in children: challenges and opportunities for 2020 and beyond: a scientific statement from the American Heart Association. Circulation. 2016; 134: e236-e255.
2. Creanga AA, Catalano PM, Bateman BT. Obesity in pregnancy. N Engl J Med. 2022; 387: 248-259.
3. Cardel MI, Atkinson MA, Taveras EM, Holm JC, Kelly AS. Obesity treatment among adolescents: a review of current evidence and future directions. JAMA Pediatr. 2020; 174 (6): 609-617.
4. Organización Panamericana para la Salud. OPS. América Latina y el Caribe tienen la segunda tasa más alta de embarazo adolescente en el mundo. [Visited on August 24, 2022] Disponible en: https://www3.paho.org/hq/index.php?option=com_content&view=article&id=14163:latin-america-and-the-caribbean-have-the-second-highest-adolescent-pregnancy-rates-in-theworld&Itemid=1926&lang=es#gsc.tab=0
5. World Health Organization (WHO). Obesity and overweight. [Updated July 09, 2021] Available in: https://www.who.int/newsroom/fact-sheets/detail/obesity-and-overweight
6. Centers for Disease Control and Prevention, National Center for Health Statistics. National Health and Nutrition Examination Survey (NHANES) public use data files. [Accessed April 15, 2021] Available in: https://www.cdc.gov/nchs/ nhanes/
7. Pan American Health Organization/World Health Organization. Obesity-a key driver of diabetes. [Visited on Augst 24, 2022] Available in: https://www3.paho.org/hq/index.php?option=com_content&view=article&id=13918:obesity-a-key-driver-of-diabetes&Itemid=0&lang=en#gsc.tab=0
8. Whitlock G, Lewington S, Sherliker P, Clarke R, Emberson J, Halsey J et al. Body-mass index and cause-specific mortality in 900 000 adults: collaborative

analyses of 57 prospective studies. Lancet. 2009; 373 (9669): 1083-1096.
9. Wharton S, Lau DCW, Vallis M, Sharma AM, Biertho L. Obesity in adults: a clinical practice guideline. CMAJ. 2020; 192 (31): E875-E891.
10. Del-Sueldo M, Mendonca-Rivera MA, Sánchez-Zambrano MB, Zilberman J, Múnera-Echeverri AG, Paniagua M. Guía de práctica clínica de la Sociedad Interamericana de Cardiología sobre prevención primaria de enfermedad cardiovascular en la mujer. Arch Cardiol Mex. 2022; 92 (Supl. 2): 1-68.

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