SEVEN publicações acadêmicas
EM PARCERIA COM: IEMS UNIASSELVI

Influence of childhood obesity on the development of diabetes mellitus: An integrative review

Alice Amaro Noleta Dourado[1], Camilly Lorrane Prates de Azevedo[2], Júlia Soares Vieira[3], Luiza Alberta Fernandes[4], Josiane dos Santos Amorim[5].

ABSTRACT

Introduction: Diabetes Mellitus (DM) is a group of metabolic disorders characterized by hyperglycemia, caused by defects in the secretion or action of insulin. DM is subdivided into two types, type 1 DM is directly linked to genetic factors, so its occurrence is very common during childhood, on the other hand, type 2 DM has a higher occurrence in adults, since it is related to environmental factors, such as obesity, generating insulin insufficiency. Nowadays, from the implementation of fast foods and the sedentary lifestyle, caused by technologies, the number of cases of childhood obesity has had a significant increase, thus, as a result of these acts, the occurrence of type 2 Diabetes Mellitus has increased among children. Objective: This article aims to carry out a literature analysis on the influence of childhood obesity on the development of Diabetes Mellitus. Methodology: this is an integrative literature review, carried out in the following databases: Scientific Electronic Library Online (SciELO), Web of Science and National Library of Medicine (PubMed/Medline), Google Scholar and Virtual Health Library (VHL). A total of 30 publications were identified, and 6 bibliographic references from the last 10 years were used. The exclusion criteria were non-pertinence to the theme, and articles prior to this period. The articles analyzed were selected according to the following descriptors: child, obesity, diabetes mellitus and hyperglycemia. Results: considering the significant increase in cases of type 2 diabetes mellitus in childhood, measures are necessary to avoid this condition, for this, it is of paramount importance to make changes in children's lifestyle habits based on a healthy diet and physical activity. Conclusion: considering that the occurrence of DM in childhood can generate complications, such as retinopathy and neuropathy, it is important to prevent the occurrence of this condition.

Keywords: Children, Diabetes mellitus, Hyperglycemia, Insulin, Obesity.

INTRODUCTION

Diabetes Mellitus is characterized by hyperglycemia resulting from the lack of insulin and/or the inability of insulin to properly exert its effects, it has different risk factors such as a sedentary lifestyle, poor diet, continuous use of corticosteroids, among others. When analyzing this pathology, it can be seen that its prevalence is increasing in children, most of whom have the development of type 2 diabetes mellitus, highlighting a change in its pre-existing pattern, since in the past the appearance of this type

[1] Medical Student at FIPGuanambi – BA
[2] Medical Student at FIPGuanambi – BA
[3] Medical Student at FIPGuanambi – BA
[4] Medical Student at FIPGuanambi – BA
[5] Professor of Medicine at FIPGuanambi - BA

occurred mainly in adult patients, the set of these factors configures this disease as a public health problem(ARANHA, 2020; CRIPPA, 2021).

The development of Diabetes Mellitus in children has childhood obesity as a risk factor, since more than 200 children and adolescents develop the disease every day in the world and in addition, a study carried out in the United Kingdom showed that obese children have a four times higher risk of developing type 2 diabetes compared to children of normal weight. this is mainly because the excessive accumulation of body fat causes an increase in insulin production, this situation constantly leads to an overload on the pancreas due to the exaggerated need for insulin, which consequently results in insulin resistance (CRIPPA, 2021).

In addition, it is understood that the number of cases of Diabetes Mellitus has increased in children in accordance with the quantitative growth of childhood obesity, this last pathology occurs from multifactorial causes that include characteristics related to diet, physical activity and psychological factors that are influenced by the media, since a more sedentary pattern is currently disseminated, in which children prefer to use the cell phone for a long period instead of practicing physical activity and In addition, there has been a change in children's eating habits, in which they eat industrialized products and fast food due to the ease offered by these foods and the media dissemination of high-calorie and low-nutritious foods, making it difficult to make healthy choices and inducing individuals in this age group to choose these food options. it is worth noting that the choice of food for children is made by parents who see these manufactured foods as a quick way to eat during their daily work (BRITO, 2019; CONTE and BORGESA, 2020; MÜLLER, 2023).

Children with Diabetes Mellitus may present asymptomatically for a period of time or manifest different symptoms such as polydipsia, polyuria, ketonuria, ketoacidosis, nausea, vomiting and dehydration. In addition, Diabetes Mellitus without proper treatment and follow-up can lead to different complications such as nephropathy, neuropathy, cardiovascular problems, and cardiovascular problems. Therefore, it is important to identify the influence of childhood obesity on the development of this pathology so that this risk factor is avoided and consequently the number of cases of childhood DM reduces together with chronic disorders (DIAS, 2007).

OBJECTIVE

The present study aims to review the literature on the influence of childhood obesity on the development of Diabetes Mellitus through the clinical aspects and the interconnected consequences for the formation of this pathology.

METHODOLOGY

The present project was built from an Integrative Literature Review approach, with the objective of presenting a preliminary theoretical analysis about the influence of childhood obesity on the development of diabetes mellitus.

For this, a bibliographic survey was carried out in the databases Scientific Electronic Library Online (SciELO), Web of Science and National Library of Medicine (PubMed/Medline), Google Scholar and Virtual Health Library (VHL). The articles analyzed were selected according to the following descriptors: child, obesity, diabetes mellitus and hyperglycemia. A total of 30 publications were identified, and 6 bibliographic references were used.

The inclusion criterion establishes the selection of articles from the last 10 years, ensuring timeliness and relevance to the theme. Articles prior to this period and those that did not meet the criteria for the objective of the study were excluded.

DEVELOPMENT

Based on studies carried out from the analysis of selected articles, it is essential to point out that the relationship between childhood obesity and the development of diabetes can be evidenced because overweight and obesity decrease the body's ability to use insulin to properly control blood sugar levels, making this group more susceptible to the development of diabetes. In addition, risk factors contribute to its development, sedentary lifestyle, poor diet, and continuous use of corticosteroids are the main ones (ACCIOLY; et. al. 2005).

The increase in its prevalence in children who mostly have the development of type 2 Diabetes Mellitus is notorious, highlighting a change in their pre-existing pattern, as seen in a study carried out in the United Kingdom showing that obese children have a four times higher risk of developing type 2 diabetes compared to children of normal weight. Therefore, it is understood that the number of cases of Diabetes Mellitus has increased in children in accordance with the quantitative growth of childhood obesity, which occurs from multifactorial causes, referring to diet, physical activity and psychological factors that are influenced by the media, since a more sedentary pattern is currently disseminated (ADDMS; LAMMON. 2007).

In short, it is imperative to adopt healthy habits that should be shared with family members, among them, avoiding industrialized foods, practicing physical activity regularly, adopting routine and discipline to measure capillary glucose daily and the correct use of prescribed medications, since Diabetes Mellitus without proper treatment and monitoring can lead to different complications such as nephropathy, neuropathy and cardiovascular problems. Thus, adopting the correct habits would reduce

the development of type two diabetes mellitus, as well as other comorbidities that may arise during adolescence and youth (BENTOS; BUSHES. 2007).

FINAL THOUGHTS

It is concluded that childhood obesity is highly interconnected with the development of type 2 diabetes mellitus, since it is characterized by the combination of resistance to the action of insulin with the inability of the beta cell to maintain an adequate secretion of this substance. It is, therefore, a chronic disease, caused by environmental, genetic and lifestyle factors, which, when not treated early, can evolve into even more serious diseases, which contributes to increasing the risk of mortality.

However, changes in children's lifestyle habits have been a factor predominantly responsible for the increase in the incidence of type 2 diabetes mellitus in childhood in recent times. Due to the facilities that come from industrialization and technology, it contributes to a sedentary lifestyle and the adoption of inadequate eating habits. These factors contribute to the incidence and prevalence of obesity among children. Therefore, it is necessary to adopt a new lifestyle for these children, carry out research and projects to identify the characteristics of the child population.

REFERENCES

Aranha, L. N., & Oliveira, G. M. M. de. (2020). Circunferência da Cintura, uma Medida Simples para a Obesidade Infantil?. Arquivos Brasileiros de Cardiologia, 114, 538-539.

Brito Silva, A. O., et al. (2019). Relação da alimentação com surgimento precoce da obesidade e diabetes mellitus tipo 2 em crianças e adolescentes. Revista Eletrônica Acervo Saúde, (18), e90-e90.

Contea, D., & Borgesa, C. (2020). Conhecendo os riscos da obesidade infantil: uma revisão integrativa. CEP, 95020, 472.

Crippa, J. E. G., & Capobianco, M. P. (2021). Obesidade Infantil e sua Relação com Diabetes Mellitus Tipo II. Revista Científica Unilago, 1(1).

Dias, S. L., Maciel, T. R. C., & Sablich, G. M. (2007). Diabetes tipo 2 na infância: revisão de literatura. ConScientiae Saúde, 6(1), 71-80.

Müller, S. V. M., Guimarães, A. P. R., & da Conceição Canella, G. C. (2023). Obesidade infantil e consequências na qualidade de vida. Revista Saúde Viva Multidisciplinar da AJES, 6(9).