High blood pressure in children and teenagers from public schools in Cuiabá, Mato Grosso*

Pressão arterial de crianças e adolescentes de escolas públicas de Cuiabá, Mato Grosso

Presión arterial de niños y adolescentes de escuelas públicas de Cuiabá - Mato Grosso

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ABSTRACT

Objective: To describe the prevalence of high blood pressure among students aged 11 to 14 years from public schools in Cuiabá, Mato Grosso, Brazil. Methods: This cross-sectional study was conducted from May to November 2008. Cluster sampling technique was used to select clusters of 9 public schools. Results: The sample consisted of 329 students. They had a mean age of 12 years. More than a half of the students were “de cor parda – brown” (55.0%) and males (58.0%). A great number of students (11.2%) had high blood pressure. Conclusion: The prevalence of high blood pressure among the student was 11.2%. The two major risk factors for high blood pressure were body mass index and ethnicity (being “de cor parda – brown”). There is a need for routine monitoring and management of blood pressure in children and teenagers to prevent the development of high blood pressure in adulthood.

Keywords: Blood pressure/epidemiology; Child; Adolescent

RESUMO

Objetivo: Verificar a prevalência de níveis pressóricos elevados em escolares de 11 a 14 anos no município de Cuiabá, MT, Brasil. Métodos: Trata-se de um estudo transversal realizado no período de maio a novembro de 2008. A amostragem foi por aglomerados, sendo selecionados nove, totalizando 329 escolares. Resultados: A idade média dos 329 escolares foi de 12 anos, sendo 58,4% do sexo masculino e 55,3% da cor/etnia parda. O índice de hipertensão arterial foi de 11,2%. Conclusão: A prevalência de hipertensão arterial foi de 11,2% nos escolares estudados, sendo os fatores de risco o índice de massa corpórea elevado e cor/etnia parda. A partir do estudo, considera-se necessária a monitorização rotineira da pressão arterial em crianças e adolescentes, com a finalidade de prevenção da hipertensão arterial na vida adulta.

Descritores: Pressão arterial/epidemiologia; Criança; Adolescente

RESUMEN

Objetivo: Verificar la prevalencia de niveles de presión elevados en escolares de 11 a 14 años del municipio de Cuiabá, MT - Brasil. Métodos: Se trata de un estudio transversal realizado en el período de mayo a noviembre del 2008. El muestreo fue realizado por conglomerados, siendo seleccionados nueve, dando un total de 329 escolares. Resultados: La edad promedio de los escolares participantes fue de 12 años, de los cuales el 58,4% del sexo masculino y el 55,3% de color/etnia parda. El índice de hipertensión arterial fue de 11,2%. Conclusion: La prevalencia de hipertensión arterial fue de 11,2% en los escolares estudiados, siendo los factores de riesgo el elevado índice de masa corporal y color/etnia parda. A partir del estudio, se considera que es necesaria la monitorización de rutina de la presión arterial en niños y adolescentes, con la finalidad de prevenir la hipertensión arterial en la vida adulta.

Descripores: Presión arterial/epidemiología; Niños; Adolescente

* Study developed in public schools (city and state) from Cuiabá (MT), Brazil.
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INTRODUCTION

According to the 5th Brazilian Guidelines on Hypertension, hypertension is characterized by the increase in tension levels associated with metabolic and hormone changes, cardiac and vascular hypertrophy.

Systemic arterial hypertension (SAH) affects 600 million worldwide, being responsible for 7.1 million deaths every year, corresponding to 13% of the world mortality. It is considered one of the main public health problems in the world. In Brazil, 20% of the adult population is estimated to present hypertension.

There is not much Brazilian data on this prevalence in children, but it is estimated at 1% to 11%. In children under 10 it is usually secondary to renal conditions. In a survey carried out in the city of Maceió-AL, the prevalence found of high blood pressure was 9.4% in students; another study carried out with students aged 7 to 10 years old, in Cuiabá-MT, found a 8.7% hypertension prevalence in the first assessment and 2.3% in the third assessment.

Considering the need for increasing knowledge about this disease among children, the study was carried out to check the prevalence of high blood pressure levels in students aged 11 to 14 years old, in the city of Cuiabá, MT.

METHODS

Epidemiological, cross-sectional study carried out from May to November 2008 in public schools (city and state) from Cuiabá - MT. The study population was formed by students aged 11 to 14 years old, enrolled in these schools to study in the morning and afternoon.

The sample was obtained using cluster sampling. We have selected nine clusters with a total of 329 students.

Blood pressure was assessed, according to the recommendations of the 5th Brazilian Guidelines on Hypertension in two assessments with a five-minute interval between them, and the pressure levels were classified according to gender, age, and height percentile.

Table 1 shows that variables color/ethnic group was a risk factor with statistical difference (p=0.01). The variable family history as a risk factor for the presence of altered blood pressure in the studied population was at a 0.05 significance level. Additionally, Kruskal-Wallis non-parametric test was used to compare normal and altered blood pressure.

RESULTS

Of the 329 students surveyed, 58.4% were females and 55.3% considered themselves mixed race; 88.7% were classified as normotensive and 11.2% presented BP above normal values. Table 1 demonstrates that the population was similar regarding mean age, weight and height.

Table 2 – Students according to risk factors and BP classification, Cuiabá, MT, 2008

However, there is a significant statistical difference in the body mass index (BMI), K=12.45 >X2 0.05;1 =3.84 (Kruskal-Wallis test). Therefore, we may conclude that within usual levels, BMI for the altered category is superior to that of the normal category.

Table 2 shows that variables color/ethnic group was a risk factor with statistical difference (p=0.01). The variable family history as a risk factor for the presence of altered blood pressure in the studied population was...
Hypertension, just as it is in adults. Published studies have pointed out in the literature as one of the most important risk factors for the development of hypertension, just as it is in adults. Factors that may have influenced a higher pressure in the first assessment are anxiety and fear, since many of the students had never seen the procedure before.

In this study, we have identified an 11.7% prevalence of children and adolescents with initial blood pressure equal to or higher than the 90th percentile. Studies show a 7.7% to 16.2% variation. Regarding weight and BMI classification, there is an association with altered blood pressure. This relationship has been pointed out in the literature as one of the most important risk factors for the development of hypertension, just as it is in adults. Published studies show that obesity in childhood contributes as one of the greatest predictors for hypertension in adult life. In some studies, authors found a 9.3% to 14% prevalence of children with overweight risk.

Of the students with altered BP, 29.7% had a history of hypertensive parents. When both parents are hypertensive 50% of the children may develop this condition, however, if only one of them is hypertensive, this proportion decreases to 20% and 30%.

Children from hypertensive parents present higher blood pressure values even if they are within normal percentiles. As observed in Table 2, there is association between blood pressure and skin color. In our region there is a predominance of mixed race due to intensive migration and consequent miscegenation. Studies are conflicting regarding skin color and hypertension. Prevalence and severity of hypertension are higher among black people which may be related with ethnic and/or socioeconomic factors. CONCLUSION

Results from the present study show the difference between blood pressure levels in the first assessment with a considerable decrease in pressure levels in the second assessment. The factors that may have influenced a higher pressure in the first assessment are anxiety and fear, since many of the students had never seen the procedure before.

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REFERENCES