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RESEARCH

Relação entre dados do nascimento e fatores de risco para doenças cardiovasculares em escolares

Relationship between birth data and risk factors for cardiovascular disease in students

Relación entre datos de nacimiento y los factores de riesgo para enfermedad cardiovascular en colegiales

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ABSTRACT

Objective: investigating the relationship between birth data and the presence of risk factors for cardiovascular diseases in schoolchildren in the city of Picos - Piauí. **Method:** a descriptive study of cross-sectional type, conducted among 68 public school children. **Results:** in the study there was a predominance of females (66,2%), with a median systolic blood pressure of 100.0 mmHg and diastolic blood pressure of 65,0 mmHg. Only systolic blood pressure had a statistically significant relationship with birth weight and it was observed that children who are born with less weight achieved a higher SBP. **Conclusion:** it is necessary that the nurse may, during routine child visits, make an assessment of risk factors for cardiovascular disease. **Descriptors:** cardiovascular diseases, child, newborn.

RESUMO

Objetivo: investigar a relação entre os dados do nascimento e a presença de fatores de risco de doenças cardiovasculares em escolares no município de Picos – PI. **Método:** estudo descritivo do tipo transversal, realizado com 68 crianças de escolas públicas. **Resultados:** no estudo houve predomínio do sexo feminino (66,2%), pressão arterial sistólica com mediana de 100,0 mmHg e pressão arterial diastólica de 65,0 mmHg. Apenas a pressão arterial sistólica teve uma relação estatisticamente significante com o peso ao nascer e foi observado que as crianças que nasceram com menor peso obtiveram uma PAS mais elevada. **Conclusão:** faz-se preciso que o enfermeiro possa, nas consultas de puericultura, fazer uma avaliação dos fatores de risco de doenças cardiovasculares. **Descritores:** doenças cardiovasculares, criança, recém-nascido.

RESUMEN

Objetivo: investigar la relación entre los datos de nacimiento y la presencia de factores de riesgo de enfermedades cardiovasculares en escolares de la ciudad de Picos - Piauí. **Método:** estudio descriptivo del tipo transversal, realizado entre 68 niños de escuelas públicas. **Resultados:** en el estudio hubo un predominio del sexo femenino (66,2%), con una media de presión arterial sistólica de 100,0 mmHg y presión arterial diastólica de 65,0 mmHg. Sólo la presión arterial sistólica tuvo una relación estadísticamente significativa con el peso al nacer y se observó que los niños que nacen con menos peso lograron una PAS superior. **Conclusión:** es necesario que la enfermera pueda, durante las visitas de rutina de niños, hacer una evaluación de los factores de riesgo para la enfermedad cardiovascular. **Descriptores:** enfermedades cardiovasculares, niño, recién nacido.

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INTRODUCTION

The chronic non-communicable diseases are becoming major health problems throughout the world, being a major threat to the health of the population and human development, as well as conditions that requires a lot of financial resources on its assistance. These diseases have multiple risk factors, many of them being developed through the lifestyle of each person.

Cardiovascular diseases account for more than 1/3 of the deaths in Brazil. Vascular lesions that accompany these disorders are associated with atherosclerosis. Within its multiple causes, many of the risk factors for this disease, such as obesity, sedentary lifestyle, high blood pressure and smoking, have roots in childhood and feature effects additives in adult life.[1]

The occurrence of cardiovascular risk factors in adolescents has also been described, but there is evidence that the atherosclerotic process can begin even earlier, increasing progressively with age and gravity directly proportional to the number of factors of risk presented by individual.[2]

The excessive consumption of foods rich in carbohydrates concomitant to a decrease in the practice of physical activities has been appointed as important contributors to the aggravation of the case.[3]

Recent scientific disclosures point to new risk factors of CVD: prematurity, low birth weight and lack of breastfeeding. A national epidemiological study have shown progress of dyslipidemias in children and adolescents.[4]

The newborns small for their gestational age are more likely to develop long-term diseases, such as hypertension, glucose intolerance, cardiovascular diseases and metabolic syndrome. In the short term, the low birth weight (LBW) increases the risk of neonatal death and is one of the main responsible for nutritional risk in the first year of life.[5]

In this sense, the nurse must, through the childcare queries, investigate the risk factors of cardiovascular diseases, so that these children can have a life increasingly healthy, without risk for cardiovascular diseases.

This study aimed to investigate the possible relationships between the data of birth and the presence of risk factors of cardiovascular diseases in school children in the municipality of Picos - PI.

METHOD

This study, of descriptive nature and transverse type, is an integral part of a research project that investigated the risk factors for cardiovascular diseases in children and adolescents in the municipality of Picos - PI. It was approved by the Research Ethics Committee of the Federal University of Piauí, in accordance with the prevailing ethical precepts (CAAE: 0094.0.045.000-11).

Performed in elementary public schools of the municipality of Picos – PI, participated in the research the 41 public schools that are located in the urban area, which possess series/years intended for the age group under study and who have agreed to participate in the study. The final sample was of 68 children [6], aged 8 and 9 years old, and that have not been adopted.

We used a form and a questionnaire with questions about socio-environmental characteristics and health conditions.

In carrying out the measures of waist circumference it was used the inelastic and flexible measuring tape of 150 cm in length, with accuracy of one decimal place. The measurement was made with the individual standing in an upright position, relaxed abdomen, arms arranged along the body and the feet together. To ensure the validity and reliability of the measures it was observed, rigorously, the measuring tape position at the time of measurement, keeping it in the horizontal plane.

To obtain the values of waist circumferences circled with the tape the location of the body which wished to measure (natural waistline, which is the narrowest part of the torso between the last rib and iliac crest) being the same placed firmly, without compressing or stretching excessively what would induce the error in measurement. The reading was done at the nearest centimeter, at the point of intersection of the tape. The hip circumference was measured at maximum extension the buttocks. [6] There were held three measurements, considering the arithmetical average of the values.

The apical heart rate was measured auscultating the chest with a stethoscope, an area called point of maximum impulse, for a full minute. As the name suggests, the heartbeats are best auscultated, or felt, at the apex, or lower extremity of the heart. The apex is located just below the left nipple, on line hemiclavicular. [7]

The blood pressure was checked by auscultation method classic with device validated to the research. Checking blood pressure followed the procedures recommended in the VI Brazilian Guidelines of Hypertension.[8] There were used appropriately sized mitten to the circumference of the arms of children and developed a protocol for verification of the blood pressure which considered the averages of two measurements of systolic blood pressure (SBP) and diastolic blood pressure (DBP) recomputed on the child, after 5 minutes of rest. In the case of the difference between the first and the second measures of (SBP) or (DBP) be greater than 5mmHg was held a third measure and considered the average among the 2nd and 3rd SBP and DBP measurements.[2]

For classification of blood pressure there were considered the curves for determining the percentile of the stature of the child according to age and gender, according to the National High Blood Pressure Education Program of the United States [9] and the percentile table referenced of the blood pressure referred by Hypertension Guidelines VI.[8] Children With SBP and/or DBP equal to or above the 95 percentile for gender, age and stature, there were classified in the condition of high blood pressure.

All anthropometric data were scored according to the z-score table that lists each data with age, and were classified according to the protocol of the Food and Nutrition Surveillance System.[10]

The collected data were statistically processed, tabulated in Microsoft Office Excel 2010 and analyzed by statistical software SPSS (Statistical Package for Social Sciences) version 17.0. The same were presented through tables.

It was used the descriptive and inferential statistics for data analysis. To correlate the categorical variables with numerical T test was used for the symmetric distribution data and the Mann-Whitney test to the asymmetric distribution data. For verification of the correlation between two numerical variables it was calculated Spearman's rank correlation coefficient, because data showed asymmetric distribution. The statistical significance for every test applied was assumed for the value of $p < 0,05$.

RESULTS AND DISCUSSION

The collected data were organized by groups of responses, presented in tables and analyzed using descriptive statistics and inferential statistics.

Table 1. Characterization of anthropometric data of children. Picos, 2012. n = 68.

Variables	KS (value p)	Average	Standard deviation /IQ*	Median	Classification
1. Age	0,000	8,49	1,00*	8,00	-
2. Weight (Kg)	0,062	30,73	6,7284	31,00	Surveillance for high weight for age
3. Hight (m)	0,200	1,34	0,079	1,34	Suitable for age
4. IMC** (Kg/m²)	0,055	16,89	2,702	16,90	Suitable for age
5. PAS*** (mmHg)	0,000	98,84	12,00*	100,00	Normal
6. PAD**** (mmHg)	0,000	67,41	10,00*	65,00	Normal
7. FC*****(bpm)	0,200	83,79	9,543	82,00	Normal
Variables	F	%			
8. Gender					
Female	45	66,2			
Male	23	33,8			
9. Ethnic Group					
White	18	26,5			
Black	10	14,7			
Dark skin	40	58,8			
Total	68	100,0			

*IQ: interquartile range; ** Body Mass Index; *** Systolic Blood Pressure; **** Diastolic Blood Pressure; ***** Heart Rate. KS: Kolmogorov-Smirnov Test.

According to table 1, it may note that the median age among children was 8,0 years old, with a weight average of 30,73 Kg weight, the average height was approximately 1,34 m, and the BMI averaging 16,89 kg/m^2. Only the weight was changed, with a rating of surveillance to high weight for age. The other anthropometric data were classified as appropriate for age.

On the hemodynamic data, we can observe a median of 100,00 mmHg for SBP, and 65,00 mmHg for DBP. Heart rate already presented an average of 84,79 bpm (beats per minute). The SBP and DBP found were classified according to the table of percentiles [8], and were considered normal for age.

Regarding the gender, the sample was predominantly female, corresponding with 66,2% of children. The ethnic group that most showed up was of dark individuals (58,8%).

Table 2. Distribution of the sample according to data from the birth and early years of the child's life. Picos, 2012. n = 46.

Variables	F	%		
1. Preterm infant				
No	65	95,6		
Yes	3	4,4		
2. First food offered other than breast milk				
Cow's milk (can, bag or box)	18	26,5		
Bottle or porridge	17	25,0		
Juice or fruit porridge	17	25,0		
Other food	7	10,3		
Pope of vegetables	6	8,8		
Rice, beans or corn gruel	2	2,9		
Soy milk	1	1,5		
	KS (Value p)	Average	IQ	Median
3. Birth weight (grams)	0,000	3004,57	700	3100,00
4. Breastfeeding time (months)	0,000	16,79	20	8,00
5. Exclusive breastfeeding time (months)	0,000	3,75	4	4,00

KS –Kolmogorov-Smirnov Test. IQ: interquartile range.

Of the 68 children surveyed only 4,4% were born before 37 weeks. Regarding the first food other than breast milk offered by mother, 26,5% of mothers responded that it was the cow's milk, being box, bag or can. The median birth weight at birth was of 3.100,00 g, and the median age at which children blew on her chest was 8.0 months exclusive breastfeeding was 4,0 months, according to table 2.

Table 3. Distribution of the sample according to the family history of disease. Picos, 2012. n = 68.*

Kinship	Mother		Father	
	F	%	F	%
Diseases				
Diabetes	1	1,5	3	4,4
Hypertension	1	1,5	1	1,5
Cardiopathy	2	3,0	1	1,5

* Multiple-choice question.

With respect to the presence of diseases in family history, 1,5% of the mothers of the children had hypertension, 2 (3,0%) were cardiopaths and 1 (1,5%) had diabetes. Already among the parents, 3 (4,4%) were diabetic.

Table 4. Relationship between gestational age and risk factors for cardiovascular diseases. Picos, 2012. n = 68.

Risk factors for cardiovascular diseases	Pre-term		P value
	No	Yes	
IMC	17,01	16,22	0,499*
PAS	34,65	31,33	0,771**
PAD	40,00	34,25	0,615**

*Test T; **Mann-Whitney Test

According to table 4, where he was made the crossing between BMI, SBP and DBP and gestational age, it was observed that there was no statistically significant relationship between these data in the children surveyed.

Table 5. Relationship between birthweight and breastfeeding with risk factors for cardiovascular diseases. Picos, 2012. n = 68.

Variables	Breast feeding		Exclusive breast feeding	
	Spearman's rank correlation	P value	Spearman's rank correlation	P value
IMC	-0,029	0,816	-0,099	0,441
PAS	-0,090	0,470	-0,231	0,068
PAD	-0,073	0,563	-0,123	0,337
	Birth weight			
	Spearman's rank correlation	P value		
IMC	0,014	0,908		
PAS	-0,271	0,026		
PAD	0,000	0,998		

On the correlation between the risk factors for cardiovascular disease with the birth weight, only SBP had a relationship statistically significant and it was observed that children who were born with lower weight obtained a higher SBP.

According to table 5, where it was analyzed the influence of breastfeeding on the risk factors for cardiovascular disease, was not found no statistically significant relationship between the data.

The present study evaluates the relationship between birth data and the risk factors for cardiovascular diseases in children in the municipality of Picos, which are results of extreme importance for obtaining information about cardiovascular disease and risk factors related to it and aims at instituting preventive measures which promote the improvement of the quality of life of children showing patterns of life that propitiate a possible development of one of these diseases.

In a study that evaluated the prevalence of overweight and obesity in school and the association with low birth weight and family history for cardiovascular disease, it was observed a median age of 8,39 years old.[11] Closing much with this study that found a median of 8,0 years old.

Regarding the gender, the results of this study showed that the prevalence was female (66,2%). Similar results were found in a study with the same age group, held in Belo Horizonte, obtaining a predominance of females with 53%.[12]

According to the present study, it was found an average of 30,73kg of weight, the stature was of 1,33 m. In a study where likened the growth of Brazilian children and adolescents with reference curves for physical growth. A similar data with a weight of approximately 30 kg and height of 1,30 m.[13]

In a study in Campo Grande - Mato Grosso do Sul [14] with children of similar age showed a SBP of 103,5 mmHg and a DBP of 66mmHg; too close to the values found in this study was found SBP of 100,00mHg, and DBP was slightly lower than 65,0.

In a similar study found an average weight at birth of 3080g [15], being very similar to the average weight found in this study, 3100g.

In relation to the gestational age, there was a prevalence of children to term (95,6%). This question deserves attention, considering that in the world are born daily approximately 13 million preterm (10% of births), according to a review on the subject published in the Bulletin of the World Health Organization.[9] Studying a large sample of men in the Sweeden [16], identified that premature birth is a risk factor for hypertension. We also observed that premature and small for gestational age (SGA) showed significantly higher values of SBP and DBP than kids SGA, but born to term.[17]

A study assures [18] that rising obesity in infants is a result of early weaning and incorrect; as a result of eating bugs in the first year of life, especially in urban populations which abandon early breastfeeding and replace it by feeding with excess carbohydrates in quantities greater than those necessary for their growth and development.

The hypothesis that breastfeeding would have a protective effect against obesity is not new. However, controversial results have been found, and the topic remains extremely current, mainly outside the great increase that has been noted in the prevalence of obesity.[19]

In a study where it was evaluated the moment of introduction of complementary foods in the diet of infants in the municipality of Campinas, was found a median of AME (exclusive breastfeeding) of 90 days [20]. Similar data were observed in this study where it was found a median of 4,0 months.

An element that is often present in breastfeeding ineffective scenario and also relates to the excessive weight gain in infants is the use of artificial milk formulas. The early interruption of breastfeeding at the expense of adoption of an artificial feeding elevates children's energy consumption in 15% to 20% when compared to the energy consumption of child in exclusive breastfeeding.[21] The present study showed that the first food offered for children were just these artificial milk formulas, accounting for 26,5 %. In a study which evaluated the care with feeding in children under one year old in maternal perspective, it was observed a first food offered different consumption of breast milk from 27,2% for integral milk and 34,3% for powder milk. [22]

The maternal milk and foods rich in simple carbohydrates, represented by thickeners, biscuits and breads, characterized the feed base of these children. The major part of these foods in the diet composition of Northeastern children has already been singled out by studies in other Northeastern States such as Bahia and Pernambuco.[23]

In the study by Palmeira [24], it was reported that around 15 months old, there was a large reduction in children fed by breast milk. The present study shows that the average abandonment of breastfeeding was 8.0 months.

As in the present study, it has been observed [25] that the intersection of information concerning values of BMI with blood pressure levels indicates that the low weight is not associated to high blood pressure levels, whether in boys (p = 0,11) or girls (p = 0,49).

In this study, a statistically significant relationship was observed between the SBP and the birth weight. Another research [26] has shown that children and adolescents were considered small for gestational age have increased risk for developing Metabolic Syndrome, which is a risk factor for developing cardiovascular disease.

Knowledge of risk factors for cardiovascular diseases in children, and its relationship with birth data it is necessary to take measures to control or prevent a possible complication in that child's adult life.

CONCLUSION

The study was able to complete its goals, and so can compare the data of birth with the risk factors for cardiovascular diseases of children investigated.

Birth data were crossed with the anthropometric data of children, and found a relationship between the birth weight of boys with the SBP, where was noted that the children of low weight obtained a higher SBP.

During the survey we found some difficulties, such as the paucity of studies on this subject, so we suggest that more works should be developed making this comparison, so that you can investigate further this relationship.

Given this it is important that health programs can be created to decrease increasingly cardiovascular risk in children, and nursing can, in childcare queries, make an assessment of the risk factors of cardiovascular diseases.

The nurse, through the childcare queries can act investigating these cardiovascular risk factors, such as making a daily assessment of blood pressure, weight, BMI, and habits of life of these children, and can also make an education about healthy living habits both in children as in their parents.

REFERENCES

1. Mendes MJFL, Alves JGB, Alves AV, Siqueira PP, Freire EFC. Associação de fatores de risco para doenças cardiovasculares em adolescentes e seus pais. Rev Bras Saúde Matern Infant. 2006, maio, Recife, 6 (Supl: S49-S54).

2. Molina MCB, Faria CP, Montero MP, Cade NV, Mill JG. Fatores de risco cardiovascular em crianças de 7 a 10 anos de área urbana, Vitória, Espírito Santo, Brasil. Cad Saúde Pública 2010, 26(5),909-17.

3. Oliveira TCS, Stripp MAC, Menezes MSH, Silva NC, Erdmann AL. Obesidade Abdominal associada a fatores de risco cardiovasculares abordagem de Enfermagem. Rev de Pesq Cuidado é Fundamental Online 2010, out/dez 2 (Ed. Supl.): 641-645.

4. Rover MRM, Kupek E, Delgado RCB, Souza LC. Perfil lipídico e sua relação com fatores de risco para a aterosclerose em crianças e adolescentes. RBAC 2010, Florianópolis-SC, 42(3), 91-195.

5. Grellert MN, Muniz LC, Vieira, MF. Prevalência de baixo peso ao nascer entre crianças acompanhadas na puericultura da unidade básica de saúde do bairro das dunas. Faculdade de Nutrição-UFPel, 2010. Pelotas-RS. Acesso em 06 ago 2013. Disponível em: http://www.ufpel.edu.br/cic/2010/cd/pdf/CS/CS_00177.pdf

6. Ferreira MG, Valente JG, Gonçalves-Silva RMV, Sichieri R. Acurácia da circunferência da cintura e da relação cintura/quadril como preditores de dislipidemias em estudo transversal de doadores de sangue de Cuiabá, Mato Grosso, Brasil. Cad Saúde Pública. 2006 Feb; 22(2): 307-14.

7. TIMBY BK. Conceitos e habilidades fundamentais de enfermagem. Porto Alegre: Artmed, 2007. 912p.

8. Diretrizes Brasileiras de Hipertensão, IV. Arq Bras Cardiol, 2010, 95(Supl 1),1-51 .

9. National high blood pressure education program working group on high blood pressure in children and adolescents. The fourth report on the diagnosis, evaluation, and treatment of high blood pressure in children and adolescents. Pediatrics, 2004,555-576.

10. Brasil. Ministério da Saúde. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Protocolos do Sistema de Vigilância Alimentar e Nutricional – SISVAN na assistência à saúde. Brasília: Ministério da Saúde, 2008.

11. Strufaldi MWL, Silva EMK da, Puccini RF. Sobrepeso e obesidade em escolares pré-púberes: associação com baixo peso ao nascer e antecedentes familiares para doença cardiovascular. Embu região metropolitana de São Paulo, 2006. Ciênc saúde coletiva. 2011 Nov; 16(11): 4465-72.

12. Robespierre QCR, Lotufo PA, Lamounier JA, Oliveira RG, Soares JF, Botter DA. Fatores adicionais de risco cardiovascular associados ao excesso de peso em crianças e

adolescentes: o estudo do coração de Belo Horizonte. Arq Bras Cardiol. 2006 June; 86(6): 408-418.

13. Silva DAS, Pelegrini A, Petroski EL, Gaya ACA. Comparação do crescimento de crianças e adolescentes brasileiros com curvas de referência para crescimento físico: dados do Projeto Esporte Brasil. J Pediatr. (Rio J.) 2010; 86(2),115-120.

14. Ferreira JF, Aydos RD. Prevalência de hipertensão arterial em crianças e adolescentes obesos. Ciênc saúde coletiva 2010; 15(1),97-104.

15. Gomes FMS. Relação entre peso de nascimento e ganho pondoestatural no primeiro ano de vida e fatores de risco para doença cardiovascular em adultos nascidos entre 1977 e 1989 acompanhados em um centro de saúde em São Paulo, 2010. 70f. Tese (Doutorado), Faculdade de Medicina da Universidade de São Paulo.

16. Johansson S, Iliadou A, Bergvall N, Tuvemo T, Norman M, Cnattingius S. Risk of high blood pressure among young men increases with the degree of immaturity at birth. Circulation. 2005 Nov;112(22):3430-6.

17. Willemsen RH, de Kort SW, van der Kaay DC, Hokken-Koelega AC. Independent effects of prematurity on metabolic and cardiovascular risk factors in short small-for-gestational-age children. J Clin Endocrinol Metab. 2008 Feb;93(2):452-8.

18. Fisberg M. Atualização em obesidade na infância e adolescência. Editora Atheneu, 2005, São Paulo-SP, 235p.

19. Balaban G, Silva GAP. Efeito protetor do leite materno contra a obesidade infantil. J Pediatr (Rio J). 2004;80(1):7-16.

20. Bernardi JLD, Jordão RE, Barros Filho AA. Alimentação complementar de lactentes em uma cidade desenvolvida no contexto de um país em desenvolvimento. Rev Panam Salud Publica. 2009 Nov; 26(5): 405-11.

21. Nejar FF, Segall-Corrêa AM, Rea MF, Vianna RPT, Panigassi G. Padrões de aleitamento materno e adequação energética. Cad Saúde Pública. 2004 Feb; 20(1): 64-71.

22. Pelegrin R. C. P. O cuidado na alimentação de crianças menores de um ano na perspectiva materna. 2008. 167f. Tese (Mestrado). Escola de Enfermagem de Ribeirão Preto/USP. Ribeirão Preto-SP.

23. Farias Júnior G, Osório MM. Padrão alimentar de crianças menores de cinco anos. Rev Nutri. 2005, 18(6), 793-802.

24. Santos ALT, Weiss T, Duarte CK, Azevedo MJ, Zelmanovitz T. Análise crítica das recomendações da Associação Americana de Diabetes para doença cardiovascular no diabetes melito. Arq Bras Endocrinol Metab, 2009; 53(5), 657-66.

25. Monego ET, Jardim PCBV. Determinantes de risco para doenças cardiovasculares em escolares. Arq Bras Cardiol. 2006 Jul; 87(1): 37-45.

26. Damiani D, Kuba VM, Cominato L, Damiani D, Dichtchekenian V, Menezes Filho HC. Síndrome metabólica em crianças e adolescentes: dúvidas na terminologia, mas não nos riscos cardiometabólicos. Arq Bras Endocrinol Metab. 2011 Nov; 55(8): 576-82.

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