127 - EVALUATION OF GROWTH IN CHILDREN WITH SIX MONTHS OF LIFE IN THE URBAN AREA OF CITY OF ARCOVERDE-PE/BRAZIL

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INTRODUCTION

Patterns of child growth and development vary considerably depending on various factors, including intrinsic factors (genetic, metabolic and malformation) and extrinsic factors (health, nutrition, hygiene, and socioeconomic conditions) (WORLD HEALTH ORGANIZATION - WHO, 2002). Thus, it is possible to say that the individual's height is the result of the interaction between genetic and environmental factors, which will allow greater or lesser expression of their genetic potential (MINISTRY OF HEALTH - MH, 2007). Regarding the genesis of delayed linear growth in the state of Pernambuco, the stature deficit is the dominant manifestation in its epidemiological profile. According to Romari and Lira (2004), its frequency is 12.1% corresponding to approximately three times that found for the weight deficit of 4.9%. From the recognition of the important influence that living conditions have on growth, WHO and MH recommend monitoring growth, through the use of anthropometric indices to generate indicators of nutritional status and activity of child care (ZEFERINO; BARROS FILHO; BETTIOL, BARBIERI, 2008).

Thus, the association of alimentary habits using these indicators has been studied since the 80s by several authors, such as Gokcay, Turan, Partalc and Neyza (2003), which found that breastfed infants had initially higher growth than the formula fed infants. In 2001, WHO has developed a systematic review of scientific literature on duration of exclusive breastfeeding, recognizing the need to change the recommendation of the exclusive breastfeeding from four to six months of life, and continued later with the introduction of complementary feeding (SPYRIDES; STRUCHINER; BARBOSA; KAC, 2005). Anthropometric and nutritional measures used to analyze the different behavior of growth are: age (A), weight (W), height (H), head circumference (HC) and the relationship weight/height (W/H), weight/age (W/A) and height/age (H/A).

Considering the importance of evaluate these indicators, due to its low cost and simplicity, the aim of this research is to evaluate the growth of children under six months of life care in public health from the Urban Area of Arcoverde-PE/Brazil. It is important to note that, for professionals working in this area, the results indicate that it is possible to evaluate and adopt new measures to improve children's primary health care.

MATERIAL AND METHODS

This was an exploratory, descriptive and field study with a quantitative approach.

The study was realized in October and November 2008 in the 15 FHP's of the Urban Area of Arcoverde. We studied 44 children male and female in the sixth month of life. Children with cognitive and motor diseases and with congenital malformation, which could have compromised their growth, were excluded. The procedures for monitoring, during the prenatal, in the FHP's in Arcoverde were realized in groups or individually, as the following: plans for pregnant women regarding infant feeding, as well as previous experiences, myths, beliefs, fears, fantasies and concerns related to breastfeeding, importance of breastfeeding, advantages and disadvantages of using non-human milk, the importance of breastfeeding immediately after delivery; the technique of positioning and attachment of the breast properly, prevention of complications related to lactation; possible difficulties in breastfeeding and how to prevent them; and the normal behavior of the newborn. After birth, mothers received instructions on the care of newborns about the importance of breastfeeding, immunization, hygiene and attendance demand in ambulatory care in those 15 FHP's. The project was approved by the Research Ethics Committee of Caruaruense Association of Higher Education (ASCES) of the City of Caruaru-PE/Brazil (Protocol n.160/08), and all responsible for children signed an informed consent.

For data collection an interview was realized by using a form pre-validated in other studies, according to the questionnaires of the Brazilian Institute of Geography and Statistics (IBGE - 2000), with questions that dealt with socioeconomic data of the responsible for the child. To analyze the anthropometric variables were used graphs from National Children's Booklet (MH, 2007), in order to define the parameters of normality adopted for evaluation of growth.

The growth evaluation was performed by measuring of A, W, H, HC and the interrelation among these variables: W/H, W/A, H/A, and thus the values were categorized and classified into levels, according to this booklet (MH, 2007). For each level, it was determined a score of zero to three (0 to 3) in order of preference: far below the ideal (0), slightly below the ideal (1) ideal (2) and above the ideal (3). For the measurement of weight it was used a spring balance; the height by a rule pediatric, and the head circumference by a metric tape.

Measurement of W was expressed in kilograms (kg) of H and the HC in centimeters (cm).

The Descriptive Analysis was realized by the use of frequency distribution, the Spearman's rank Correlation (rho) and the t Test of Student. All tests were performed with a SPSS software version 10.0, adopting a significance level of 5% ($p \leq 0.05$).

RESULTS AND DISCUSSION

It were found significant differences between boys and girls in variables weight

($p = 0.045$) and head circumference ($p = 0.027$) (Table 1), similar to the results obtained by Oliveira et al. (2007). For height and weight, both boys and girls were within the average, which corresponds to the 50th percentile (P50), in accordance with the results found by Saigal, Stoskopf, Streiner and Burrows (2005).

TABLE 1 - Average of anthropometric variables of children with six months of life of the Urban Area Arcoverde City-PE/Brazil (2008).

Variables	n = 44 Mean ± DP Masculine	Feminine	Value Minimum Masculine	Value Minimum Feminine	Value Maximum Masculine	Value Maximum Feminine
Weight (kg)	8,125 ± 1,18*	8,125 + 1,03	5,00	5,50	10,50	9,90
Height (cm)	87,145 ± 3,44	65,550 + 2,79	61,00	59,00	74,00	70,50
Head Circumference (cm)	44,317 ± 1,18*	43,275 + 1,22	41,00	41,00	49,00	46,00

* T test of Student (significant for p ≤ 0,05).

It was found that approximately 92% of the sample (Graph 1), 40 children had a W/H relation outside the normal range, slightly below the ideal, and (8%) 4 children, had ideal weight for their height. For the evaluation of W/A (Graph 1) showed that most of the studied group,

36 children (80%) were within normal limits, 10% of this group corresponding to 4 children were above the ideal weight, 2 (5%) below the ideal and 2 (5%) far below the ideal. It can be argued, however, that in the W/A relation, deficits were observed, however, less than the entire sample, as 80% of children were within the normal range.

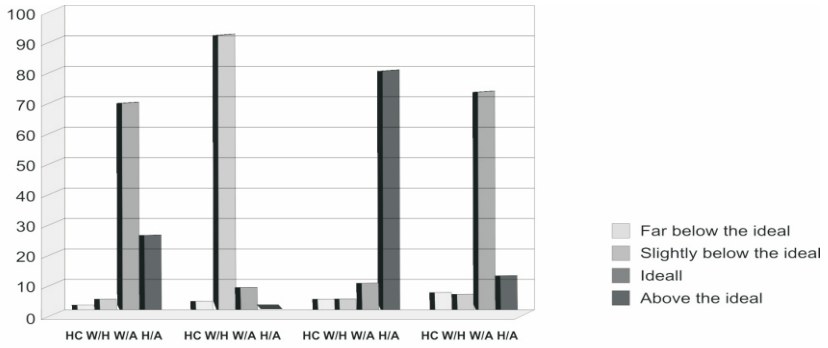
It can also be seen in graph 1, that 33 (75%) children had the H/A relation in the ideal standard, 5 (12%) above the ideal, 3 (6.5%) slightly below the ideal and 3 (6.5%) far below the ideal. Thus, it was concluded that for this variable, the most of children had height compatible with the six months of life (P50). In the graph 1 it is observed that 31 children (70%) obtained HC values appropriate for the age, 11 (25%) had values above the ideal and 2 (5%) below the ideal. These findings coincide with those of Carvalho et al. (2008), which accompanied the growth in children under one year in health services in the state of Pernambuco.

Looking at the classification of W/H, there was a positive correlation (rho = 0.61), which means to say that the kids have a linear growth and a weight appropriate for the age during the study period, according to the graph of this relationship, as recommended by the MH (2007).

Table 2 describes the raising of socioeconomic variables and hygiene and

health conditions of the children's families. It was observed that only the type of water showed a negative correlation (rho = - 0.47) with the weight and with the W/A relation (rho = - 0.35), as about 61.4% said they were using water of poor quality, which justified the development deficit in some children, having a negative effect on weight and with the W/A relation, indicating the lack of potable water and sanitation as factors in the growth retardation of children which is similar to the findings in researches of Immink and Payongayong (1999).

Although the other variables in the form of this study showed relevance, there was no correlation of these factors with one another and with the indicators of growth adopted. However, according to Gross, Lee, Davis and Gross (1990), family income, access to health services, poor education of mothers and poor housing conditions show, empirically, the sequence of these variables that act as a link of a causal chain from which it derives child growth. The condition of poverty, measured by family income of the children involved, was not associated with deficits of anthropometric indicators emphasized in this study.



GRAPH 1 - Relative frequency of nutritional indicators of children with six months of life from Urban Area of the Arcoverde City-PE/Brazil (2008).

However, it is believed that the level of per capita income below the minimum wage, presented by 54.5% of the families studied, certainly restricts the purchasing power and satisfaction of material needs of life and may put children who live in that reality economic condition in high vulnerability to the weight deficit, according to Oliveira, Assisi, Pinheiro and Barreto (2006).

The sanitary conditions found in this study were favorable. It was found that 86.4% of households had sewage system (Table 2). Fernandes, Gallo and Advíncula (2006) observed that sanitation influences in the determination of anthropometric parameters, contributing to a better or worse health status of the population studied. According to Monteiro, Benicio and Freitas (1997) the lack of sewerage system increases the risk of contamination of the water used at home, enhances the risk of infectious and parasitic infectious diseases, and, by extension, influences quite significantly on the anthropometric indicators, according to their precarious situation, increasing by 2.5 times the risk of growth retardation in children.

The occurrence of low birth weight observed in this study (4.5%) was lower than recently identified in Brazil (9.2%) and similar to that observed in developed countries (5% to 6%). Although it is not associated with any deficit in this study, it has epidemiological significance since it acts as a strong predictor of postnatal growth, particularly because linear growth may start in the womb, according to National Survey of Demography and Health (PNDS - 1999) and Frongillo (1999).

Among the immediate determinants of linear growth in childhood, we emphasize the inadequate intake of nutrients as an adverse factor for adequate child growth. In the present study it was verified that 25% of infants receive other types of food before the first month of life, and 70.5% adhered to their own family menu. However, just as the findings of Baptista, Andrade and Giolo (2009), these children have not left the breastfeeding, thus there was no commitment to that variable.

According to Rice, Sacco, Hyder and Black (2000), monitoring of growth has the advantage of providing relevant information to health professionals about the effect of interventions and programs targeting the child. This requires at least good level records, high rates of coverage, regularity of care, accurate measurements of anthropometric measurements, trained professionals, maternal education in health care and nutrition.

TABLE 2 - Raising of socioeconomic families of children with six months of life from Urban Area of the Arcoverde City-PE/Brazil (2008).

Variables	Answers	Percentages (%)
The mother's age	20 a 29	54,50
Matrimonial situation	Consensual union	45,50
Education level	Fundamental Incomplete	52,30
Family income	Smaller than a minimum wage	54,50
Occupation	Of the home	72,70
Households	Brick	100
Members in the house	Three	29,50
Energy	Yes	100
Type of water *	Without treatment	61,40
Water supply	Public system	100
Garbage	Collected	100
Dejections	Sewage system	86,40
Feeding	Family menu	70,50
Other foods of the infants	Before the first month of life	25,00
Responsible for the children	Mother	77,30

* Spearman's rank (significant for $p \leq 0,05$).

CONCLUSIONS

Children under six months of life, accompanied by the 15 FHP's in the Urban Area of Arcoverde-PE/Brazil showed favorable growth patterns, which signaled the need for greater attention only to the water treatment, as 61.40% mothers reported the lack of treatment, influencing such a negative effect on weight and the W/A relation. Thus, the actions developed in these FHP's are shown to be effective as families participate together the multidisciplinary healthcare team (doctors, nurses and health workers), not being observed patterns of abnormality in the anthropometric variables studied.

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EVALUATION OF GROWTH IN CHILDREN WITH SIX MONTHS OF LIFE IN THE URBAN AREA OF CITY OF ARCOVERDE-PE/BRAZIL

ABSTRACT

Growth is a dynamic and continuous process of life, expressed by the increase in body size and is one of the best indicators of child health. The research aimed to evaluate the growth of 44 children with six months of life, seen in fifteen Programs of Family Health in the Urban Area of Arcoverde-PE/Brazil. The anthropometric variables were analyzed: ae, weight (kg), height (cm), head circumference (cm), weight/height, weight/age, height/age, as well as socioeconomic variables of families. Statistically, the descriptive analysis, the Spearman's rank Correlation (rho) and the t Test of Student were used. The results indicated a correlation between the length and weight, which means that the kids had linear growth during the period studied. The children grew within normal limits in the relations: weight/age, height/age and head circumference, however, the relation weight/height did not meet these criteria; and there were significant differences between groups in the behavior of the weight. It is concluded that programs for pregnant women and children, aged six months, has been effective, as the family participates together the multidisciplinary healthcare team, not being seen, therefore, patterns of abnormality in the anthropometric variables studied.

KEY-WORDS: growth, anthropometry and children.

ÉVALUATION DE LA CROISSANCE CHEZ DES ENFANTS AGÉS DE SIX MOIS DANS LA ZONE URBAINE DE LA LOCALITÉ D'ARCOVERDE-PE/BRÉSIL

RÉSUMÉ

La croissance est un processus dynamique et continu de la vie, exprimée par l'augmentation de la dimension corporelle et constitue un des meilleurs indicateurs de santé de l'enfant. La recherche a eu comme objectif d´évaluer la croissance de 44 enfants, agés de six mois, reçus dans quinze Programmes de Santé de la Famille dans la Zone Urbaine, de la localité d'Arcoverde-PE/Brésil. Les variables anthropométriques ont été analysés: le poids, la taille, l´âge, le périmètre céphalique, poids/taille, poids/âge, taille/âge; ainsi que, des variables socioéconomiques des familles. Statistiquement, l´on a utilisé de l'analyse descriptive, de la Corrélation de Spearman (rho) et l'Essai t d'Student. Les résultats ont indiqué la corrélation positive pour la taille et le poids, ce qui permet d'affirmer que les enfants ont obtenu une croissance linéaire pendant la période étudiée. Néanmoins, l'augmentation du poids n'a pas suivi, de façon graduelle, la taille comme espérée. Les enfants ont présenté une croissance dans les lignes de normalité au niveau des rapports: poids/âge, taille/âge et périmètre céphalique. Cependant, l'association poids/taille n'a respecté ces critères; et Il a y eu une différence importante entre les groupes au niveau du comportement du poids. Il s´en déduit que les programmes pour les femmes enceintes et les enfants de six mois deviennent efficace, au fur et à mesure que la famille participe conjointement à l'équipe de santé multidisciplinaire, en ne constatant, pourtant pas, des normes d'anomalie au niveau des variables anthropométriques étudiées.

MOTS-CLÉS: croissance, anthropométrie, enfants.

EVALUACIÓN DEL CRECIMIENTO EN NIÑOS DE SEIS MESES DE VIDA EN LA ZONA URBANA DEL MUNICIPIO DE ARCOVERDE-PE/BRASIL

RESUMEN

El crecimiento es un proceso dinámico y continuo de la vida, expresado por el aumento del tamaño corporal y constituye uno de los mejores indicadores de la salud del niño. La investigación tuvo por objetivo evaluar el crecimiento de 44 niños, de seis meses de vida, atendidas en 15 Programas de Salud de la Familia en la zona urbana del municipio de Arcoverde-PE/Brasil. Se analizaron las variables antropométricas: peso, longitud, edad, perímetro cefálico, peso/altura, peso/edad, altura/edad, además de las variables socioeconómicas de las familias. Estadísticamente, se utilizó un análisis descriptivo, Correlación de Spearman (rho) y la Prueba de t Student. Los resultados indicaron una correlación positiva para la longitud y el peso, lo que implica que los niños obtuvieron un crecimiento lineal durante el periodo estudiado, pero, el aumento del peso no evolucionó gradualmente de la forma esperada. Los niños presentaron un crecimiento dentro de los estándares de normalidad en las relaciones: peso/edad, altura/edad y perímetro cefálico, pero la asociación peso/altura no atendió a esos critérios; y hubo una diferencia significativa entre los grupos en el comportamiento del peso. Se concluye que los programas para gestantes y niños de seis meses se muestran eficaces, a medida que la familia participa conjuntamente con el equipo de salud multidisciplinar, no constatando, por lo tanto, estándares de anormalidad en las variables antropométricas estudiadas.

PALABRAS-CLAVES: crecimiento, antropometría, niños.

AVALIAÇÃO DO CRESCIMENTO EM CRIANÇAS COM SEIS MESES DE VIDA NA ZONA URBANA DO MUNICÍPIO DE ARCOVERDE-PERNAMBUCO/BRASIL

RESUMO

O crescimento é um processo dinâmico e contínuo da vida, expresso pelo aumento do tamanho corporal e constitui um dos melhores indicadores de saúde da criança. A pesquisa objetivou avaliar o crescimento de 44 crianças, com seis meses de vida, atendidas em quinze Programas de Saúde da Família, na Zona Urbana do Município de Arcoverde-PE/Brasil. Foram analisadas as variáveis antropométricas: peso, altura, idade, perímetro cefálico, peso/altura, peso/idade, altura/idade; bem como, variáveis sócio-econômicas das famílias. Estatisticamente, utilizou-se análise descritiva, Correlação de Spearman (rho) e o Teste t de Student. Os resultados indicaram correlação positiva para a altura e o peso, o que implica afirmar que as crianças obtiveram crescimento linear durante o período estudado. As crianças apresentaram crescimento dentro dos padrões de normalidade nas relações: peso/idade, altura/idade e perímetro cefálico, porém a associação peso/altura não atendeu a esses critérios; e houve diferença significativa entre os grupos no comportamento do peso. Conclui-se que os programas para gestantes e crianças, com seis meses, vem se mostrando eficaz, à medida que a família participa juntamente à equipe de saúde multidisciplinar, não sendo constatado, portanto, padrões de anormalidade nas variáveis antropométricas estudadas.

PALAVRAS-CHAVE: crescimento, antropometria e crianças.

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