49 - COMPARISON OF MATURITY OF DOMINANT SIDE AND APPENDICULAR COORDINATION OF CHILDREN PRE-TERMS AND TERM OF FIVE YEARS OF AGE CITY OF CASCAVEL-PR

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INTRODUCTION

It is figured that development is the process of complex changes and interconnected which participate in all aspects of growth and maturation of the units and systems of the body. Each child shows standard patterns of development, since their inherent characteristics suffer the constant influences of a chain of transactions that occur between children and their environment (BURNS MACRONALD, 1999).

The importance of birth weight, as well as to gestational age in predicting problems in newborns and after justified by the relevant role they play in the maturity of various systems in children born preterm (SON, 1992).

According Basegio (2000), is considered newborn preterm, the fetus born with a gestational age less than 37 weeks, or two hundred and fifty eight days counted from the first day of the last menstrual period, independent of the weight of birth.

Epidemiological surveys have shown that the number of premature births suffered increase when the low socio-economic status is reflected in the studied population definite in educational or financial bases. The factors that are associated with prematurity are age and low birth weight and maternal malnutrition (NETTO, 2005).

Studies suggest that environments with toys and acceptance of children's behavior, favor to positive signs in relation to the development of preterm children after the first year of life. The presence of parents, a good socioeconomic status and the stimulation of the child contribute to the delaying factor reduction of development (MANCINI, 2004).

Lateralization is the translation for functional asymmetry, the motor spaces on the right side and the left side, are not homogeneous. The lateralization is a function of dominance, always one of the brain hemispheres have initiative motor act that will reflect on learning and consolidation of skills. This functional capacity will be developed in a fundamental in this age (LE BOULCH, 2001).

Although the two hemispheres look to be the same they are quite different in terms of function. The left hemisphere of the brain is associated with language, logic and to the sequential processing, controls muscle activity and receives information from the right side of the brain. Now, the right hemisphere is specialized in non-verbal and visual spatial function and it is conscious of the left side (GABBARD, 2000).

The manual lateralization appears at the end of the first year, but only established at about four or five years. And the recognition of the right and left side is only possible from the age of six (FONSECA, 2008).

Thus, this study is justified by the concern about the impact of the prematurity condition of in the process of the neurodevelopmental and the psychosocial adaptation of the child, promoting the monitoring of this population not only in the first two years of life as it is regulated by the child's book, but also monitoring in preschool age, and must be evaluated at different stages of development, from birth until teenage.

Therefore, this study aims to compare the lateral domination of children on the age of five, born on preterm and term in the City of Cascavel in the state of Paraná.

MATERIALS AND METHODS

This is a descriptive study, transversal, realized with the population of 2053 children male and female, studying in the preschool of 48 Public Schools, the urban area of the City of Cascavel - Paraná. The sample comprised 206 children 5 years old of 11 municipal schools in the urban area of Cascavel, PR.

All the research procedures are according with the proper techniques described in the literature and don't imply any physical risk, psychological or moral harm to the participants. Wherefore, the study will fulfill the "Guidelines and Standards Research Involving Humans" (196/96) edited by the National Committee of Health. Being accepted by the committee of ethics and research on human being under protocol number 13762/2004.

The students were evaluated separately, to make the data collection the students were asked to be themselves wearing the minimum clothing possible (shirt and shorts).

To evaluate the neurofuncionnal development, it was opted for the evolutive neurological examination (LEFEVRE, 1972), for evaluating children in the pre-school age, was standardized in Brazilian children and become easy to apply and interpret.

The Evolutive Neurological Examination (ENE) consists of 124 evidence where are evaluated different skills and for this study were selected the tests of appendicular coordination relative to the age of five years, in other words, to copy a circle drawn on a model card, copying a square model also drawn on a card, throw a tennis ball over a target at a distance of two meters, sitting alternately tapping feet in rhythm chosen, touch the tip of the thumb on every finger, both hands and in both directions, opening a hand and closing the other alternately, upper limbs horizontally forward, and for evaluation of the lateral dominance were noted in all the tests contained in the examination which was the hand that the child chose to play the little ball or what foot the child chose to go jumping or kicking a ball.

To evaluate the Evolutive Neurological Examination - ENE (LEFÉVRE, 1972), the steps occurred as follow: all tests were demonstrated by the examiner, how many times were necessary until it was warranted the understanding of its realization by the evaluated. The child can make two attempts at each test, making no difference whether the child performed the test on the first or second attempt.

For the data analysis was used descriptive statistics, through the analysis of simple frequencies and percentages, standard deviation, minimum and maximum values, average, where to the tests will be used for statistical treatment Spss.13.0 and chi-square test. To analyze the data will be set at $p \leq 0.05$, as a significance factor.

RESULTS

In the test were evaluated 206 children with age of 5 years, and 51% (105) of them were female and 49% (101) were male.

According to the lateral dominance of these children, 46% (94) indefinite and 54% (112) defined. The appendicular coordination is set at 26% (54) of them and undefined in 74% (152). There is a significant association between lateral dominance and appendicular coordination at the level of 5% (p-value = 0,04).

The percentage of children who have appendicular coordination and the lateral dominance defined 36 (67%) is approximately two times higher than those with the appendicular coordination defined and the lateral dominance indefinite 18 (33%).

Table 1 - Association between lateral dominance and appendicular coordination for children of 5 years old

Lateral Dominance	Appendicular Coordination		Total
	Indefinite	Defined	
Indefinite	76 (50%)	18 (33%)	94
Defined	76 (50%)	36 (67%)	112
Total	152	54	206

Observing the Table 2, there is 15% (31) of children born at less than 37 weeks gestation and 85% (175) with 37 or more weeks of gestation. There is not significant association between lateral dominance and gestational time at the level of 5% (p-value = 0,96).

Table 2- Association between lateral dominance and the time of gestation for children of 5 years old

	Time of gestation		Total
Lateral Dominance	Less than 37 weeks	More or iqual to 37 weeks	
Indefinite	14 (45%)	80 (46%)	94
Defined	17 (55%)	95 (54%)	112
Total	31	175	206

Among children who had appendicular coordination indefinite 16% (24) had pregnancy under 37 weeks and 84% (128) of 37 weeks or more. For children who had appendicular coordination, 27% (7) had pregnancy under 37 weeks and 73% (47) at 37 weeks or more.

No significant association between gestational age and appendicular coordination at the level of 5% (p-value = 0,62).

Table 3 - Association between appendicular coordination and gestation time for children 5 years old

Time of gestation	Appendicular Coordination		Total
	Indefinite	Defined	
Less than 37 weeks	24 (16%)	7 (27%)	31 (15%)
More or iqual to 37 weeks	128 (84%)	47 (73%)	175 (85%)
Total	152	54	206

DISCUSSION OF RESULTS

It can be observed that the scholar environment does not promote the stimulation of children, because they learn by social imitative and repetition of movement.

In relation to prematurity it was noted that wan not found significant values that the children have not delay in this aspect.

However, the evaluation was set in the second semester of the scholar year, where children are at the age in months up to five years, which implies a higher degree of definition according to the Lefèvre reference pattern, but the children did not show the reference pattern of Lefèvre which would be 75% minimum efficiency tests, indicating a low level of development of the skills of lateral dominance and appendicular coordination.

In a study made by Bobbio (2006), with children in Campinas City - SP, where he studied 111 children under 7 and over 6 years, equivalent to 45.5% adequate, while 54.5% inadequate according to age and protocol. The Identification was a similarity of results in this study.

But for Perricarati and Marco (2006) in a study of 38 children 5 years old, it was found that 60.52% had adequate lateral and 39.48% inadequate. The rate slightly higher than the study applied, but still with worrisome data regarding the development of children, since this equivalent are of basic order for the child. These children do not perceive themselves competent in motor activities and avoid their participation.

Therefore, there is a need to increase and strengthen behaviors of physical activity for children who exhibit risk of scholar failure. This need is based on the understanding that all children, from very early age, are involved in motor learning.

Saccani et al (2007) identified in his study through the development evaluation by Screening Test of Denver II, shows that children who had lower levels of height for age and weight for age showed disorders of cerebral cortical function more specifically in relation the static and dynamic balance, coordination appendicular, gnosis and language.

In a study made by Magalhaes, Catarina, Barbosa, Mancini and Paxão (2003), where was used the protocol of Bender, to evaluate the motor accuracy test of balance and postural tone, it was discovered that children born preterm had significantly lower scores in most tests.

CONCLUSION

In relation to the objective set in this study that was to compare the lateral dominance of five years old children born preterm compared to term born in Cascavel Paraná, it was found that there is no significant association between gestational age and maturation of lateral dominance, but it was found, as in other studies that the appendicular coordination have strong influence on the lateral domination, in other words, children who do not have their dominance ready at age of five years, will be ineffective in coordination tests for their age. Environmental stimulation seems to contribute to establish lateral dominance and more for appendicular coordination.

However, it becomes interesting that the Federal Government/State make urgently implementing programs that will

help children to fully develop, for example, the new Law - Maternity Leave, which was of 4 months turns be 6 months, where the mother may nurse the child for a period of time, not counting the affective criterion between mother and son, necessary for good general development. Thus, it is believed that from a healthy base with a field of education sustainable by specialized practice in leading of better operation means physical abilities and cognitive, of children may experience a cycle of operation, assimilation and intense motor maturation.

Concluding, the psychomotor development is not only a sphere of knowledge, but a commitment of everybody who work with children, it is a tough task due to the great functionality of child development, making necessary repeated evaluations, especially in the first years of life, and after when the children is attending school. The evolution in the care of newborns at risk situation, should expand the idea of mortality, but really intervene early in better living conditions.

A major limitation found for the realization of the research was the fact of to be sent around 2000 Terms of Informed, Free Consent and it was only possible evaluate the kids that brought these Terms fulfilled in and signed, because exist as sample only 206 children of the entire population found. It is of great importance that new studies with the population of children born with very low birth weight, children born less than 1500 kg.

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COMPARISON OF MATURITY OF DOMINANT SIDE AND APPENDICULAR COORDINATION OF FIVE YEARS OLD CHILDREN PRETERMS AND TERM OF THE CITY OF CASCAVEL - PR

ABSTRACT

The weight of the newborn as well as in the gestational age has important in the prediction of future problems, related to poor nutrition of the mother, overwork during last days of pregnancy and the shortage of prenatal care. This study is justified by the worries about the impact of the prematurity condition in the course of neurodevelopmental and in the psychosocial adaptation of the child. The target was to compare the maturity of the dominant side and appendicular coordination of children preterm and term of five years old in the city of Cascavel - PR. The sample was made of 206 children selected through a gestational and social anamnesis. The sample had a comparison group of children born at term. To evaluate the lateral domain and appendicular coordination was chosen evolutionary neurological exam (Lefevre, 1972), for evaluating children of pre-school age, have been standardized in Brazilians children and for being easy to apply and interpret. Descriptive statistics for data analysis was used, the statistical program SPSS 15.0 and chi-square being adopted $p \leq 0.05$ was used as a significance factor. There was no significant difference in the lateral dominance and appendicular coordination among children preterm and term, was not discovered relation between prematurity and appendicular coordination having a strong association between lateral dominance and appendicular coordination. The result was that the children did not show the reference pattern of Lefévre that would have the minimum of 75% of efficiency in tests. Concluding that exist a need for greater control of the motives which attack these results that the environment in which children are inserted should be investigated.

KEYWORDS: Prematurity. Low Birth Weight. Domain Side.

COMPARAISON DE MATURITÉ DE CÔTÉ DOMINANT ET COORDINATION APPENDICULAIRE DES ENFANTS AVANT TERME E À TERME DE CINQ ANS DANS LA VILLE DE CASAVEL/PR - BRÉSIL

RÉSUMÉ

Le poids du nouveau-né ainsi que l'âge gestationnel est important de prévoir les futurs problèmes liés à la mauvaise nutrition de la mère, du surmenage physique en fin de grossesse et les petits soins prénatals. Cette étude est justifiée par des préoccupations concernant l'impact de la condition de la prématurité dans déroulement de l'adaptation neurologique et psychologique de l'enfant. L'objectif a été de comparer la maturité du côté dominant et la coordination appendiculaire des enfants avant-terme et à terme de cinq ans dans la ville de Cascavel - PR. L'échantillon a été t de 206 enfants choisis par questionnaire de l'histoire sociale et gestationnelle. L'échantillon comprenait un groupe de comparaison d'enfants nés à terme. Pour évaluer le domaine latérale et la coordination appendiculaire a été choisi l'Examen Neurologique Evolutive (Lefévre, 1972), pour évaluer les enfants d'âge préscolaire, avoir été égalisé chez les enfants brésiliens et d'être facile à appliquer et à interpréter. Pour l'analyse des données, nous avons utilisé des statistiques descriptives, nous avons utilisé le traitement statistique SPSS 15.0 et

le teste chi-carré en adoptant p ≤ 0,05, comme facteur d'importance.Il n'y a eu aucune différence significative dans la dominance latérale et la coordination appendiculaire chez les enfants avant terme et à terme, nous n'avons pas trouvé de relation entre la prématurité et coordination appendiculaire en existant une forte association entre la dominance latérale et la coordination appendiculaire. Il a été constaté que les enfants ne montraient pas la référence de Lefévre qui serait d'efficacité minimale de 75% dans les testes. Nous pouvons conclure qu'il est nécessaire mieux contrôler les raisons qui ont affectées ces résultats et étudier l'environnement dans lequel ces enfants sont insérés.

MOTS-CLÉS: Prématurité . Faible Poids à la naissance. Domaine Latérale.

COMPARACIÓN DE LA MATURIDAD DEL LADO DOMINANTE Y COORDINACIÓN APENDICULAR DE NIÑOS PRE-TERMOS Y TERMO DE CINCO AÑOS DE EDAD DE LA CIUDAD DE CASCAVEL-PR

RESUMEN

El peso del recién-nato, así como el de la edad de gestación tiene importancia en la previsión de problemas futuros, relacionados a la mala nutrición de la madre, exceso de trabajo en el final de la gestación y los escasos cuidados pre-natales. Este estudio se justifica por la preocupación con el impacto de la condición de prematuridad en el curso de desarrollo neurológico y en la adaptación psicosocial del niño. El objetivo fue comparar la maturidad del lado dominante y coordinación apendicular de niños pre-termos y termo de cinco años de edad de la ciudad de Cascavel - PR. La muestra fue de 206 niños seleccionados a través del cuestionario de anamnesis social y de gestación. La muestra contó con un grupo de comparación de niños nascidos a termo. Para evaluar el dominio lateral y la coordinación apendicular se eligió el Examen Neurológico Evolutivo (Lefévre, 1972), por evaluar niños en la faja etaria pre-escolar, ter sido padronizado en niños brasileños y ser de fácil aplicación y interpretación. Para el análisis de los datos fue utilizada la estadística descriptiva, se utilizó el tratamiento estadístico del programa SPSS 15.0 y el teste qui-cuadrado, siendo adoptado p ≤ 0,05, como factor de significancia. No hubo diferencia significante en la dominancia lateral y coordinación apendicular entre los niños pre-termos y termo, no fue encontrada relación de la prematuridad y la coordinación apendicular habiendo fuerte asociación entre la dominancia lateral y coordinación apendicular. Se percibió que los niños no presentaron el estándar de referencia de Lefévre que sería de 75% como mínimo de eficacia en los testes. Se concluye que hay necesidad de mayor control de los motivos que acometieron tales resultados debiendo investigarse el ambiente en que son inseridos esos niños.

PALABRAS-LLAVE: Prematuridad. Bajo Peso al Nacer. Dominio Lateral.

COMPARAÇÃO DA MATURIDADE DO LADO DOMINANTE E COORDENAÇÃO APENDICULAR DE CRIANÇAS PRÉ-TERMOS E TERMO DE CINCO ANOS DE IDADE DO MUNICÍPIO DE CASCAVEL-PR

RESUMO

O peso do recém-nascido assim como o da idade gestacional tem importância na previsão de problemas futuros, relacionados a má nutrição da mãe, excesso de trabalho no final da gestação e os escassos cuidados pré-natais. Este estudo justifica-se pela preocupação com o impacto da condição de prematuridade no curso do desenvolvimento neurológico e na adaptação psicossocial da criança. O objetivo foi comparar a maturidade do lado dominante e coordenação apendicular de crianças pré-termos e termo de cinco anos de idade do município de Cascavel - PR. A amostra foi 206 crianças selecionadas através do questionário da anamnese social e gestacional. A amostra contou com um grupo de comparação de crianças nascidas a termo. Para avaliar o domínio lateral e a coordenação apendicular optou-se pelo Exame Neurológico Evolutivo (Lefévre, 1972), por avaliar crianças na faixa etária pré-escolar, ter sido padronizado em crianças brasileiras e ser de fácil aplicação e interpretação. Para a análise dos dados foi utilizada a estatística descritiva, utilizou-se o tratamento estatístico do programa SPSS 15.0 e o teste qui-quadrado sendo adotado p ≤ 0,05, como fator de significância. Não houve diferença significante na dominância lateral e coordenação apendicular entre as crianças pré-termos e termo, não foi encontrado relação da prematuridade e a coordenação apendicular havendo forte associação entre a dominância lateral e coordenação apendicular. Encontrou-se que as crianças não apresentaram o padrão de referência de Lefévre que seria de 75% no mínimo de eficácia nos testes. Conclui-se que há necessidade de maior controle dos motivos que acometeram tais resultados devendo investigar o ambiente que são inseridas essas crianças.

PALAVRAS-CHAVE: Prematuridade. Baixo Peso ao Nascer. Domínio Lateral.