81 - THE IMPORTANCE OF THE USE OF SCALES OF DEVELOPMENT IN THE FOLLOW-UP OF PREMATURE HIGH RISK

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1. INTRODUCTION

The use of tests as instruments selective development, promotes early intervention for deviations from normal growth and development in children, and help to determine the diagnosis and prognosis.

According to Habib (2002), a newly born preterm infants presents a real risk that may interfere with their growth and development due to a process that was halted abruptly, leading him to an unexpected transition through intra the womb to the extra-uterine, not that it was morphologically and functionally prepared for this situation. Preterm birth without complications appeared to carry little or no disadvantage in terms of development. However, there are a variety of complications associated with prematurity, and, according to the number and severity of these complications and the initial integrity of the central nervous system, survival and fate of the development of preterm infants may be compromised (GESSEL & AMATRUDA, 1990).

Rezende (2002) tells us that the baby is preterm fetus whose intrauterine development was stopped and its organs, still immature, they have to assume tasks for which they are unprepared.

Kirby et al (1993), reported risk factors for psychomotor development of preterm infants, according to the degree of immaturity, demonstrating the importance of monitoring the development of preterm infants. The primary goal of monitoring is the early identification of damage development, so I can be initiated therapeutic intervention. The earlier the diagnosis of developmental delay and hence the intervention, the impact will be milder neurological motor deficits in the future life of these children (Halpern et al, 2000).

The Test of Infant Motor Performance (TIMP) was initially used in a controlled clinical trial, which evaluated the efficacy of a treatment that was aimed at promoting the evolution of motor development in children at high risk and preterm (CAMPBELL AND BARBOSA, 2003). Another form of assessment, the Alberta Infant Motor Scale (AIMS), created by Piper and Darrah (1994) Canadian physiotherapists. This scale aims to evaluate the motor development of children 0-18 months old and can be used for those born preterm.

According to Formiga et al (2003), AIMS is a way of documenting observational measure infant motor performance based on motor activity shown by the child. This scale documents the spontaneous movements of the Child addressing concepts of motor development. To Tecklin (2002), tests and scales can be used to monitor the progress of child development and determine if the child has reached the objectives and at what time when it happened. These forms of development assessment can also facilitate the planning of a treatment program. The results may reveal specific areas of deficits that need further evaluation in order to discover the root cause of the delay. Early identification of deviations facilitates the providence of recommendations to parents, caregivers and physicians for future planning. Early recognition and a centralized plan for intervention can prevent severe disability. Based on these assumptions, the present study aimed to measure the motor performance of preterm infants through two specific instruments for the assessment of motor development.

2. METHODOLOGY

The present research it is a quantitative study, exploratory, cross-sectional study of the type of field. The sample was composed of ten infants, 5 male and 5 female, mean gestational age of 32.8 weeks (SD = 2.78), chronological age of 12 weeks (SD = 5.42) and age corrected 4.54 weeks (SD = 4.89). Inclusion criteria were gestational age between 29 weeks to 36 weeks, visited the ICU for 48 hours, have attended the clinic for follow-up in neonatology.

The exclusion criteria were: irritability submitted during the application of the tests, and no parental consent. The study was approved by the Ethics and Research of the State University of West of Paraná (unions) and parents or legal guardians agreed and signed a consent form. We have filled a script with data on pregnancy, childbirth and postpartum. The infants were evaluated only once, through the TIMP and the AIMS, as proposed by the standards of applicability of each test.

The Test of Infant Motor Performance (TIMP) is an assessment of posture and spontaneous movements for children 32 weeks after conception until four months corrected age. The duration of the test is on average 30 to 40 minutes. The test results are obtained through direct observation and handling. It consists of two parts: the first (with 13 items), which is scored dichotomously (present-1, not present-0) from observations of spontaneous movements. The second part (with 24 items, six of which scored separately for each side of the body), which is scored on a scale of 4, 5 or 6 points maximum, thus evaluating the responses of babies to be handled or placed in different orientations space and through visual and auditory stimuli. After applying the test TIMP, totaled up the points for each item evaluated and from this result and the correction of gestational age through the wheel-specific TIMP.

It was compared with the schedule established in the manual test, which places scores on average, below average (MA), well below the mean (MEM) and extremely below average (EAM). The other test used was the Alberta Infant Motor Scale (AIMS) were noted where the purchase of motor postures: prone, supine, sitting and standing respectively. The application of the scale takes about 20 to 30 minutes since his administration the sum of the score. The AIMS consists of 58 items which reports on the movement of children in four positions: prone (21 items), supine (9 items), sitting (12 items) and standing (16 items). These postures are analyzed using three criteria: postural alignment, and antigravity movement of surface contact.

The AIMS assesses the child's motor progress over time and is thus a reliable assessment to be applied without excessive manipulation of the Examiner and letting the child move freely. After the implementation of AIMS, was given a total score based on four observed positions child (ranging from 0 to 60 points). The total raw score and age of the child are placed in a chart available on the test sheet, which you can identify the percentile of gross motor performance of children with the following parameters 5 TH (motor delay evident), 10 to 50 TH (signs risk for motor delay), 50 to 90 TH (motor development favorable) and above 90 TH (full motor development). The index of lagging obtained on each baby TIMP was correlated with the Alberta, through the non-parametric test of Spearman. The significance level was set at 0.05.

3. RESULTS

In describing the variables responsible for possible delays, 82% of mothers had some complications during pregnancy, justifying the premature birth. In terms of weight, 45% of the babies studied had very low birth weight, 70% of infants had respiratory problems and jaundice, 27% remained 51 to 60 days in hospital, including days in the NICU and ICU.

The justification for these results is based on the conditions imposed by the prematurity of muscular and nervous systems. It can be observed that the scores obtained for each child in the assessment with the scores expected according to the corrected age who had babies in the day who were evaluated at the scale of the AIMS, and the percentile ranking, according to the score expected eight babies are below the same.

Table 1 - List of scores obtained, and expected percentile in TIMP.

BABIES	TIMP SCORE OBTAINED	TIMP SCORE EXPECTED	TIMP PERCENTILE
A	30	46-74	Extremely below average
B	60	89-127	Extremely below average
C	24	41-67	Extremely below average
D	54	65-95	Much below average
E	60	68-102	Much below average
F	54	68-102	Much below average
G	75	68-77	Below Average
H	68	68-77	Below Average
I	67	65-95	Below Average
J	75	75-111	Below Average

And regarding the delay percentile showed an apparent motor, five showed signs of risk of delayed motor development engine and four had favorable. The Spearman correlation between scores on each scale was high and positive ($r = 0.81$, $p < 0.01$).

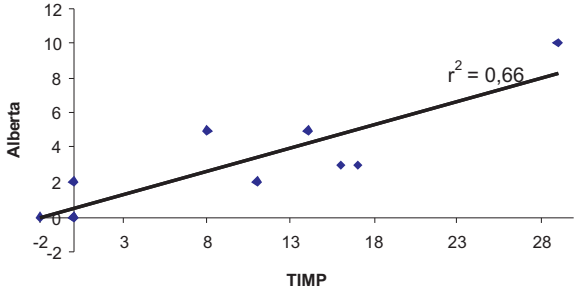
In Table 2, one can observe that the scores obtained on each child's assessment scores at the corrected age as expected that the babies had the day they were evaluated on the scale of the AIMS, and the percentile ranking, according to the expected score eight babies are below it. And regarding the delay percentile showed an apparent motor, five showed signs of risk of delayed motor development engine and four had favorable.

Table 2 - Relationship of scores obtained, and expected percentile in Alberta

BABIES	AIMS SCORE OBTAINED	AIMS SCORE EXPECTED	AIMS PERCENTILE
A	3	6	Risk of delayed motor
B	6	16	Motor delay evident
C	4	7	Risk of delayed motor
D	6	8	Risk of delayed motor
E	5	10	Risk of delayed motor
F	5	10	Risk of delayed motor
G	8	10	Motor development favorable
H	10	10	Motor development favorable
I	9	9	Motor development favorable
J	10	10	Motor development favorable

Figure 3 represents the dispersion index delay obtained in the evaluations of each baby and TIMP Alberta. The Spearman correlation between scores on each scale was high and positive ($r = 0.81$, $p < 0.01$).

Figure 1 - Distribution of delay index obtained from the scales of Alberta and TIMP



The solid line represents the positive trend of data distribution and the value of R^2.

4. DISCUSSION

Rugolo (2005), states in his studies that the incidence of premature births increases considerably, leading to an increased risk of injury to the development. Murphy (2003) also found similar results in their study that indicates that prematurity makes losses that compromise the child's development. Already Morton (2001), reveals that 30% of premature infants develop severe damage engines and have frequent diagnosis of cerebral palsy.

Ribeiro Gonçalves (2006), show that the evaluation of motor development in the first year of life is the most accepted to examine the neurological maturity and integrity, as well as the general welfare of the child. The same authors suggest the possibility of early diagnosis and intervention before the motor abnormalities found.

Formiga et al (2003), describe the assessment of preterm infant by AIMS, is a good tool to measure the result of motor acquisition, allowing visual feedback into the postures in which the child performs. Campbell et al 2003, in his study of 96 children, showed that the use of TIMP allowed detecting developmental delay at 3 months of age while the AIMS was not possible to verify the delay at 6 months of age.

Rover and Moreira (2007), reveal that TIMP is a standardized, reliable and useful for presenting detailed items of motor characteristics of preterm infants, allowing for early intervention and development disorders in their study concluded that

TIMP showed as a good option for evaluation and monitoring of high-risk infants

5. CONCLUSION

This study complied with the proposed objective, since the therapist does not evaluate the child based only on clinical perception, but it may use specific instruments to assess. The results allow concluding that both the TIMP and the AIMS are equivalent motor assessment of children at risk, but the scales have qualitatively different conclusions. Since AIMS classified some children with motor development and positive TIMP called these same children as below average, this does not mean they have poor motor development, but that they need monitoring.

All screening instrument has advantages and disadvantages. The choice will depend on the scale of each population and objectives to be achieved by the professional. It is extremely important to monitor the child for professional physical therapy, to minimize the negative effects that prematurity can bring, because the earlier the diagnosis and intervention, the smaller the impact of these problems in a child's life. It is suggested that further studies with larger numbers of subjects are carried out to better represent the population.

6. REFERENCES

CAMPBELL, K.S; BARBOSA, M. V. Longitudianl Performance of Infants with Cerebral Palsy on the Test of Infant Motor Performance and the Alberta Infant Motor Scale. Phisical & Occupation Therapy in Pediatrics. Chicago, v.23 (3), p 7-29,2003.

FORMIGA, C.K.M.R. et al. Desenvolvimento Motor de Lactentes Pré-Termo Participantes de Um Programa de Intervenção Fisioterapêutica Precoce. Revista Brasileira de Fisioterapia. Vol. 8, N° 3, p.239-245, 2004.

GESSEL e AMATRUDA, adaptado de KNOBLOCH e PASAMANICK. Diagnóstico do Desenvolvimento. Rio de Janeiro: Atheneu, 1990.

HABIB, E.S. Atenção ao Recém-nascido Prematuro na Prevenção dos Distúrbios do Desenvolvimento. In: BARACHO, E. Fisioterapia Aplicada à Obstetrícia: Aspectos de Ginecologia e Neonatologia. Rio de Janeiro: Médica e Científica Ltda, 2002. p. 499-509.

HALPERN, R. et al. Fatores de Risco para Suspeita de Atraso no Desenvolvimento Neuropsicomotor aos 12 meses de Vida. Jornal de Pediatria da Sociedade Brasileira de Pediatria. Rio de Janeiro, v.76, n.6, p.421-428, 2000.

KIRBY, R. S. et al. Identitying at-risk children for early intervencion services: Lesson Jeon the Infant Halth and Development Program. The Journal of Pediatrics, v.122 n.5, part1, p.680-686, 1993.

LIMA, C. L. A.; FONSECA, L. F. Paralisia Cerebral. Guanabara Koogan. Rio de Janeiro – RJ 2004.

MORTON, R.E. Diagnosis and classification of cerebral palsy. Current Paediatrics, vol. 5 n 11, p. 64-67, 2001.

MURPHY, N.; SUCH-NEIBAR, T. Cerebral Palsy Diagnosis and Management: the state of the art. Curr Probl Pediatric Adolesc Health Care, 33: 146-169, 2003.

NUNES, J. B.; MONTEMEZZO, D. Aplicação do TIMP (Teste de Desempenho Motor Infantil) na Unidade de Cuidados Intermediários da UTIN do HSNC.

PIPER, M. C.; DARRAH, J. Motor Assessment of the developing infantile. Canadá: W.B. Saunders; 1994.

REZENDE, J – Obstetrícia – 9º ed, Rio de Janeiro: Guanabara Koogan, 2002.

RIBEIRO, M. V.; GONÇALVES, V. M. Neurologia do desenvolvimento da criança. Rio de Janeiro: Revinter, 2006.

ROVER, M. M. S.; MOREIRA, H. S. B. Avaliação das Aquisições Motoras em Prematuros Pelo Teste de Performance Motora em Bebês de Alto Risco-TIMP. In: Anais do X Congresso Brasileiro de Terapia Intensiva Pediátrica, 29.10.2007 a 02.11.2007.

RUGOLO, L. M. Crescimento e Desenvolvimento a Longo Prazo do Prematuro Extremo. Jornal de Pediatria da Sociedade Brasileira de Pediatria. Rio de Janeiro, v.81, n.1, p. S101-110, 2005.

TECKLIN, J. S. Fisioterapia Pediátrica. 3º ed. Porto Alegre. Artmed, 2002.

THE IMPORTANCE OF THE USE OF SCALES OF DEVELOPMENT IN THE FOLLOW-UP OF PREMATURE HIGH RISK

ABSTRACT

The premature baby presents a real risk in developing its growth due to a process that was interrupted abruptly without the same morphology was prepared for the birth. The use of test development as a selective tool promotes early intervention for deviations from normal growth and development in children, besides helping in the diagnosis and prognosis. The aim of this study was to measure the motor performance in preterm infants by measurement of specific instruments. The study was conducted in a University Hospital of Paraná, with ten baby boys and girls, with gestational age of 32.8 weeks who attended UNIT Intensive Care - ICU for 48 hours. It was noted that the evaluations performed by the Test of Infant Motor Performance - TIMP and the Alberta Infant Motor Scale, AIMS, are equivalent, identifying similarly to the driving condition of baby at risk. But the scale of TIMP was more sensitive since it indicated the need for monitoring of normal motor development, while at AIMS, the baby would be discharged early physiotherapy. The choice will depend on the scale of each population and objectives to be achieved by the professional. It is extremely important to monitor the child for professional physical therapy, to minimize the negative effects that prematurity can bring, because the earlier the diagnosis and intervention, the smaller the impact of these problems in a child's life. This study met our objective since it shows the importance of using specific tests to assess the DNPM in premature babies.

KEYWORDS: Performance evaluation, child development, premature.

IMPORTANCE DE L'UTILISATION D'ÉCHELLES DU DÉVELOPPEMENT DANS LE SUIVI DU RISQUE ÉLEVÉ PREMATURE

RÉSUMÉ

Le bébé prématuré présente un risque réel dans le développement de sa progression grâce à un processus qui a été interrompu brutalement, sans la même morphologie a été préparé pour la naissance. L'utilisation de l'élaboration de tests comme un outil sélectif favorise l'intervention précoce pour les écarts par rapport à la croissance et le développement normal des enfants, en plus d'aider dans le diagnostic et le pronostic. Le but de cette étude était de mesurer les performances du moteur chez les prématurés par la mesure des instruments spécifiques. L'étude a été menée dans un hôpital universitaire du Paraná, avec les garçons et les filles bébé de dix, avec l'âge gestationnel de 32,8 semaines qui ont assisté unité de soins intensifs - unité de soins intensifs pendant 48 heures. Il a été noté que les évaluations réalisées par le test de Infant Motor Performance - TIMP et

de l'Alberta Infant Motor Scale, AIMS, sont équivalentes, en identifiant la même façon que les conditions de conduite du bébé à risque. Mais l'ampleur des TIMP est plus sensible car elle indiquait la nécessité d'un suivi du développement normal du moteur, tout en AIMS, le bébé serait déchargée kinésithérapie précoce. Le choix dépendra de l'échelle de chaque population et les objectifs à atteindre par le professionnel. Il est extrêmement important de surveiller l'enfant pour la physiothérapie professionelle, afin de minimiser les effets négatifs que la prématurité peut apporter, parce que plus le diagnostic et l'intervention, plus l'impact de ces problèmes dans la vie d'un enfant. Cette étude a atteint notre objectif, car il montre l'importance de l'utilisation de tests spécifiques pour évaluer l'DNPM chez les bébés prématurés.

MOTS CLÉS: évaluation de la performance, développement de l'enfant, prématurée.

IMPORTANCIA DEL USO DE LAS ESCALAS DE DESARROLLO EN EL SEGUIMIENTO DE ALTO RIESGO PREMATURO

RESUMEN

El bebé prematuro representa un riesgo real en el desarrollo de su crecimiento debido a un proceso que fue interrumpido abruptamente sin la misma morfología se preparó para el nacimiento. El uso de desarrollo de la prueba como una herramienta selectiva promueve la intervención temprana de las desviaciones del crecimiento y desarrollo normales en los niños, además de ayudar en el diagnóstico y pronóstico. El objetivo de este estudio fue medir el rendimiento del motor en neonatos prematuros mediante la medición de los instrumentos específicos. El estudio se llevó a cabo en un hospital de la Universidad de Paraná, con el bebé de diez niños y niñas, con edad gestacional de 32,8 semanas que asistieron a Unidad de Cuidados Intensivos - UCI durante 48 horas. Se señaló que las evaluaciones realizadas por la prueba de rendimiento del motor infantil - TIMP y la Escala Motora Infantil de Alberta, AIMS, son equivalentes, identificando de manera similar a las condiciones de conducción del bebé en riesgo. Pero la escala de TIMP fue más sensible, al indicar la necesidad de un control del desarrollo motor normal, mientras que en el AIMS, el bebé podría ser dado de alta de fisioterapia precoz. La elección dependerá de la escala de cada población y los objetivos a alcanzar por el profesional. Es muy importante vigilar al niño para terapia física profesional, para reducir al mínimo los efectos negativos que la prematurez puede traer, porque el anterior el diagnóstico y la intervención, menor será el impacto de estos problemas en la vida de un niño. Este estudio cumplió con nuestro objetivo, ya que demuestra la importancia del uso de pruebas específicas para evaluar la DNPM en los bebés prematuros.

PALABRAS CLAVE: Evaluación del desempeño, desarrollo infantil, prematuro.

IMPORTÂNCIA DA UTILIZAÇÃO DE ESCALAS DE DESENVOLVIMENTO NO ACOMPANHAMENTO DE PREMATUROS DE ALTO RISCO

RESUMO

O bebê prematuro apresenta um risco real no seu crescimento em desenvolvimento, devido a um processo que foi interrompido de forma abrupta sem que o mesmo estivesse preparado morfologicamente para o nascimento. O uso de teste de desenvolvimento como instrumento seletivo, promove uma intervenção precoce para os desvios do crescimento e do desenvolvimento normal em crianças, além de auxiliar no diagnóstico e prognóstico. O objetivo deste trabalho foi mensurar o desempenho motor em prematuros através de instrumentos específicos de mensuração. O estudo foi realizado num Hospital Universitário do Paraná; com dez bebês do sexo masculino e feminino, com idade gestacional de 32,8 semanas que freqüentaram a Unidade de Terapia Intensiva - UTI por 48 horas. Observou-se que as avaliações realizadas pelo Test of Infant Motor Performance - TIMP e pela Alberta Infant Motor Scale- AIMS, são equivalentes, identificando de maneira semelhante à condição motora de bebê de risco. Porém a escala de TIMP mostrou-se mais sensível, pois indicava a necessidade de acompanhamento do Desenvolvimento Motor Normal, enquanto na AIMS, o bebê receberia alta fisioterapêutica precoce. A escolha da escala dependerá de cada população e objetivos a serem alcançados pelo profissional. É de suma importância o acompanhamento da criança pelo profissional da fisioterapia, para minimizar os efeitos negativos que a prematuridade pode trazer, pois quanto mais precoce for o diagnóstico e a intervenção, menor será o impacto desses problemas na vida da criança. Este estudo cumpriu o objetivo proposto uma vez que mostrou a importância da utilização de testes específicos para a avaliação do DNPM em bebês prematuros.

PALAVRAS-CHAVES: Avaliação de desempenho, desempenho infantil, prematuro.