

FUNCTIONAL PERFORMANCE ACCORDING TO GESTATIONAL AGE AND BIRTH WEIGHT OF PRESCHOOL CHILDREN BORN PREMATURE OR WITH LOW WEIGHT

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Premature labour is a major health problem. Besides medical factors, risk factors include lower social class, less education, single marital status, low income younger maternal age, low body weight, ethnicity, smoking, poor housing. The long term sequelae can be severe and the cost - financially and socially - of care is high. Preterm birth is indeed a major clinical public health problem that accounts for nearly 50% of all neonatal deaths.

Scientific and technological Advances in Obstetrics and Neonatology have contributed to increase survival rates of babies born early and with low birthweight. Nevertheless whilst mortality rate decreases morbidity increases. In a 'nut shell' published studies show that the earlier the baby is born and the lower their birthweight the greater the likelihood of perinatal and postnatal complications and subsequent morbidity affecting global development (cognitive, motor and social).

There are many tools to measure human development. It very much depends, for example, on the objective of the scientific investigation, the population to be studied, settings, human and financial availability.

In this issue of RBCDH, Lemos RA et al.¹ paper their focus is not in using psychometric tests to measure cognition, motor and social development. Their objective is to evaluate the functional performance of preschool children who are followed up in a care-specialised service in accordance to their gestational age and birthweight.

Adopting a cross-sectional design they attempt to work with their 'captive' population of 224 potential participants. Their final sample for reasons well explained by the authors i.e. inclusion/

exclusion criteria, is 98 children. Almost same numbers of girls and boys; 77.4% born with < 33 weeks gestational age and 63% with birthweight less than 1500 g.; 60% with 7 or more immediate neonatal complications and most from low socio economic status. They were allocated to 3 groups according to their degree of prematurity (33-36 weeks; 29-32 weeks or up to 28 weeks) and birthweight (1500 to 2499; 1000 – 1499 and < 1000).

The instrument they use is the Pediatric Evaluation Disability Inventory (PEDI) structured interview standardized, validated and adapted to Brazil caregivers assess children's functional abilities and independence level on 3 areas self-care, mobility and social function. FASC (functional abilities of self-care), FSM (functional skills of mobility), FSSF (functional skills of social function), CASC (caregiver assistance in self-care), CAM (caregiver assistance in mobility) and CASF (caregiver assistance in social function).

Although the degree of prematurity and birthweight are indicators to referral to their specialised service there is a lack of studies investigating the impact of those factors on long-term functional abilities. Lemos RA et al.¹ only found one Brazilian study on the subject. Their paper covers relevant information to both neonatal and child public health. This type of Survey is vital to provide research-based evidence to policy makers to improve their service.

In their introduction Lemos RA et al.¹ review a series of relevant papers and reflect upon the impact of morbidity on development delays and how this in turn may affect the dynamic of the family

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due to increased levels of stress as well as their quality of life.

Lemos RA et al.¹ consistently refer to Rugolo's² literature review with studies that corroborate their findings. According to Rugolo's review five to 30% of infants with ELBW have some functional limitation in areas such as motor, self-care or communication. Delay percentage rates in the same areas are reported to be lower by Msall et al.³ but they used different interview tool and it is a population-based study. This methodological difference may explain the difference between those studies. In other areas such functional abilities of self-care (FASC) results from those studies are similar. Such similarities may be explained by the fact that these skills are related to food, hygiene, clothing and sphincter control which it is expected to be present at the age of their sample (mean age of 4.3).

Interesting results are that the highest delay found by Lemos RA et al.¹ and again corroborated by review conducted by Rugolo² is in functional skills of social function (FSSF) which involves for example language, problem-solving, interactive play and self-protection. Again it demonstrates that preterm babies with extremely low birthweight -regardless of cultural factors- find more difficult to process and interpret information, solve problems and behave socially. This suggest that their cognitive and social abilities are compromised. Undoubtedly good daily functionality and social life within the community with good degree of independence implies that the child has a good degree of integrity on his/her physical, cognitive, motor and psychosocial development.

As far as mobility skills are concerned Lemos RA et al.¹ reports intermediate delay. The authors cautiously analyse such results as possible confounding variables for example children living in different household/environments demanding different motor activities.

With regard to the level of assistance received from the caregiver, Lemos RA et al.¹ and Mancini et al.⁴ agreed that the highest delay was in the mobility area. This is well explained since it is well known that caregivers of preterms are likely to provide more help than necessary. This may be due to over-protection or they may underestimate children's abilities in this area.

Another interesting result is that Lemos RA et al.¹ sample probably because they are a 'captive' population receiving specialised service, the means and medians of all normative scores are within normal limits. Nevertheless the authors reflect upon

such results as the scores still are below the average value for Brazilian normative population. This information is important to be considered when designing clinical interventions.

In short, the findings by using PEDI (Pediatric Evaluation Disability Inventory), with the exception of CASC (caregiver assistance in self-care) did not indicate statistically significant values. Although no other statistic significance was found this study corroborates with the trend in the literature, as Lemos RA et al.¹ carefully points out by quoting studies such as Khan et al.⁵ who reports neurodevelopmental disability rates severe or moderate in preterms with less than 33 weeks and Fily et al.⁶ who reports that the lower the gestational age the lower the development quotient.

The lack of statistically significant results is well reflected upon by the authors by seriously analyzing some methodological limitations of the study such as design adopted, sampling method, stratification of groups, number and age range of participants in each of the groups. There were also other important factors not considered by the authors such as social and environmental factors that can influence development at later ages, as Eickmann et al.⁷ quoted by Lemos RA et al.¹ and quality of care or exposure to programmes of early sensory stimulation that those children might had received during their hospitalisation.

Nevertheless, Lemos RA et al.¹ provide vital information of the characteristics and functional performance of this 'captive' population. What has been found is research-based valuable information, which needs to be used to inform the policy makers so that more focused, and effective interventions can be developed. Only in this way outpatient and follow-up services can indeed contribute to prevent further developmental delays in the children born too early and too small.

Follow-up of children born small and early is crucial to ensure that (1) they are given the most appropriate care to maximize the chances of their intact survival, (2) provide research-based evidence to inform policy makers in every Institution and particularly on settings where specialised care is provided for those children.

With the electronic revolution an impressive amount of data is recorded about patients. Databases have been created every second where the facilities are available. Databases have been shared within and between Organisations thus increasing opportunities for collaboration between academics and those working in the health care sector where a wealth of information is collected

and stored. The more these professional collaborates the better the service they will provide to their patients. Mechanisms must be in place so that Ethics principles are clear and adhered to. Patients and parents should be able to give their consent for their data to be used anonymously and for scientific purposes at the time of their first visit.

In addition and summing-up, since the 1980s there has been a proliferation of studies investigating the immediate effects of early sensory stimulation programmes on preterms development during hospitalisation. Studies usually adopted

independent subjects design where comparison was done between the intervention and the control group(s) both preterms or comparing also with fullterms counterparts. Some were longitudinal studies. Such studies contributed to expand frontiers of neonatology and in the late 1990s a new sub-discipline of Health Psychology – Neonatal health Psychology (NNHP) was proposed by Adamson-Macedo⁸ viewing the preterm neonate and low birthweight baby as a unique, emergent, coactional and hierarchical human being. Early experiences are very likely to affect the course of development.

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