Importance of neurodevelopment monitoring in preterm newborn infants

Importância da monitorização do desenvolvimento em recém-nascidos prematuros

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Child development is a continuous and complex process that begins in the uterus and becomes more intense in the first years, influenced by genetic, biological and environmental factors. These factors interact and modulate neurodevelopment. For this reason, the development of each child is unique and, despite the biological risk, represented mainly by prematurity, prognosis can often be better than expected. On the other hand, living in an unfavorable environment can impair development[1].

In this issue of *Revista Paulista de Pediatria*, the study by Souza & Magalhães[2] showed that the prediction of the prognosis of preterm newborns should not be based only on biological factors such as low gestational age and very low birth weight, which were classically considered risk factors for neurodevelopment[3].

Developmental evaluation includes clinical history, aiming to identify risk factors, parent's opinion about the development of their child, and clinical and neurological examination of the child. However, this evaluation detects only one third of the disorders, usually the most severe ones, and this detection is not early enough. Therefore, it is recommended to perform a systematic evaluation using developmental screening tests, focusing on the most relevant aspects in the different age groups[4].

In the first years of life, it is crucial to undertake surveillance of the sensory-motor development, because in this period transient changes are frequent, and severe deficits can occur[1,4]. Among the screening tests for motor development, the increasing use of the Alberta Infant Motor Scale (AIMS) should be highlighted, which was adapted to the Brazilian population and allows easy and rapid application[4]. However, socioeconomic and cultural differences may influence the results of scales applied in different countries. A study conducted in Goiânia with low weight preterm infants showed that, during the first year of life, preterm newborns had lower scores compared with the normative standards established by the AIMS[5].

It should be considered that, among the several scales available, each one of them focus on certain developmental aspects, whose relevance varies with age[6]. This was well demonstrated in the study by Souza & Magalhães[2], which, although not detecting any difference in AIMS scores at 12 and 15 months of age between preterm and term newborns, premature children had worse gross and fine motor performance in the Peabody Developmental Motor Scale (PDMS) at 18 months. It is important to observe that this motor impairment had a negative effect on the daily activities of the child, with worse performance in self-care skills.

Independent walking is an important motor milestone, both in expectations from family and healthcare professionals, because from then on children expand very much their ability to explore and interact with the environment, acquiring new and more complex skills[7]. The study by Souza & Magalhães[2] draws attention for the slower acquisition of walking by very low birth weight preterm infants, although on average they started walking within the expected period.

One of the most relevant aspects pointed out in the study by Souza & Magalhães[2] was the lower degree of stimulation of preterm children, with 60% of them being in situations of environmental risk for development. The authors provide a comprehensive discussion of this finding, warning about aspects of family context that require attention. This result is important, since it points out an aspect that can be

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improved with early intervention. Spittle *et al*[8] showed that an intervention program in the first year of life, with home visits for family orientation, improves the child's behavior and reduces anxiety and depression in the family.

Some precautions should be taken when interpreting studies on prognosis, including: sample size, inclusion criteria, follow-up period, and possible bias due to follow-up loss[9]. Souza & Magalhães point out some of these limitations in their study.

Nevertheless, the data presented by the authors contribute to the practice of healthcare professionals who take care of preterm infants, showing the importance of developmental monitoring in the early detection of disorders, which enables the implementation of interventions to improve the prognosis of these children. Additionally, such data bring new challenges for research, emphasizing the need of further studies to investigate the relationship between prematurity and environmental risk factors.

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