



ORIGINAL ARTICLE

Development deficit risks in the late premature newborn: Evaluation at 48 months using the Ages & Stages Questionnaires®[☆]



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KEYWORDS

Late preterm;
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Abstract

Introduction: Lack of specific monitoring protocols hinders understanding of the impact of late prematurity on delayed psychomotor development. The objective of this study is to evaluate this development at 48 months and compare it with infants born at term.

Population and methods: A retrospective cohort study was conducted on 90 late preterm (LP) and 89 term (HT) healthy children at 48 months, assessed by the Ages & Stages Questionnaires® (ASQ-3). Continuous variables were analysed using the Student's *t* test for independent samples and described in terms of mean and standard deviation. The categorical variables were analysed using the **chi-square test of independence** and described in terms of frequency and proportion. ROC analysis was performed to determine the ASQ-3 cut-off value for risk of development deficit. A step-wise logistic regression model identified the associated risk factors.

Results: The mean scores for each domain and overall ASQ-3 score showed no differences between groups. However, when analyzing the probability density for the ASQ-3 total score of ≤ 251 points, 15 LP (16.6%) and 4 AT (4.5%) showed risk of psychomotor deficits, and late prematurity and lack of breastfeeding were significantly associated factors.

Conclusions: There is an increased prevalence of risk of development deficit in LP infants, which justifies considering this population at risk and establishing effective monitoring programmes. It should be further investigated whether this risk corresponds to the entire population, or if biological factors or perinatal history can increase vulnerability.

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PALABRAS CLAVE

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Riesgo de déficits en el desarrollo en los prematuros tardíos: evaluación a los 48 meses mediante el Ages & Stages Questionnaires®

Resumen

Introducción: La ausencia de protocolos específicos de seguimiento dificulta el conocimiento de la repercusión de la prematuridad tardía en el desarrollo psicomotor. El objetivo es evaluarlo a los 4 años y compararlo con los nacidos a término (AT).

Población y método: Estudio de cohortes retrospectivo de 90 prematuros tardíos (PT) y 89 AT sanos, a los 48 meses, evaluados mediante el Ages & Stages Questionnaires® (ASQ-3). Las variables continuas se describen mediante media \pm DE comparadas con el test de la t de Student para muestras independientes; las variables categóricas, mediante frecuencias y proporciones, comparadas con el test de independencia de la chi al cuadrado. Se determinó un punto de corte para la puntuación total del ASQ-3 capaz de discriminar el riesgo de déficit del desarrollo mediante un análisis ROC. Una selección step-wise para el modelo de regresión logística determinó los factores de riesgo asociados.

Resultados: Las puntuaciones medias de cada dominio y de la puntuación global del ASQ-3 no mostraron diferencias entre ambos grupos. Sin embargo, al analizar la densidad de probabilidades para la puntuación global del ASQ-3 \leq 251 puntos, 15 PT (16,6%) y 4 AT (4,5%) mostraban riesgo de déficit psicomotor, y la prematuridad tardía y la ausencia de lactancia materna resultaron factores asociados significativamente.

Conclusiones: Hubo una mayor prevalencia de riesgo de déficit en el desarrollo en los PT, lo que justifica considerar esta población de riesgo y establecer programas de seguimiento eficientes. Debe seguirse investigando si este riesgo corresponde a toda la población o si existen factores biológicos o antecedentes perinatales que los hacen más vulnerables.

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Introduction

In 2005, the vulnerability of the late preterm newborn (LP), defined as those born between 34⁺⁰ and 36⁺⁶ weeks of gestation replaced the former term "near term" that assigned a lower risk assessment to that population.¹

There are numerous publications showing greater neonatal morbidity and mortality of LPs when compared to healthy term newborns.²⁻⁴

The absence of specialised follow-up programmes has made it difficult to arrive at more definitive conclusions about neurological evolution in the short and medium term. Nearly all data obtained is retrospective and with disparate results, although most indicate a greater incidence of behavioural and cognitive disorders and learning difficulties when compared to healthy term newborns.⁵⁻⁷

A large percentage of these children are not sufficiently evaluated after birth, and it is not known whether they present injuries associated with prematurity or secondary to neonatal morbidity. LPs are followed-up by their primary care paediatricians or family doctors, and unlike extremely premature newborns, there are no follow-up programmes specifically for this population. In the USA, 5-15% of children present developmental deficits and, in the absence of systematic evaluation tests, only 30% are diagnosed before school age.⁸ For this reason, the application of standardised screening scales at particular ages or due to risk factors is recommended.⁹ Bayley's scale¹⁰ is considered the standard for full measurement of child development, but it takes time and requires highly specialised personnel.

Questionnaires for parents and caregivers were prepared to overcome these difficulties. These instruments have been shown to be valid and reliable. The most widely used is the Ages and Stages Questionnaires® (ASQ), developed by the University of Oregon, later updated and validated in various countries,¹¹ translated into Spanish¹² and validated in Chile^{13,14} and Spain, in Galicia.¹⁵

Recognising the LP as a "population at risk", would provide an easily administered and reliable tool to screen for development deficits, giving greater insight into this population and eliminating delays in prognosis and therapy.

The objective of this study was to evaluate, with a questionnaire answered by parents, the psychomotor development at 48 months of age of LPs born in our centre in 2009, and to compare them with healthy term (HT) newborns, to verify the hypothesis that LPs have twice the risk of psychomotor development difficulties than healthy term newborns.^{16,17}

Population and method

Retrospective cohort study. LPs born in the private hospital of a health insurance company with a IIIB care level neonatal unit were enrolled.¹⁸ Two groups were established:

- Study group: this included premature newborns with 34⁺⁰ to 36⁺⁶ weeks of gestation, born in the hospital in 2009, and who reached the age of 48 months during 2013.

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