of the preparation). Only a minority used albumin (37%), and we found substantial variability in the dosage in terms of both the volume and concentration of albumin used. The reported concentrations of albumin ranged from 0.1 to 0.2 g per 50 mL. Another finding that emerged in an open-ended question about the preparation protocol was that 7% of units used concentrated insulin solutions (5 IU/mL) to saturate syringes and tubing.

Our study confirmed the significant heterogeneity in the preparation of insulin infusions and thus the uncertainty in the reliability of the delivered treatment. Therefore, new stability studies are required to establish the optimal method for preparing and administering insulin infusions and allow standardization of a frequently used treatment that has a significant impact on the outcomes of preterm infants.

Conflicts of interest

The authors have no conflicts of interest to declare.

Acknowledgments

We want to acknowledge all the professionals that care daily for newborns in neonatal units throughout Spain and that contributed to the survey by completing the questionnaire. We also thank the Sociedad Española de Neonatología and the blog *Cuidando Neonatos* for their help in distributing the questionnaire.

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28 January 2020 15 June 2020

https://doi.org/10.1016/j.anpede.2020.06.015
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Follow-up study of late premature infants in a primary care centre; what is the reality of this population?☆

Estudio de seguimiento del prematuro tardío en un centro de atención primaria. ¿Cuál es la realidad de esta población?

Dear Editor:

The number of late preterm births (between 34 and 36 weeks' gestation) has been increasing in recent years and amounts to more than 70% of all preterm births. In addition to abnormal neurodevelopment, infants born late preterm are at higher risk of infection, faltering growth, respiratory problems and hospital admission and are less likely to be breastfed.[1–4]

The Sociedad Española de Neonatología (Spanish Society of Neonatology), in collaboration with the Asociación Española de Pediatría de Atención Primaria (Spanish Association of Primary Care Paediatrics), published guidelines for the followup of late preterm infants in 2017 with the aim of minimising the impact of prematurity.[2] The objective of our study was to analyse the comorbidities detected in a population of children born late preterm followed up in a primary care centre.

We conducted a retrospective descriptive study in which we included all children born late preterm between January 2007 and October 2019 followed in an urban primary care centre with a catchment population of 2844 children under 15 years as of September 2019.

☆ Please cite this article as: Andrés MM, Fernández LS, Hernández MIM, Velillas JJL. Estudio de seguimiento del prematuro tardío en un centro de atención primaria. ¿Cuál es la realidad de esta población? An Pediatr (Barc). 2021;95:49–51.

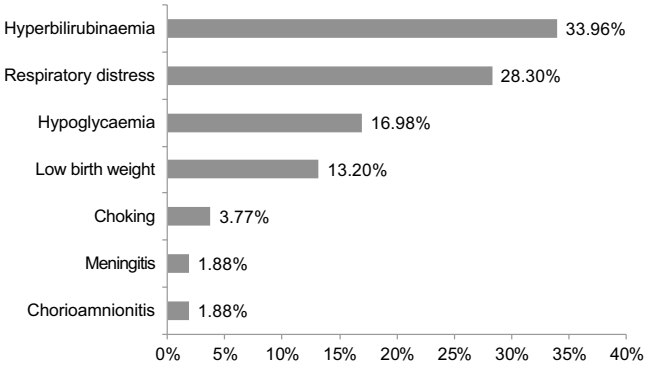

Figure 1 Reasons for neonatal admission in the sample of late preterm infants ($n = 46$).

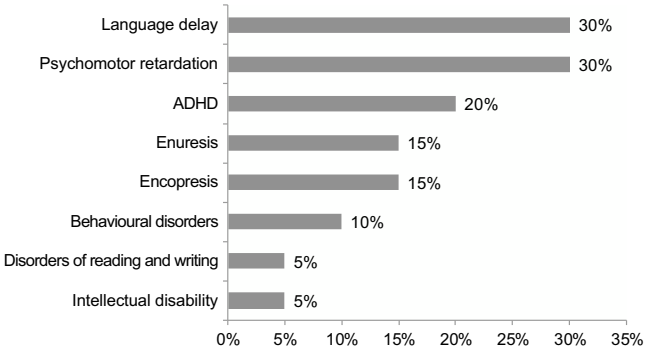

Figure 2 Distribution of diagnoses detected in children born late preterm with neurodevelopmental disorders ($n = 46$). ADHD, attention-deficit hyperactivity disorder.

Between January 2007 and October 2019 there were 1782 births registered at the primary care centre, of who 95.7% ($n = 1707$) were term births, 8.9% ($n = 159$) late preterm births and 2.5% ($n = 44$) preterm births before 34 weeks of gestation. In the subset of preterm births ($n = 203$), late preterm births amounted to 78% of the total.

The study included 136 children (4.7% of the paediatric population served in the primary care centre during the study period). Of this total, 60.3% were male. The gestational age at birth was 34 weeks in 19.1% ($n = 26$), 35 weeks in 23.5% ($n = 32$) and 36 weeks in 57.4% ($n = 78$). Out of all children, 25.7% ($n = 35$) were not breastfed, of who 26% ($n = 4$) had been born at 34 weeks, 11% ($n = 4$) at 35 weeks and 63% ($n = 22$) at 36 weeks ($P = .119$). The mean duration of exclusive or mixed breastfeeding in the sample was 4.2 months overall (95% confidence interval [CI], 3.7–4.7; standard deviation [SD], 5.58) and 6 months after excluding participants that were not breastfed (95% CI, 5.6–6.6; SD, 5.85). Hospital admission during the neonatal period was required in 33.8% ($n = 46$) of participants. Of the subset of infants that required neonatal admission, 47.8% ($n = 22$) were born at 36 weeks' gestation, 23.9% ($n = 11$) at 35 weeks and 28.2% ($n = 13$) at 34 weeks. Fifty percent of infants born at 34 weeks' gestation required admission compared to 34.3% of those born at 35 weeks and 28.2% of those born at 36 weeks ($P = .126$). Fig. 1 presents the reasons for neonatal admission.

Nine (6.6%) children were in followup in early intervention programmes and 5 in rehabilitation (3.67%). Fifty percent ($n = 7$) of the children followed up through early intervention or rehabilitation services had required admission in the neonatal period.

When it came to sensory impairment, 9.55% ($n = 13$) had visual impairment in the form of astigmatism ($n = 8$), hypermetropia ($n = 3$), myopia ($n = 2$), strabismus ($n = 2$) and retinopathy or prematurity ($n = 1$). There was no evidence of impaired hearing in any of the participants.

Neurodevelopmental problems were present in 15.4% ($n = 21$). Nineteen percent ($n = 4$) of these children had been born at 34 weeks of gestational age, 19% ($n = 4$) at 35 weeks and 62% ($n = 13$) at 36 weeks ($P = .860$). Of all patients with developmental impairment, 57% ($n = 12$) had required admission in the neonatal period, while 43% ($n = 9$) did not require it ($P = .014$). Of the patients that were not breastfed ($n = 35$), 28.5% ($n = 10$) had neurodevelopmental impairment compared to 10.9% ($n = 11$) of patients that were breastfed ($n = 101$) ($P = .013$). Fig. 2 summarises the diagnoses of children born late preterm with neurodevelopmental disorders.

In our case series, late preterm infants amounted to 78% of all infants born preterm, a proportion similar to the proportion described in the literature. Traditionally, children born late preterm were not included in the protocols for follow up of preterm infants. However, late preterm birth also entails greater vulnerability and increased morbidity, especially in the area of neurodevelopment. Several studies have highlighted that compared to children born to term, children born late preterm have a nearly 2-fold risk of experiencing neurodevelopmental impairment, with less favourable outcomes in the areas of communication, cognitive development, learning and behaviour, extending even to psychiatric disorders in adulthood or lower educational attainment.[1,5] in our sample, approximately 15% of children born late preterm had some form of neurodevelopmental impairment. We ought to underscore that in this case series, only 6.6% of patients were followed up in early intervention programmes and 3.6 in rehabilitation programmes despite this being a population at higher risk of neurodevelopmental disorders. The variability in actual clinical practice, the lack of standardised criteria for referral and the long waiting lists for care such as early intervention programmes may explain the low frequency of followup in these patients, especially in those with mild neurodevelopmental impairment that may be considered as being within the normal range. In any case, the low rate of followup in early intervention and rehabilitation programmes suggests that it is necessary to ensure that health care professionals are aware of the importance of close neurologic followup in these patients.

Several studies have analysed the association between breastfeeding and cognitive development in the child.[6] In our case series, nearly 30% of patients that were not breastfed had neurodevelopmental disorders compared to 10% of patients that were breastfeed, and this difference was statistically significant. We ought to highlight that in the subset of late preterm infants, 25% were not breastfed, compared to a proportion of 4.5% reported in other studies.

Knowledge of the most frequent problems in this population, promotion of breastfeeding and implementation of late preterm infant follow-up programmes are crucial to ensure early diagnosis and intervention and therefore to minimise the potential sequelae.

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https://doi.org/10.1016/j.anpede.2020.05.014
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25 years of paediatric cardiopulmonary resuscitation courses in Spain☆

25 años de cursos de reanimación cardiopulmonar pediátrica en España

Dear Editor:

The Spanish Group on Paediatric and Neonatal Cardiopulmonary Resuscitation (GERCPPyN) is a multidisciplinary working group created in 1992 by the Asociación Española de Pediatría (Spanish Association of Pediatrics, AEP) and composed by physicians that are members of its affiliated societies of paediatric intensive care, neonatology, paediatric emergency medicine and primary care. One of its key objectives is to promote and expand course in cardiopulmonary resuscitation (CPR) in Spain.[1] To this end, the group develop a structured and standardised course curriculum including multiple activities among which we would highlight the design and development of theoretical and practical courses at different levels—basic life support, intermediate life support, advanced life support, neonatal CPR, refresher courses and instructor courses—aimed at the general population, parents of at-risk children and students and professionals in different health care fields, also developing the contents for these courses.[2–4] The learning objectives of the courses are recognising children at risk of cardiac arrest, preventive measures, basic knowledge and skills in CPR and development of the necessary psychomotor skills to perform CPR manoeuvres in a quick, coordinated and sequential fashion in newborns, infants and older children. The GERCPPyN developed the expansion of the paediatric CPR courses through the creation of teaching groups, the appointment of representatives in each autonomous community and the establishment of an accreditation system to ensure the quality of CPR courses.

To study the activity carried out in the past 25 years, we conducted a retrospective study through the review of the records of courses accredited by the GERCPPyN between 1994 (date of the first workshop) and December 2019. We included courses in paediatric advanced life support (PNALS), paediatric and neonatal intermediate and basic life support with automatic external defibrillator (PNIBLS-AED), CPR certification renewal courses (CPRCR) and CPR instructor courses (CPRIT). We did not include courses conducted outside of Spain.[5] We analysed the number of courses offered and number of trained individuals in each province and autonomous community, and the ratio of the number of courses to the size of the population as an approximation of the number of health care professionals that these courses are for. We analysed the trends incourses and compared the 1994–2009 and 2010–2019 periods.

In these 25 years, there were a total of 1788 courses (1367 on PNALS, 338 on PNIBLS-AED, 14 for CPRCR and 69 for CPRIT) received by 39 671 trainees (30 797 on PNALS, 6858 on PNIBLS-AED, 312 for CPRCR and 1704 for CPRIT).

Fig. 1 presents the temporal trends in courses and trainees. When we compared the 2 periods, we found a significant increase in the number of courses in the past 10 years (from 46 ± 28 to 106 ± 28 a year; $P < .01$) and the number of trainees receiving them (from 1088 ± 670 to 2227 ± 445 a year; $P < .01$). In recent years there has been an increase in the number of courses on heartsaver CPR, which evinces the adaptation of CPR education to the needs of health care professionals. On the other hand, we have to highlight the small number of renewal courses, which may be explained by trainees taking the complete course again and providers not undergoing renewal courses at regular intervals.

Fig. 2 presents the distribution of courses and trainees per autonomous community in relation to the number of inhabitants, revealing substantial regional differences.

☆ Please cite this article as: López-Herce J, Manrique I, Carrillo Á, Calvo C, Manrique G. 25 años de cursos de reanimación cardiopulmonar pediátrica en España. An Pediatr (Barc). 2021;95:51–53.