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CLINICA DE FAMILIA

INDISA - NEORED
Un Nuevo Concepto en Medicina Perinatal

Neo Red

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ARTICLE

Sex differences in postnatal weight gain trajectories of extremely preterm newborns

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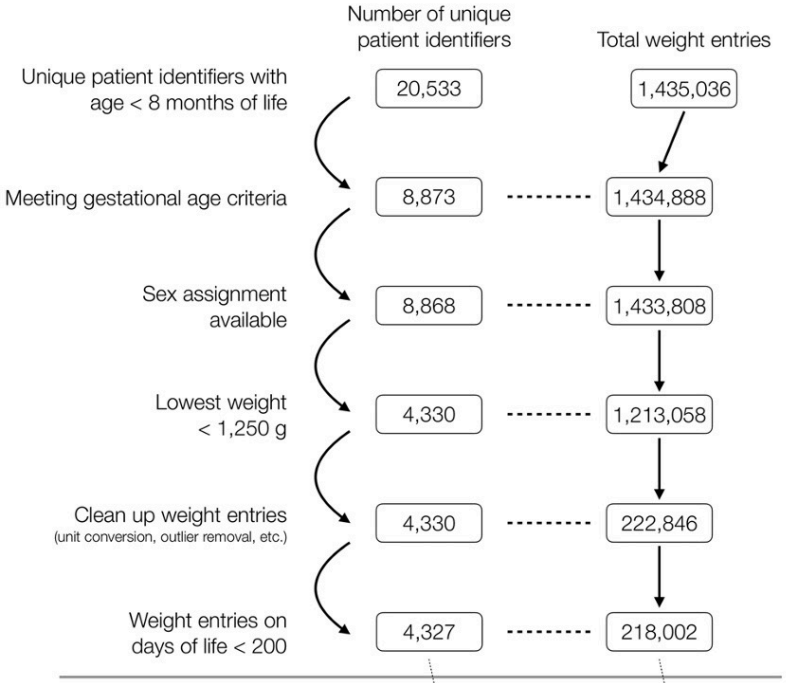
- La ganancia postnatal de peso en los PT extremos puede estar influida por diversas razones:
  - Restricción de agua libre, gravedad, comorbilidades, días de parenteral v/s enteral
  - Además puede relacionarse con otros factores como termorregulación, succión, insuficiencia placentaria

- Estudio restrospectivo, observacional, base de Datos, Canadá.



≤ 24 weeks	Female	631	30,961
	Male	724	33,266
25-26 weeks	Female	714	38,885
	Male	771	42,947
27-28 weeks	Female	745	35,079
	Male	742	36,864

Fig. 1 Data clean-up process and final numbers of patients and weight entries. A flow chart depicting the dataset clean-up process and the resultant number of unique patient identifiers as well as the number of corresponding weight entries.

Table 1 Demographic information.

Comorbidity	GA 24 weeks and less			GA 25 and 26 weeks			GA 27 and 28 weeks		
Sex	Female	Male	Effect size[a]	Female	Male	Effect size[a]	Female	Male	Effect size[a]
Number	631 (46.6)	724 (53.4)	-	714 (48.1)	771 (51.9)	-	745 (50.1)	742 (49.9)	-
Race/ethnicity									
White	239 (37.9)	279 (38.5)	0.05	282 (39.5)	321 (41.6)	0.03	369 (49.5)	343 (46.2)	0.06
Black	226 (35.8)	262 (36.2)		247 (34.6)	259 (33.6)		208 (27.9)	223 (30.1)	
Hispanic	19 (3.0)	29 (4.0)		17 (2.4%)	22 (2.9%)		22 (3.0%)	15 (2.0%)	
Asian/Pacific Islander/Native American	10 (1.6)	16 (2.2)		17 (2.4)	15 (1.9)		24 (3.2)	20 (2.7)	
Other/Unknown	137 (21.7)	138 (19.1)		151 (21.1)	154 (20.0)		122 (16.4)	141 (19.0)	
Comorbidity									
IVH - low grade	89 (14.1)	112 (15.5)	0.02	106 (14.8)	119 (15.4)	0.01	87 (11.7)	90 (12.1)	0.01
IVH - high grade	106 (16.8)	156 (21.5)	0.06	77 (10.8)	109 (14.1)	0.05	40 (5.4)	46 (6.2)	0.02
NEC[b]	28 (4.4)	59 (8.1)	0.08	39 (5.5)	55 (7.1)	0.03	21 (2.8)	34 (4.6)	0.05
BPD	285 (45.2)	322 (44.5)	0.01	344 (48.2)	404 (52.4)	0.04	258 (34.6)	284 (38.3)	0.04
ROP - low grade	118 (18.7)	152 (21)	0.03	195 (27.3)	191 (24.8)	0.03	155 (20.8)	162 (21.8)	0.01
ROP - high grade	85 (13.5)	76 (10.5)	0.05	73 (10.2)	61 (7.9)	0.04	19 (2.6)	23 (3.1)	0.02
PVL	38 (6.0)	52 (7.2)	0.02	33 (4.6)	35 (4.5)	0.00	25 (3.4)	20 (2.7)	0.02

Data presented as number (percentage).

GA gestational age, *IVH* intraventricular hemorrhage, *NEC* necrotizing enterocolitis, *BPD* bronchopulmonary dysplasia, *ROP* retinopathy of prematurity, *PVL* periventricular leukomalacia.

[a]Cohen's W test.

[b]Stage 2 or 3.

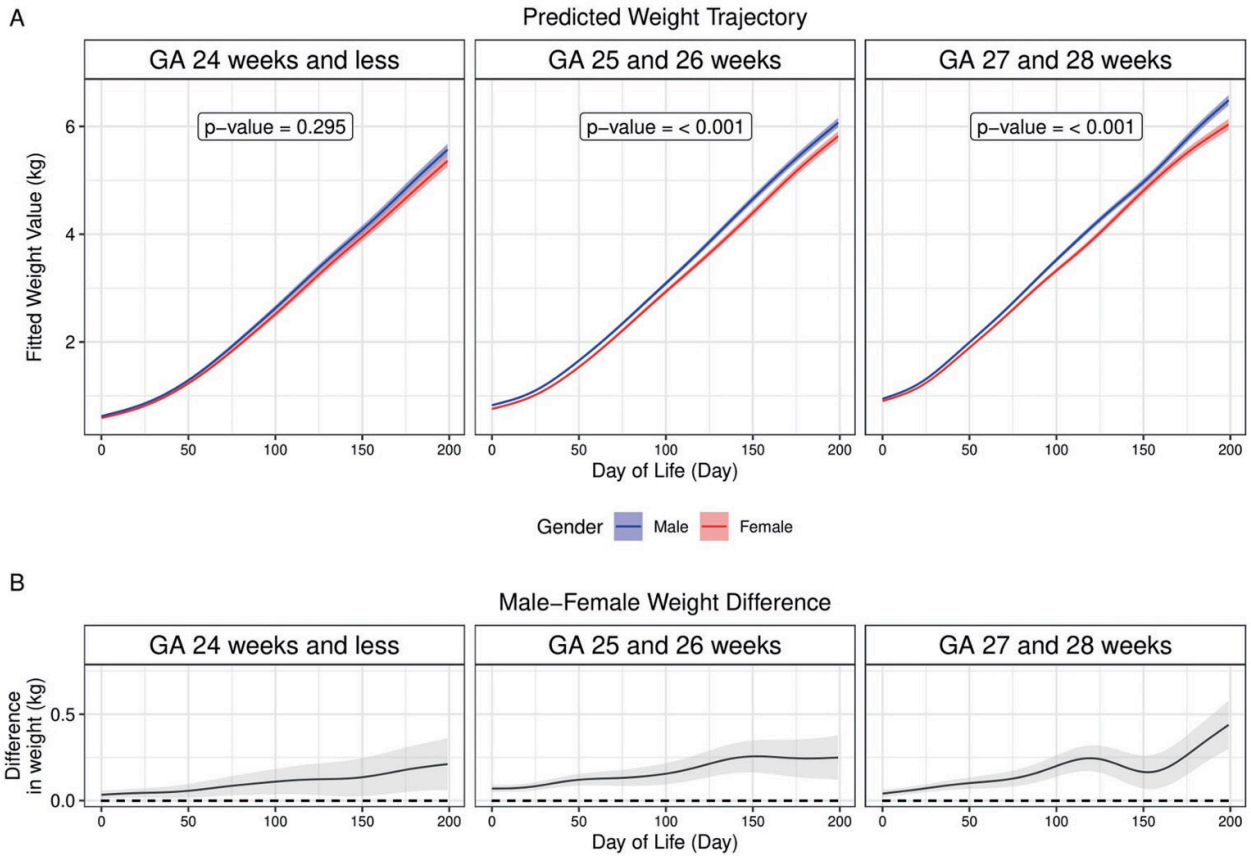


Fig. 2 Generalized additive mixed modeling of postnatal weight trajectories in extremely preterm newborns. A Predicted weight trajectories for male (blue) and female (red) extremely preterm newborns were plotted against the postnatal age (in days of life), with shades representing 95% confidence interval (CI). Likelihood ratio tests were used for significance testing (refer to text for details), with results showing that, while there was no significant difference in the group born at GA 24 weeks or less, the differences were significant in the groups born at GA 25 and 26 weeks as well as at GA 27 and 28 weeks. **B** Weight trajectory difference with 95% CI (shaded areas) between male and female (male minus female) was plotted against the postnatal age (in days of life). Note the dashed line represents zero differences in weight trajectories. The figure showed that predicted weight trajectories in male infants were higher than those in female infants. GA stands for gestational age.

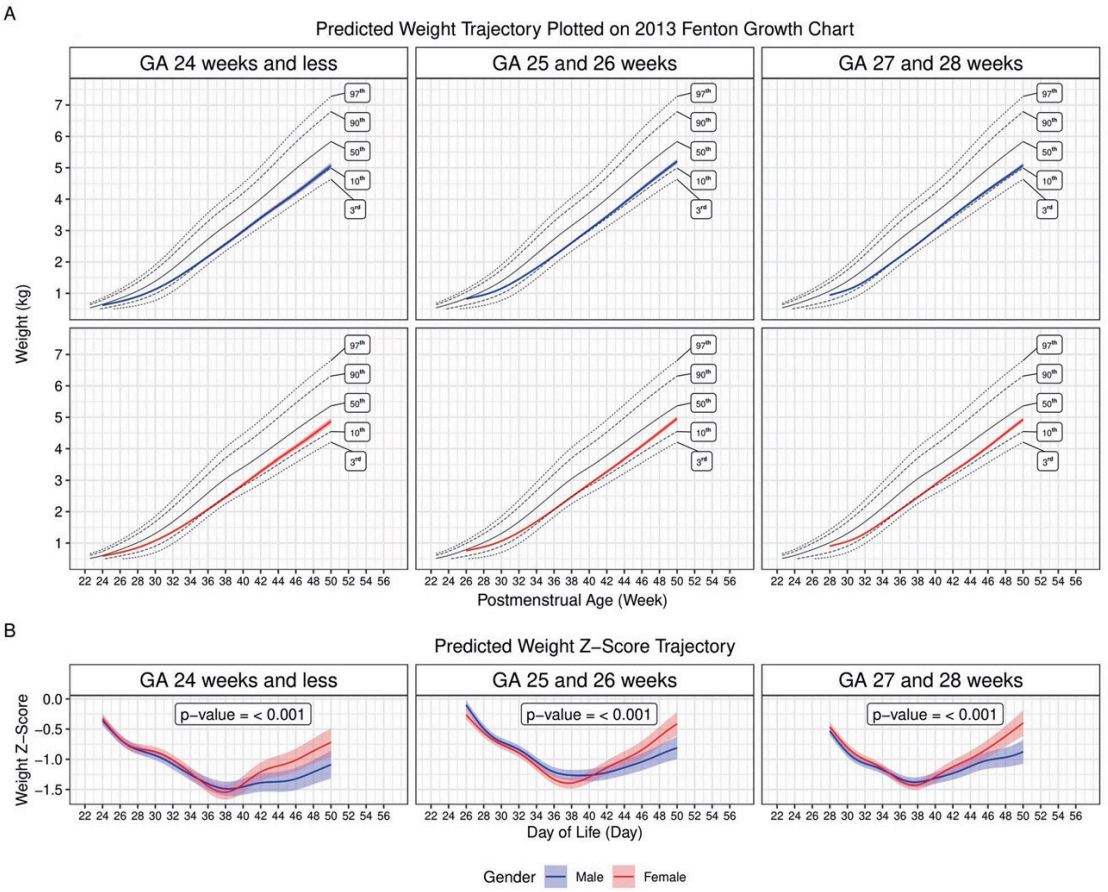


Fig. 3 Generalized additive mixed modeling of postnatal weight z-score trajectories in extremely preterm newborns. A Predicted weight trajectories for male and female extremely preterm newborns (EPNs) were plotted on the 2013 Fenton sex-specific growth charts to compare longitudinal weight gain trajectories of the EPNs to the referenced weight-at-birth growth charts which represent intrauterine growth. **B** Predicted weight z-score trajectories in male and female EPNs were plotted against postmenstrual age (PMA). Likelihood ratio tests showed significant differences in weight z-score trajectories between male and female in all three GA groups. For both **A** and **B**, the blue (male) and red (female) lines represent predicted values of the weight (**A**) and weight z-score (**B**) trajectories. The shaded areas represent the 95% confidence intervals.

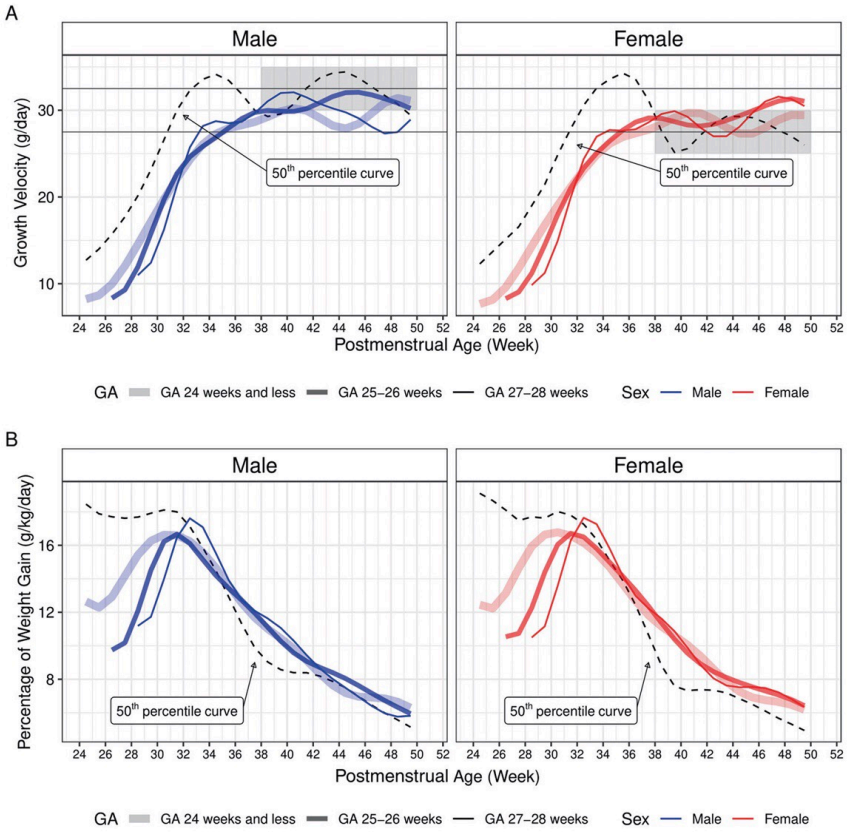


Fig. 4 Comparing predicted weight gain velocity and the percentage of weight gain to the growth standards. A Weight gain velocities were plotted against gestational age (GA). The gray rectangles in the plotting areas encompass the upper and lower limits of the reference growth velocities (dashed lines) for sex within the indicated postmenstrual age (PMA) range (38–50 weeks). Solid blue (male) and red (female) lines indicate predicted growth velocities in the extremely preterm newborns. **B** Percentages of weight gain for male (blue) and female (red) were plotted against PMA. Note that, for both **A** and **B**, the reference weight gain velocity lines (dashed lines) were derived from the 2013 Fenton growth chart 50th percentile lines for the corresponding sexes. Additionally, weight gain velocity in grams per day (**A**) was generated by calculating the weight difference between two consecutive days, followed by taking a 7-day average; percentage of weight gain (**B**) was calculated by dividing weight gain velocity (in grams per day) by the weight of the first of the two consecutive days, followed by taking a 7-day average. The combinations of the thickness and the degree of transparency of the solid lines represent corresponding GA groups, with the thinnest and least transparent lines representing the group born at GA 27–28 weeks, and the thickest and most transparent lines representing the group born at GA24 weeks and less. These solid lines are color coded to present female (red) and male (blue).

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ACTA PÆDIATRICA
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REGULAR ARTICLE

National birth prevalence, associated anomalies and mortality for gastroschisis in Sweden

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- Incidencia: 2,74 /10.000 RNV (> en los últimos años)
- Diagnóstico prenatal >90%
- IVE por gastrosquisis: 0,37 / 10.000 RNV
- Estudio descriptivo, Sueco.
  - 01/01/1997 a 31/12/2016
  - 2.082.672 RNV
  - incidencia 1.52 /10.000 RNV
  - IVE 21%

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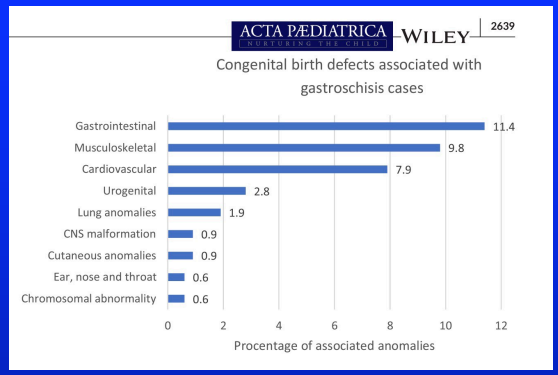
- Mortalidad 4,4%
  - 1,9% en los primeros 30 días
  - 3,9% en el primer año de vida
  - 4,2% en los primeros 5 años de vida
- 79% nacieron PT
  - Mediana de EG 35 2/7 sem
  - Mediana de peso 2480 gr (DS +/- 572)
  - Mediana de APGAR 9-10-10
  - 32% con otras malformaciones asociadas
    - GI: atresia intestinal
    - ME: inestabilidad congenita de caderas
    - CV: CIA / CIV



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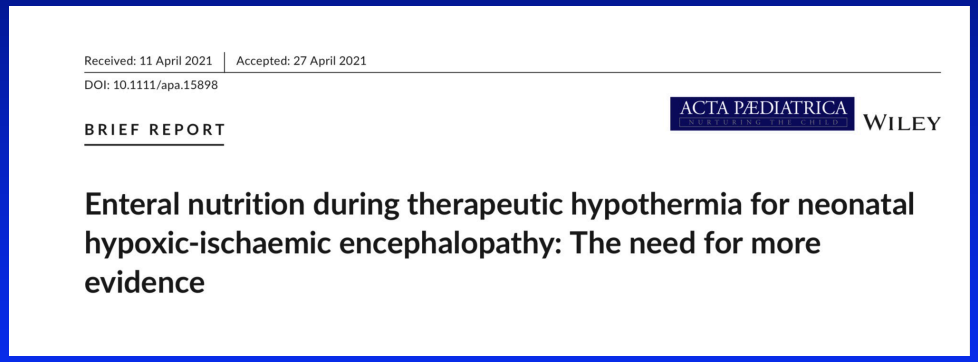

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ACTA PÆDIATRICA
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BRIEF REPORT

Enteral nutrition during therapeutic hypothermia for neonatal hypoxic-ischaemic encephalopathy: The need for more evidence

- Normalmente se ha manejado en régimen cero a los pacientes con EHI en hipotermia
  - No existen guías estandarizadas respecto a la alimentación
  - Miedo a la NEC v/s aumento de la inflamación intestinal asociada al régimen cero con riesgo de translocación bacteriana y exacerbación de la inflamación sistemica
  - Catabolismo aumentado en paciente en régimen cero, con SG

Study	Study type and group	Outcome	Intervention details	Key results	Comments
Thyagarajan et al. 2015	Retrospective cohort study 51 Swedish infants who received minimal enteral feeding (MEN) during TH were compared with 34 UK infants, majority of whom, received delayed enteral feeding	Time to achieve full enteral feeds and length of hospital stay. Complications including NEC were noted	In Swedish infants, enteral feeds started with 1–2 ml/kg boluses every 3 h during TH. In the UK cohort, mainly total parenteral nutrition was given in the first few days	91% were fed enterally during TH in Swedish cohort, compared with 33% in UK cohort No difference in the median time to full enteral feeding (6 days) and longer median length of hospital stay in the Swedish group (13 vs. 10 days) No NEC in both cohort No significant difference in mortality (7.8% in Swedish cohort vs. 15.6% in UK infants)	Small sample size 33% of UK infants had received enteral feeds during TH, which might have affected the results More number of breastfed infants in Swedish cohort may have caused increased length of stay in the hospital
Chang et al. 2018	Retrospective case-control study 17 term infants received MEN during TH, compared with 17 matched term infants who were not fed (unfed) during TH	Number of days requiring parenteral nutrition and gastric tube feeds, the length of hospital stay, severity of brain injury, systemic inflammation and feeding complications	Feeds were given at minimal volumes (<20 ml/kg/day) during TH Feeding was initiated on mean day of age at 2 ± 1 in MEN group compared to 5 ± 1 in unfed group	Fewer days receiving parenteral nutrition in the MEN group (7 ± 2 vs. 11 ± 6 days) Shorter time to full oral feeds in the MEN group (8 ± 5 vs. 18 ± 18 days) Shorter mean length of hospital stay in the MEN group (15 ± 11 vs. 24 ± 19 days) No difference in MRI brain injury scores between the 2 groups	A standard feeding protocol was not used Small sample size
Studies not meeting the eligibility criteria					
Hazeldine B et al. 2017	Survey of nutritional practices during TH for HIE Forty-nine neonatal units	Timing of starting enteral feeds, volumes, frequency and parenteral nutrition use, feeding guidelines availability	–	Enteral feeding during TH and rewarming was 59% 29% of units used parenteral nutrition, and 86% of them offering also enteral feeds Guidelines for feeding during TH were available in 31%	Excluded as no data on outcomes including NEC provided
Thornton KM et al. 2014	Retrospective cohort study including 32 historical control patients did not receive TH and 36 cohort patients received TH	Time to start enteral feeds, time to achieve full enteral feeds and oral feeds Complications including NEC were noted	TH versus non-TH	TH group reached full enteral feeds and full oral feeds sooner. The non-TH group had higher combined outcomes of death and gastric tube placement and death	Excluded as no enteral feeding during TH
Ojha et al. 2019	Editorial	–	–	–	Excluded as no research data
Battersby et al. 2018	Study protocol of an ongoing large national retrospective study on HIE infants who received TH	NEC and late-onset sepsis Secondary outcomes: survival, length of stay, breast feeding at discharge, hypoglycaemia, time to full enteral feeds and growth	Enteral feeding versus no enteral feeding during TH, dextrose without any parenteral nutrition versus parenteral nutrition	–	Excluded as no results available yet
Sakhuja et al. 2019	Prospective study 20 infants with HIE	Intestinal blood flow changes during TH and rewarming	Serial echocardiography and Doppler evaluation of intestinal blood flow	Celiac and mesenteric artery flow remained low during TH and rose after rewarming	Excluded as enteral feeds withheld during TH

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ACTA PÆDIATRICA
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REVIEW ARTICLE

Systematic review shows the benefits of involving the fathers of preterm infants in early interventions in neonatal intensive care units

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Ischemic Lesions in the Brain of a Neonate With SARS-CoV-2 Infection

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M. Inés Urquizu Handal, MD, Armando O. Picon, MD,* Cristina Cook, MD,*‡ and Nestor E. Vain, MD*§*

Aim: To describe a term newborn with acquired severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and multisystem involvement including seizures associated to ischemic lesions in the brain.

Background: Coronavirus disease 2019 (COVID-19) is predominantly a respiratory infection, but it may affect many other systems. Most pediatric COVID-19 cases range from asymptomatic to mild-moderate disease. There are no specific clinical signs described for neonatal COVID-19 infections. In children, severe central nervous system compromise has been rarely reported.

Case Description: We describe a 17-day-old newborn who acquired a SARS-CoV-2 infection in a family meeting that was admitted for fever, seizures and lethargy and in whom consumption coagulopathy, ischemic lesions in the brain and cardiac involvement were documented.

Conclusions: SARS-CoV-2 neonatal infection can be associated with multi-organic involvement. In our patient, significant central nervous sys-

CASE

A baby boy born at term with a birth weight of 3.421 kg, with no significant perinatal history, was brought to the emergency room at seventeen days of life because of fever (38°C) during the previous 12 hours and a generalized tonic seizure.

The parents, the newborn and a 5-year-old sister, were staying at that time in preventive home isolation because 6 days before the onset of symptoms they attended a family meeting where they were in close contact with three family members who in the following 3 days became symptomatic and tested positive for SARS-CoV-2.

The patient's nasopharyngeal swab real-time reverse transcription polymerase chain reaction test (RT-PCR) obtained upon admission was positive for SARS-CoV-2 while both parents, who were asymptomatic, tested negative.

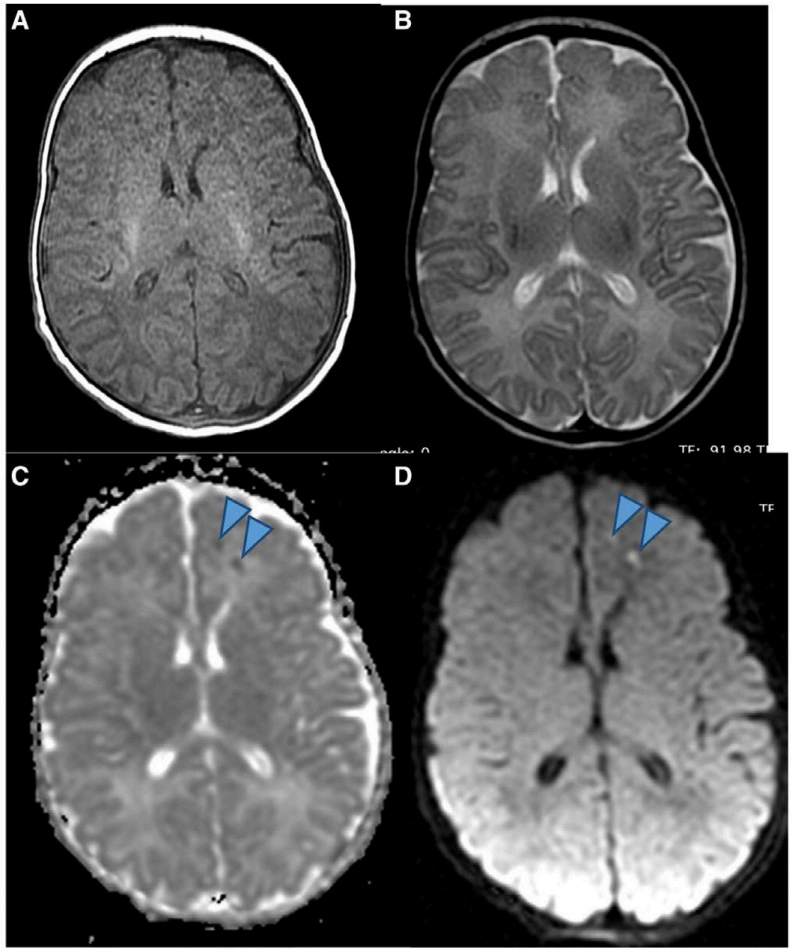

FIGURE 1. This is the patients' MRI: Axial T1-weighted (A) and axial T2-weighted image (B): There are no signal abnormalities in the brain parenchyma. Axial DWI image (C) and axial ADC image (D) show 2 small foci of restriction in the left frontal subcortical white matter compatible with acute ischemic lesions (arrowheads).

	MILTINA SL (Soya)		BLEMIL ARROZ etapa 1	
	Por 100 g	Por 100 Kcal	Por 100 g	Por 100 Kcal
Energía (Kcal)	498	100	504	100
Proteínas (g)	12.6	2.5	12	2.4
Carbohidratos (g)	57.7	11.6	56.7	11.3
Lactosa	0	0	0	0
Grasas saturadas (g)	8.8	1.8	13.3	2.6
Grasas monoinsaturadas (g)	10.3	2.1	8.1	1.6
Grasas poliinsaturadas (g)	5.0	1	4.1	0.8
Sodio (mg)	200	40.2	225	45
Potasio (mg)	570	114.5	450	89
Calcio (mg)	505	101.4	450	89
Fósforo (mg)	295	59.2	250	50
Hierro (mg)	6.6	1.3	5.0	1.0
Zinc (mg)	5.1	1	4.0	0.79
Vitamina A (ug)	495	99.4	450	89
Vitamina D (ug)	7	1.4	7.5	1.5
Ácido fólico (ug)	62	12.4	60	11.9