

CARTAS AL EDITOR

Congenital infection by cytomegalovirus in newborns with very low birth weight

Dear editor: Cytomegalovirus (CMV) is the main cause of congenital infection, it affects 0.5 to 2% of newborns (NB) and has been related to auditory and/or neurological sequelae in both symptomatic and asymptomatic patients at birth. Different studies have evaluated the usefulness of neonatal screening to identify infection, but the conclusions are not consistent.

We present the results of a cross-sectional study carried out at the *Hospital Civil de Guadalajara* with the objective of estimating the frequency of congenital CMV infection in newborns with very low birth weight (VLBW, <1 500 g). Infections were confirmed by polymerase chain reaction (PCR) of saliva samples in the first hours of life and before initiating breastfeeding. Saliva was collected with a sterile swab and transported in tubes free of RNAses and DNAses. The variables studied were obtained from the medical records.

95 newborns with VLBW were studied, 57.9% were male, the median gestational age was 30.4 weeks (maximum 37, minimum 23, IQR 3) and the median birth weight was 1 195 grams (maximum 1 499, minimum 480, IQR 390). The prevalent route of birth was caesarean section, with 66.3 per cent.

Congenital infection was identified

in nine NB (10.46%, 95%CI 5.2,18.3). Among those infected, the most frequent symptom was jaundice (6/9), other less common were microcephaly (2/9) and hepatomegaly (2/9). When comparing infected and non-infected newborns, a longer hospital stay was observed in the former.

We observed that 95.16% of the mothers had serum IgG antibodies against CMV, and we also noted that all mothers of neonates with congenital CMV infection presented some comorbidity, with a tendency to a higher occurrence of premature rupture of membranes (table I).

In developing countries almost all pregnant women present antibodies against CMV. Factors such as poverty and overcrowding are likely to facilitate early infection.¹ Similar to our results, Uchida² and Yamada³ described a higher occurrence of preterm labor in these patients.

Martínez-Contreras and colleagues also identified a high frequency of CMV infection in neonates with respiratory distress syndrome.⁴ With the findings of the study, we suggest implementing screening tests in high-risk subgroups such as newborns with VLBW.

Declaration of conflict of interests. The authors declare that they have no conflict of interests.

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Table I
COMPARISON OF DEMOGRAPHIC AND CLINICAL CHARACTERISTICS AND MATERNAL HISTORY IN VERY LOW BIRTH WEIGHT NEONATES WITH AND WITHOUT CONGENITAL CYTOMEGALOVIRUS INFECTION. STUDY CARRIED OUT AT THE HOSPITAL CIVIL DE GUADALAJARA DR. JUAN I. MENCHACA BETWEEN NOVEMBER 2019 AND APRIL 2020. MEXICO

		Congenital infection absent n 77	Congenital infection present n 9	p*
Newborn variables				
Birth weight	Median grams	1 195.00	1 099.00	0.72
Gestational age	Median weeks	30.6	30.3	0.55
Apgar at 5 min	Median points	8.0	9.0	0.15
Fever	%	6.6 (4/61)	11.1 (1/9)	0.51
Petechiae	%	4.7 (3/64)	0.0 (0/9)	0.67
Microcephaly	%	27.0 (17/63)	25.0 (2/9)	0.56
Jaundice	%	73.8 (45/61)	66.7 (6/9)	0.46
Hepatomegaly	%	19.7 (12/61)	22.2 (2/9)	0.58
Splenomegaly	%	14.8 (9/61)	0.0 (0/9)	0.27
Low weight for gestational age	%	34.9 (22/63)	11.1 (1/9)	0.15
Thrombocytopenia	%	25.9 (15/58)	22.2 (2/9)	0.59
Maximum total bilirubins	Median (mg/dl)	7.7	6.6	0.15
Hemoglobin	Median (mg/dl)	15.65	14.88	0.43
Hematocrit	%	48.26	45.14	0.43
Dilation of the cerebral ventricles	%	13.8 (4/29)	16.7 (1/6)	0.63
Neonatal sepsis	%	20.8 (16/77)	44.4 (4/9)	0.12
Hospital stay days	Median days	28.0	55.0	0.007
Death‡	%	49.4 (38/77)	22.2 (2/9)	0.12
Maternal variables				
Maternal age	Median years	24.0	24.0	0.88
Adequate prenatal care	%	54.5 (42/77)	33.3 (3/9)	0.19
Teenage mother	%	1.3% (1/77)	11.1 (1/9)	0.19
Maternal occupation housewife	%	83.1 (54/65)	66.7 (6/9)	0.55
Previous abortions	%	14.3 (11/77)	22.2 (2/9)	0.41
Overcrowded housing	%	20.0 (12/60)	22.2 (2/9)	0.59
Contact with children	%	91.8 (56/61)	77.8 (7/9)	0.22
Oligohydramnios in pregnancy	%	8.1 (6/74)	11.1 (1/9)	0.57
Clinical virosis in pregnancy	%	15.3 (9/59)	33.3 (3/9)	0.19
Maternal IgG positive antibodies	%	96.2 (51/53)	88.9 (8/9)	0.38
Maternal comorbidities§	%	57.1 (44/77)	100 (9/9)	0.01
Premature rupture of membranes	%	18.2 (14/77)	44.4 (4/9)	0.08
Placental dystocia#	%	5.2 (4/77)	22.2 (2/9)	0.12
Preeclampsia / eclampsia	%	16.9 (13/77)	22.2 (2/9)	0.49

* Hypothesis test for qualitative variables: Fisher's exact, and for quantitative variables: U-Mann-Whitney.

‡ Causes of death in newborns with VLBW (n. 40): respiratory distress syndrome: 14, late neonatal sepsis: 7, intraventricular hemorrhage: 5, extreme immaturity: 4, early neonatal sepsis: 3, skeletal dysplasia: 2, and an atrioventricular block event, asphyxia perinatal syndrome, body stalk syndrome, Potter syndrome, and pulmonary hypoplasia.

§ Maternal comorbidities (53/86): premature rupture of membranes: 18, pre-eclampsia / eclampsia: 15, placental dystocia: 6, diabetes mellitus or gestational diabetes: 5, hypothyroidism: 2, drug addict: 2, cervicovaginitis: 2, intrauterine growth restriction type III: 2, lupus erythematosus: 1.

Placental dystocia (6/86): placental abruption: 4, placenta accrete: 2.

Source of information: medical records and physical examination.