

NEONATAL BRAIN MAGNETIC RESONANCE IMAGING FINDINGS AND FOLLOW UP OF CHILDREN DIAGNOSED WITH CONGENITAL CYTOMEGALOVIRUS INFECTION THROUGH A SCREENING PROGRAM

Sara Vila Bedmar¹, Constanza Liébana², Ana Martínez de Aragón², Noemí Núñez ¹, Ana Camacho¹, Rogelio Simón¹, María Soriano³ Marta Vicente⁴, Carmen Rosa Pallás⁵, Serena Villaverde⁴, Silvia Chumillas⁶, Alfredo Pérez-Revilla⁷, Mónica García-Álvarez⁷, Irene Cuadrado⁸, Joaquín de Vergas⁹, Berta Zamora¹⁰ Cristina Epalza⁴, Cinta Moraleda⁴, Pablo Rojo⁴, Luis Prieto⁴, Elisa Fernandez-Cooke⁴, Rafael Delgado⁷, María Dolores Folgueira⁷, Daniel Blázquez-Gamero⁴ 1. Department of Pediatric Neurology, Hospital Universitario 12 de Octubre, Madrid, Spain 2. Department of Radiology, Hospital Universitario 12 de Octubre, Madrid, Spain 3. Universidad Complutense, Madrid, Spain. 4. Department of Pediatric Infectious Diseases Unit, Hospital Universitario 12 de Octubre, Madrid, Spain 5. Department of Neonatology, Hospital Universitario 12 de Octubre, Madrid, Spain 6. Department of Pediatrics; Hospital Universitario 12 de Octubre, Madrid, Spain 7. Department of Microbiology, Hospital Universitario 12 de Octubre, Madrid, Spain 8. Department of Pediatrics, Hospital Universitario de Getafe, Madrid, Spain 9. Department of Pediatric Otorhinolaryngology, Hospital Universitario 12 de Octubre, Madrid, Spain 10. Department of Neuropsychology, Hospital Universitario 12 de Octubre, Madrid, Spain

Background: Most infants with congenital Cytomegalovirus (cCMV) are asymptomatic at birth, although up to 15% of them will develop long-term sequelae. Brain magnetic resonance imaging (MRI) findings are well characterized; however, in patients with isolated white matter abnormalities (WMA), neurologic outcomes are still uncertain.

Methods: A prospective screening for cCMV by CMV viral load in saliva in newborns was performed in 2017-2018 in a tertiary center in Madrid. Neonatal brain MRI was performed without sedation in all newborn with cCMV and evaluated by two experienced neuroradiologists, who were aware of the cCMV diagnosis but blinded to other clinical data. We studied the agreement regarding the presence or absence of pathological findings following a new scoring system. All infected children were followed-up and evaluated for hearing loss, and other potential cCMV sequelae.

Results: 3190 were evaluated, 15 had cCMV (prevalence 0.47%, CI 95%: 0.29%–0.77%) and were included. Seven showed an unremarkable MRI, without discrepancies between both radiologists and all of them showed a normal neurodevelopment (median duration of follow up 36 months). 8/15 (53%) showed abnormalities in MRI. Temporal lobe cysts and ventriculomegaly were significantly in excellent agreement among radiologists, while WMA showed a fair agreement with a higher discrepancy regarding their localization and severity. During the follow-up, five patients, all with abnormalities in MRI (5/8; 62%), showed any sequelae: one hearing loss and neurodevelopment delay, one epilepsy, one language disorder, one motor developmental delay and one with unilateral chorioretinitis.

Conclusions: There is a high prevalence of abnormalities in MRI in infants diagnosed in this screening program. There is a remarkable interobserver agreement among radiologists when Page | 53 those abnormalities were evaluated, with a fair concordance in terms of

WMA. Infants with abnormalities in MRI were at risk of neurologic problems during the follow-up.