

Does normal brain imaging predict normal neurodevelopmental outcome in fetuses with proven cytomegalovirus infection?

N. Farkas¹, C. Hoffmann^{2,9}, L. Ben Sira^{3,9}, D. Lev^{4,9}, A. Schweiger^{1,5}, D. Kidron^{6,9}, T. Lerman-Sagie^{7,9}, G. Malinge^{8,9}

¹Neuropsychology & Rehabilitation, The Academic College of Tel-Aviv-Yafo, Tel Aviv, Israel;

²Neuroradiology, Sheba Medical Center, Ramat Gan, Israel; ³Pediatric Radiology, Tel Aviv

Medical Center, Tel Aviv, Israel; ⁴Genetics Institute, Wolfson Medical Center, Holon, Israel;

⁵Neuropsychology, Leowenstein Rehabilitation Center, Raanana, Israel; ⁶Pathology, Sapir

Medical Center, Kfar Sava, Israel; ⁷Pediatric Neurology, Wolfson Medical Center, Holon, Israel;

⁸Prenatal Diagnosis, Wolfson Medical Center, Holon, Israel; ⁹Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel

Objectives: 1) Test the neuropsychological outcome of children with congenital cytomegalovirus (CMV) infection and normal consecutive fetal neurosonographic examinations. 2) Determine whether Magnetic Resonance Imaging (MRI) provides additional information in these cases.

Patients and methods: We retrospectively reviewed laboratory and imaging findings of children with proven congenital CMV infection. Twenty one children with a positive polymerase chain reaction (PCR) in amniotic fluid and virus isolation in urine in the first week of life, but without abnormal fetal ultrasonographic (US) brain findings, were included; cases with abnormal MRI findings were also included. These children and 21 matched controls were assessed, utilizing standardized cognitive, behavioural and emotional instruments.

Results: Children with congenital CMV infection and normal fetal brain US studies did not differ from the control group in terms of cognitive, language, motor, emotional-behavioural and executive functioning. No differences were found between congenitally infected children who had a normal fetal brain MRI examination and children whose fetal brain MRI examination raised suspicion of a possible brain insult.

Conclusion: Normal neurosonographic examinations during pregnancy predict a normal neuropsychological outcome in fetuses with congenital CMV infection. Abnormal white matter signal on fetal MRI did not correlate with outcome.