Role of fetal magnetic resonance imaging in fetuses with congenital cytomegalovirus infection

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DOI: 10.36129/jog.2022.S57

Objective. To investigate the role of fetal brain MRI in detecting anomalies in fetuses with congenital CMV infection undergoing neurosonography.

Materials and Methods. Multicenter, retrospective, cohort study involving 11 fetal medicine centers in Italy from 2012. The inclusion criteria were fetuses with congenital CMV infection diagnosed by PCR analysis of amniotic fluid, normal karyotype and MRI performed within 3 weeks from the last ultrasound examination.

Results. The analysis included 95 fetuses with a prenatal diagnosis of congenital CMV infection and normal neurosonography at first examination. The rate of structural anomalies detected exclusively at fetal MRI was 10.5%. When considering the type of anomaly, malformations of cortical development were detected at MRI in 40% of fetuses, destructive encephalopathy in 20%, intracranial calcifications in the germinal matrix in 10%, and complex anomalies in 30%. At the multivariate logistic regression analysis, only CMV viral load in the amniotic fluid > 100,000 copies / ml (OR 12.0, 95%CI 1.2-124.7, p = 0.04) was independently associated with the likelihood of detecting fetal anomalies at MRI. Associated anomalies were detected exclusively at birth and missed at both types of prenatal imaging in 3.8% of fetuses with congenital CMV infection.

Conclusions. Fetal brain MRI can detect additional anomalies in a significant proportion of fetuses with congenital CMV infection and negative neurosonography. Viral load in the amniotic fluid was an independent predictor of the risk of associated anomalies.