Diagnostic performance of quantitative polymerase chain reaction in detecting congenital symptomatic CMV infection

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Objective. To elucidate the diagnostic performance of quantitative polymerase chain reaction (qPCR) to identify fetuses with congenital CMV infection who will develop symptomatic disease.

Materials and Methods. In a multicenter study fetuses with congenital CMV infection diagnosed by PCR on amniotic fluid and normal prenatal imaging at the time of diagnosis were included. Primary outcome was diagnostic performance of qPCR in detection symptomatic CMV infection.

Results. One hundred and four fetuses with congenital CMV were included in the study. Symptomatic infection was detected in7.7% (8/104) cases. Median viral load in the amniotic fluid was higher in fetuses with additional anomalies at follow-up ($p = 0.02$) compared to those without. At multivariate logistic regression analysis, high viral load in the amniotic fluid, defined as ≥ 100,000 copies/ mL was the only independent predictor for the occurrence of anomalies detected exclusively at follow-up ultrasound assessment or MRI, with an OR of 3.12. At receiver operating characteristic curve analysis the qPCR in the amniotic fluid had an area under the curve of 0.75 (95%CI 0.69-0.82) for the detection of symptomatic infection.

Conclusions. Viral load in the amniotic fluid is a strong predictor of adverse perinatal outcome in congenital CMV infection. The results of this study emphasize the importance of adequate follow up even in case of negative neurosonography to better predict postnatal adverse outcomes of infected newborns, especially in amniotic fluid high viral load.