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Diagnosis of Human Congenital Cytomegalovirus Infection by Amplification of Viral DNA from Dried Blood Spots on Perinatal Cards

Lori Scanga * ... Margaret L. Gulley *

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Congenital human cytomegalovirus (HCMV) infection affects 1% of children and is the most common infectious cause of sensorineural hearing loss. Due to the difficulty of diagnosing deafness and other neurological disorders in infants, affected individuals may not be recognized until much later when active infection has resolved and culture is no longer informative. To overcome this problem, congenital HCMV infection was diagnosed retrospectively by testing residual blood samples collected from newborns and dried on perinatal cards as part of the North Carolina Newborn Screening Program. We modified the Qiagen method for purifying DNA from dried blood spots to increase the sample size and recovery of the lysate. A multiplex, real-time TaqMan polymerase chain reaction assay on an ABI 7900 instrument measured a highly conserved segment

of the HCMV polymerase gene and the APOB human control gene. HCMV DNA was detected in blood dried on perinatal cards from all seven infants with culture-proven congenital infection, and all 24 negative control cases lacked detectable HCMV DNA. Our findings suggest that it is possible to diagnose congenital HCMV infection using dried blood collected up to 20 months earlier. Further studies are warranted on patients with hearing loss or other neurological deficits to determine the percentage that is attributable to congenital HCMV infection.



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