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Commentary

The Asymptomatic Congenital Cytomegalovirus Infection in Newborn Babies

Concetta Marsico*

Department of Neonatology, University of Naples "Federico II", Naples, Italy

DESCRIPTION

In affluent nations, the incidence of Cytomegalovirus (CMV), which is the most common cause of congenital infection, is estimated to be 0.6%-0.7% of all live births. Since congenital CMV is the most common non-genetic cause of sensorineural hearing loss and a significant contributor to neurodevelopmental disorders in children, it carries a heavy illness burden. Congenital CMV infection frequently goes undiagnosed despite its clinical importance since the majority of affected newborns are asymptomatic at birth and screening programmes have not been widely adopted. Effective therapies for the prevention of maternal infection and mother-to-child transmission are lacking outside of behavioural strategies. But the field is anticipated to change quickly over the next few years due to a convergence of recent improvements in both diagnostic and treatment strategies in infants with congenital CMV. In particular, a very sensitive screening test with high throughput potential has been created, and treatment of infants with congenital CMV infection who exhibit symptoms has shown to be safe and beneficial in enhancing long-term hearing and neurodevelopmental outcomes.

Congenital CMV infection has a wide range of clinical manifestations, from complete asymptomaticism (asymptomatic infection) to potentially fatal disseminated disease. 85%–90% of infected newborns are asymptomatic at birth, and only 10% have a clinically apparent infection. The presentation in this latter group is a continuum of illness expression, with petechiae, jaundice, hepatomegaly, splenomegaly, microcephaly, and other neurologic symptoms being the more frequent features. Thrombocytopenia, transaminitis, direct hyperbilirubinemia, chorioretinitis, neuroimaging abnormalities suggestive with Central Nervous System (CNS) involvement, and SNHL are among the laboratory and imaging findings. The diagnostic standards for symptomatic infection, however, differ significantly throughout the literature. For example, although some case series consider people with abnormalities found through the use of particular diagnostics, such as SNHL, to be asymptomatic, others do not. Furthermore, whereas other studies have not done so, some have classified infants with isolated low birth weight as symptomatic. These variations may be partially responsible for the variation in symptomatic infection prevalence and illness severity across studies. Saliva, urine, vaginal secretions, and breast milk are among the bodily fluids that might horizontally transmit CMV. Opportunities for person-to-person transmission may be greater among healthy young children in group care or crowded housing circumstances, potentially increasing the rate of primary infection. Children who are infected are a key source of infection for their adult caregivers (including pregnant women) and other youngsters. Infected children may continue to shed virus into their pre-school years.

Pregnant women with primary CMV infection may benefit from receiving CMV-specific hyper immune globulin and antiviral medication, but strong evidence to back these interventions is lacking. The greatest preventive measure would probably be to create an effective pre-pregnancy vaccine, but this option is not now accessible. Hygiene precautions have been demonstrated to lower the risk for maternal acquisition, thus prospective mothers should be informed about them.

Hearing loss may be evident at birth or may appear later in infants with CMV-related SNHL. The first few years of life are affected by late-onset SNHL, which typically manifests at ages of 33 months for symptomatic children and 44 months for asymptomatic infants. Up to 50% of infants with SNHL may experience varying degrees of hearing loss, and around 50% of children with SNHL experience continued deterioration or progression of their loss during childhood. In order to allow for the early identification of potential SNHL, it is critical that all newborns with congenital CMV infection undergo periodic audiological monitoring throughout the first years of life, regardless of their clinical presentation at birth. Early detection and non-pharmacological therapies can dramatically improve a child's receptive and expressive language skills as well as their social and emotional development, even if a specific pharmacological therapy cannot be provided to children who acquire CMV-related SNHL. The kinetics of CMV clearance in blood and urine as well as the viral load in blood at birth in

Correspondence to: Concetta Marsico, Department of Neonatology, University of Naples "Federico II", Naples, Italy, E-mail: concetta@83.it

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infants born to women who had primary CMV infection during pregnancy are thoroughly examined. These findings are crucial for understanding the resolution of CMV infection, which has epidemiological, socioeconomic, and preventative concerns.