Pediatric Providers: Cytomegalovirus

Cytomegalovirus (CMV) is a member of the herpesvirus family. CMV infects people of all ages and is usually asymptomatic. Some people who acquire CMV infection may experience symptoms similar to those of mononucleosis. After initial infection, the virus establishes lifelong latency and may be intermittently reactivated in those with weakened immune systems. According to the Centers for Disease Control and Prevention (CDC), over half of adults are infected with CMV by age 40.

Pregnant women can pass CMV to fetuses at any time during pregnancy, which can result in congenital CMV infection. This can happen following a primary infection, reinfection with a different CMV strain, or reactivation of a previous infection. Primary infections occur in 1% to 4% of seronegative pregnant women and lead to fetal infection in 40% to 50% of these pregnancies. Maternal CMV reactivation or reinfection with a different CMV strain leads to fetal infection in about 1% of seropositive pregnant women.

Disease Burden

CMV is the most common infectious cause of birth defects in the United States. According to the CDC, about 1 in 200 infants are born in the United States with congenital CMV infection each year. This rate equates to about 115 babies born in Idaho with congenital CMV each year. Most infants with congenital CMV are asymptomatic and will not have long-term health problems. However, about 20% of infected infants will experience long-term health problems.

Clinical Manifestations

About 10% of infants with congenital CMV infection will have health problems that are apparent at birth, which include:

- Premature birth
- Low birth weight
- Petechiae/purpura
- Jaundice
- Microcephaly
- Intrauterine growth restriction
- Hepatosplenomegaly
- Seizure
- Retinitis

About 40% to 60% of infants with signs of congenital CMV infection at birth will have long-term health problems, such as:

- Hearing loss
- Vision loss
- Intellectual disability
- Microcephaly
- Seizure
- Lack of coordination
- Muscle weakness or difficulty using muscles

About 10% to 20% of infants with congenital CMV infection who have no symptoms at birth will have, or will later develop, hearing loss.

Diagnosing Congenital CMV Infection

Testing for congenital CMV is recommended for those infants who show signs of CMV infection at birth. Because the signs of CMV infection at birth are similar to other medical conditions, the diagnosis must be confirmed by laboratory testing. Congenital CMV infection is diagnosed by detection of the virus in the infant's urine, saliva, blood, or other tissues two to three weeks after birth. Testing more than two to three weeks after birth cannot distinguish between congenital CMV and postnatally acquired CMV.

Diagnosis of congenital CMV infection is done by testing the infant's urine, saliva, or blood using polymerase chain reaction (PCR) to detect CMV DNA or by viral culture to detect live virus.

Treatment

Diagnosing and treating congenital CMV early may improve health outcomes for some infected children. For some infants with signs of congenital CMV infection at birth and a confirmed diagnosis, there may be some benefit of treatment with antivirals starting within the first month of life. Treatment requires close monitoring, and there is a significant risk of toxicity. Treatment should only be considered in consultation with a pediatric infectious disease specialist.

Infants with congenital CMV infection who had no signs at birth may still have or develop hearing loss. There is limited data on the effectiveness of antivirals to treat infants with isolated hearing loss. Treatment of these infants with antivirals is not currently recommended, but is being evaluated to assess safety and possible benefit.

For more information about testing and treatment of infants with possible CMV infection, please contact a pediatric infectious disease specialist for consultation.

Monitoring Children with Congenital CMV

Congenital CMV infection affects each child differently. Health care providers are key to helping parents understand the services and support their child may need. Any infant diagnosed with congenital CMV infection needs regular hearing and vision evaluations and should be watched closely to monitor growth and development. Infants with no signs of CMV infection at birth may still have hearing loss at birth or develop it later in life. Early detection and interventions such as hearing aids and speech therapy can help with development. Other services such as occupational and physical therapy may also be needed.

Additional CMV Resources

1. AAP Redbook - Cytomegalovirus Infection: https://redbook.solutions.aap.org/chapter.aspx?sectionid=88187134&bookid=1484
2. CDC Website: Babies Born with CMV: https://www.cdc.gov/cmv/congenital-infection.html
3. CDC Website: Cytomegalovirus (CMV) and Congenital CMV Infection Information for Healthcare Professionals: https://www.cdc.gov/cmv/clinical/index.html
4. Idaho Sound Beginnings (Early Hearing Detection and Intervention Program): idahosoundbeginnings.dhw.idaho.gov
5. Idaho Department of Health & Welfare - CMV: cmv.dhw.idaho.gov

Idaho maternal & child health

IDAHO DEPARTMENT OF HEALTH & WELFARE
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