

Pregnancy Care 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.

CMV Risk to Pregnant Women

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 pregnancies.

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.

Transmission

CMV is common and infects people of all ages but is especially common among young children from 1 to 5 years of age. Children tend to shed the virus in high amounts in saliva and urine, even if they themselves have no signs of infection. The virus is found in body fluids, including urine, saliva, tears, mucus, blood, breastmilk, semen, and vaginal fluids.

For pregnant women, the risk of transmission to the fetus is greatest in the third trimester, whereas risk of complications to the infant is greatest if infection occurs during the first trimester. Risk of transmission for primary infection is 30% to 40% in the first and second trimesters and 40% to 70% in the third trimester.

High-Risk Populations

It is recommended that providers ask pregnant mothers about their occupation in order to assess the risk of CMV. Mothers and women who care for or work closely with infants and young children and are seronegative may be at greater risk of primary CMV infection because CMV is common in settings with young children. These women should be counseled about CMV risks and the steps they can take to reduce their chances of infection.

Risk Reduction

While the risk of contracting CMV cannot be completely eliminated, there are measures women can be counseled to take to reduce their chances of acquiring it. Some examples include:

- Wash your hands often with soap and water for 15 to 20 seconds, especially after changing diapers, feeding a young child, wiping a young child's nose or mouth, and handling children's toys.
- Wear gloves when changing diapers or touching body fluids such as urine, vomit, or saliva.
- Don't share food, drinks, eating utensils, or a toothbrush with a child.
- Do not put a child's pacifier in your mouth.
- Use soap and water or a disinfectant to clean toys, countertops, or other surfaces that may have a child's saliva or urine on them.
- Avoid contact with a child's saliva when kissing or snuggling.

A few CMV vaccines are being tested in humans, but there is currently no approved vaccine available to prevent CMV. CMV hyperimmune globulin has been studied to prevent in utero infection during primary maternal infection, but has not been proven to be effective and is not currently recommended.

Prenatal Screening

It is not recommended that obstetricians and other pregnancy care providers routinely test pregnant women for CMV infection. Most laboratory tests currently available cannot conclusively detect if a primary CMV infection occurred during pregnancy, and seropositive women remain at risk for reactivation of latent infection and/or reinfection with a new viral strain. This makes it difficult to counsel pregnant women about the risk to their fetuses.

CMV can cause fetal abnormalities that may be visualized by ultrasound. Possible findings include intrauterine growth restriction, microcephaly, ventriculomegaly, intracranial calcifications, and echogenic bowel. If abnormalities are detected during routine fetal ultrasonography, CMV testing may be considered and should be discussed with a high-risk obstetrician (maternal-fetal medicine physician).

Symptoms at Birth

About 10% of infants with congenital CMV infection will have signs that are apparent at birth, such as microcephaly, jaundice, or an enlarged liver or spleen. These babies may also have long-term health problems such as hearing loss, developmental delay, and vision loss. About 10% to 20% of babies born with CMV infection may develop hearing loss, from birth up to the age of 5, even though they had no noticeable signs at birth. Infants with asymptomatic congenital infection who do not develop hearing loss by age 5 years have normal development and outcomes similar to uninfected children.



Diagnosing Congenital CMV Infection

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 within three weeks after birth.

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, starting treatment with antiviral medications within the first month of life may improve hearing and developmental outcomes.

Infants with congenital CMV infection who had no signs at birth may still have or develop hearing loss. Treatment of these infants with antivirals is not currently recommended, but is being evaluated to assess safety and possible benefit. These infants need regular hearing evaluations and should be watched closely for normal growth and development. Early detection and interventions such as hearing aids and speech therapy can help with development.

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

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/cmvcongenitalinfection.html>
3. CDC Website: Cytomegalovirus (CMV) and Congenital CMV Infection Information for Healthcare Professionals: <https://www.cdc.gov/cmvcclinical/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

