Society for Maternal-Fetal Medicine
High-risk pregnancy experts

Patient Education Series
Expert advice to make the best health decisions.

Cytomegalovirus (CMV)

What is Cytomegalovirus (CMV)?

Cytomegalovirus (CMV) is a common viral infection in pregnancy that can cause fetal infection and result in problems for the newborn. CMV infection of the fetus, also known as congenital CMV, is the leading nongenetic cause of deafness. Approximately 0.5-1.3% of all births, or around 40,000 babies born in the United States, are affected by congenital CMV each year. When the fetus is infected, the outcomes for the baby range from no effects to severe disability and death.

Are there risks if I become infected with CMV during pregnancy?

The effects of CMV infection during pregnancy depend on whether or not you had a prior CMV infection, as well as the time in pregnancy when you are exposed to the virus. The risk is greatest if you have never been exposed to CMV and become infected during the early part of the pregnancy.

Most adult women have been exposed to CMV. However, around 30-50% of women have never been exposed to CMV, and therefore do not have protective antibodies against the virus; these women are at risk of infection. During pregnancy, approximately 1-4% of women will become infected with CMV. This first, or primary infection, usually does not cause symptoms in the woman, but can cause a fetal infection in about 30-50% of cases. The risk for fetal infection is related to the trimester of pregnancy when the primary maternal CMV infection occurs. Although studies have suggested that the risk for fetal CMV infection is around 30% in the first trimester and as high as 70% in the third trimester, the severity of fetal disease appears to be greater with infection earlier in pregnancy.

In pregnancies where fetal infection does occur, only 10-15% of babies will be symptomatic at birth. Newborn findings include jaundice (yellowing of the skin related to poor liver function), skin rash, and an enlarged liver and spleen. It is important to know that there can be risks to the baby even if the baby has no symptoms at birth. Studies have shown that up to 25% of babies with congenital CMV who are asymptomatic at birth can still develop some complications related to the virus at age 2 years. These can include progressive deafness, intellectual disability, chorioretinitis (inflammation of the eye), seizures, and death.

Are there fetal risks WITH recurrent CMV infection if I have previously had CMV?

Recurrent CMV infections can occur even if you have been previously exposed to CMV, and prior exposure does not necessarily prevent all fetal or neonatal infections. In women who have recurrent CMV infection, the risk of fetal infection is much lower than in primary infection, but occurs in 0.5-2% of cases. Although less than 1% of babies will be symptomatic at birth, there is still a potential risk to the baby. Up to 8% of babies born to women with recurrent CMV infection may develop hearing loss, inflammation of the eye (chorioretinitis), or other mild neurological outcomes by age 2 years, and up to 14% of children by age 5 years.

How is CMV infection diagnosed?

You may be tested for CMV infection during pregnancy if any concerning findings are noted on your routine fetal anatomy ultrasound. Findings may include brain calcifications, microcephaly (small fetal head), and echogenic bowel (bright areas in the fetal intestine).

When findings suggest that testing is needed, the main method used to screen for CMV exposure or recent CMV infection is with a blood test that looks for CMV antibodies. Depending on the types and strength of the antibodies found, this can help determine if you are already immune to CMV through infection in the past, or have had a recent exposure. These antibodies can also help determine the timing of the CMV exposure.

How is a diagnosis of fetal CMV infection made?

Because not every maternal CMV infection will result in a fetal infection, an amniocentesis (a procedure where a needle is used to obtain a sample of amniotic fluid from around the fetus) should be used to diagnose fetal infection. Amniotic fluid is tested for the presence of CMV using a technique called polymerase chain reaction (PCR). When this test is performed on amniotic fluid after 21 weeks of gestation and 6 weeks following the initial maternal infection, nearly 100% of cases of fetal infection can be identified. Depending on your exposure history, the findings on your ultrasound, and your test results, your obstetric care provider may recommend this testing. It is important to note, however, that while fetal CMV infection can be identified with amniocentesis, the information gained from

the procedure cannot provide information regarding the severity of the fetal infection and risk for the baby.

Is ultrasound or magnetic resonance imaging (MRI) useful in assessing for fetal CMV infection?

Ultrasound or MRI cannot diagnose a fetal infection. In less than one-half of all CMV fetal infections, ultrasound may demonstrate suggestive findings. Use of MRI to evaluate fetuses with suspected CMV infection is controversial. Normal MRI findings do not necessarily predict normal infant outcome. The use of MRI with ultrasound does not appear to offer additional value for diagnosis and is therefore not recommended at this time.

Is universal screening for CMV infection recommended in pregnancy?

There are currently no effective treatments for prenatal CMV infection. Routine CMV screening can lead to unnecessary treatments that could be harmful and have significant side effects. Because of these limitations, routine screening during pregnancy is not recommended.

Are there treatments recommended to prevent fetal infection if I become infected with CMV?

Unfortunately, at this time, no treatments have been shown to be effective in preventing or treating congenital CMV infection. Well-designed studies evaluating the use of antibodies against CMV have not been shown to improve fetal outcomes. Because possible therapy options, including CMV hyperimmune globulin therapy and antiviral therapy (ganciclovir or valacyclovir), have not been shown to be of benefit and have uncertain risks, these therapies should be considered experimental and are the focus of ongoing research.

How can I avoid getting CMV when I am pregnant?

Studies have shown that good hygiene, such as regular hand washing and glove use, can decrease the chance of becoming infected with CMV. If you have never had CMV or are not immune, and you are working with children or someone known to have a CMV infection, these approaches can minimize your risk for acquiring CMV.

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