Lymphocytic Choriomeningitis Virus (LCMV)

This sheet is about exposure to lymphocytic choriomeningitis virus (LCMV) during pregnancy and while breastfeeding.

This information is based on published research studies. It should not take the place of medical care and advice from your healthcare providers.

What is lymphocytic choriomeningitis virus (LCMV)?

LCMV is a virus that is carried by rodents and can be passed to humans. Wild rodents, pet rodents, and rodents in laboratories can all carry LCMV. The most common carrier is the house mouse. It is estimated that between 1 in 20 (5%) and 1 in 10 (10%) of house mice in the United States carry LCMV. House mice in big cities are more likely to carry LCMV. Other rodents, such as hamsters and guinea pigs, can be infected if they have contact with wild mice.

How do you get LCMV?

Infected rodents shed the virus in their body fluids and feces. LCMV infection can happen when humans come in contact with those infected body fluids through their mouth, broken skin, eyes, nose, or when they are bitten by a rodent. The Centers for Disease Control and Prevention (CDC) estimate between 1 in 20 to 1 in 50 adults (2% – 5%) have had an LCMV infection. Getting LCMV after direct person-to-person contact (person-to-person transmission) has not been reported. However, LCMV can pass from a woman who is pregnant to the developing fetus (vertical transmission).

What are the symptoms of LCMV?

Most healthy people with LCMV have no symptoms or mild symptoms. For others, LCMV causes flu-like symptoms such as fever, muscle aches, fatigue, nausea, and vomiting. These symptoms start 1-2 weeks after being exposed to the virus and can last as long as one week. Rarely, some people develop meningitis (swelling of the spinal cord), encephalitis (swelling in the brain), or both. These symptoms can last up to 3 weeks or longer. Symptoms of LCMV infection can be treated. Cases that affect the spine or brain require hospital care.

How can I lower the chance of getting LCMV?

You can lower the chance of infection by following the tips below and on the CDC website at https://www.cdc.gov/vhf/lcm/prevention/index.html.

- Avoid direct physical contact with wild or pet rodents.
- If possible, have someone else care for pet rodents.
- If you come in contact with a rodent or its urine, droppings, or nesting materials, wash hands very well with soap and water.
- Avoid vacuuming or sweeping rodent urine, droppings, or nesting materials. This can cause the virus to become airborne and increase the chance of breathing in the virus.
- If you have wild rodents in your home, have a professional pest control company remove them.
- People in a laboratory or veterinary setting who work with the virus or handle infected animals can lower their chance of infection by wearing proper protective gear, including gloves, face masks, disposable gowns, and by following the appropriate safety precautions. See our MotherToBaby fact sheet on working as a vet or vet tech: https://mothertobaby.org/fact-sheets/vet-vettech/.

How can I find out if I have LCMV?

A blood test can screen for an LCMV infection. If you have had close contact with rodents, rodent droppings, or nesting material, and/or have a fever or other symptoms of LCMV, contact your healthcare provider.

Does getting LCMV increase the chance of miscarriage?

Miscarriage is common and can occur in any pregnancy for many different reasons. Having an LCMV infection during

pregnancy can increase the chance for miscarriage, although the exact chance for a miscarriage is not clear. The chance of miscarriage is higher with LCMV infections in the first trimester than with infections later in pregnancy.

Does getting LCMV during pregnancy increase the chance of birth defects?

Birth defects can happen in any pregnancy for different reasons. Out of all babies born each year, about 3 out of 100 (3%) will have a birth defect. We look at research studies to try to understand if an exposure, like LCMV, might increase the chance of birth defects in a pregnancy.

If a woman gets LCMV during pregnancy, the virus can pass to the developing fetus. This is called congenital LCMV. The most common birth defect from congenital LCMV are problems with the brain, like fluid in the brain (hydrocephalus/ventriculomegaly), small head size (microcephaly), differences with amount of brain tissue (cerebellar hypoplasia), differences in the pattern of how the brain tissue develops (cortical malformations), and/or damage to existing brain tissue (calcifications). Eye problems that can lead to vision loss (chorioretinitis) are also common. Rarely, LCMV can cause a buildup of fluid in the fetal body (hydrops).

It is not known how likely it is that an LCMV infection in pregnancy will pass to the fetus, or what the chance of birth defects is if the infection does reach the fetus. This is because many cases of LCMV go undetected (since the symptoms in adults are like the flu), and healthy people are not routinely tested for LCMV. The chance of brain and eye problems appears to be higher when a woman who is pregnant gets an LCMV infection in the second or third trimester of pregnancy.

Having a LCMV infection in the past that has gone away does not increase the chance for congenital LCMV in a current or future pregnancy.

Does getting LCMV increase the chance of other pregnancy-related problems?

Congenital LCMV might increase the chance for pregnancy-related problems including preterm delivery (birth before week 37) or low birth weight (weighing less than 5 pounds, 8 ounces [2500 grams] at birth).

Does getting LCMV in pregnancy affect future behavior or learning for the child?

Congenital LCMV can affect brain development. Children whose brains are less affected may have mild learning disabilities and motor disabilities (walking later than expected and/or difficulties with walking). Children whose brains are more severely affected may have intellectual disability and severe motor disabilities (unable to walk). Congenital LCMV also increases the chance for a child to have seizures. Vision loss due to chorioretinitis can occur, which may affect how a child learns in school. The chance of developmental problems appears to be higher when a woman who is pregnant gets an LCMV infection in the second or third trimester of pregnancy.

Can I find out if my pregnancy has been affected by LCMV?

Talk to your healthcare providers to learn what screening or testing options are best for you and your pregnancy. Fetal imaging using ultrasound or MRI might detect some of the possible effects of congenital LCMV, such as extra fluid in the brain or around the body. If LCMV infection is suspected in a fetus, the fluid in the uterus around the fetus (amniotic fluid) can be tested. This requires a procedure called amniocentesis to remove a small amount of this fluid. Most babies are diagnosed with congenital LCMV after birth.

Breastfeeding while I have LCMV:

There is no evidence to suggest that LCMV can be passed to a baby through breast milk. Tell your healthcare provider and your baby's healthcare provider about your infection, rid the home of wild rodents if they are present, and wash your hands well with soap and water before holding your baby. If you suspect your baby has symptoms of LCMV, contact your child's healthcare provider. Be sure to talk to your healthcare provider about all your breastfeeding questions.

If a man has LCMV, could it affect fertility (ability to get a woman pregnant) or increase the chance of birth defects?

Studies have not been done to see if LCMV could affect male fertility or increase the chance of birth defects above the background risk. Person-to-person transmission has not been reported. In general, exposures that men have are unlikely to increase risks to a pregnancy. For more information, please see the MotherToBaby fact sheet Paternal Exposures at https://mothertobaby.org/fact-sheets/paternal-exposures-pregnancy/.

Please click here for references.

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