

## **LYMPHOCYtic CHORIOMENINGITIS VIRUS (LCMV) VETERINARY FACT SHEET**

**Etiology:** Lymphocytic Choriomeningitis is a naturally occurring virus disease of mice. It is a RNA virus of the arenavirus group. LCM infected hamsters are the primary source of LCM in humans. LCM in persons usually is not a severe disease, but it can be serious. Person-to-person transmission has not been reported with the exception of vertical transmission from an infected mother to her fetus.

**Transmission:** The natural reservoir for LCM is the wild rodent population. The LCM virus is naturally spreads from the common house mouse via urine and saliva, traumatized skin, conjunctiva, respiratory passages, or congenital contamination. The pathogenic mechanisms of LCM appear to be the same in both wild mice and mice utilized in laboratory experiments. Approximately half of infected hamsters will clear the infection. The disease depends on the age, strain, and dose of virus and route.

**Clinical Signs:** Usually there are no clinical signs. Signs of persistent infection in hamsters may include convulsions, decreased growth, and inactivity, followed by wasting syndrome and death. Decreased reproduction has been reported in chronically infected females. Mice usually transmit infection to their offspring, which in turn become chronically infected.

**Pathology:** Gross lesions vary and, if present, may include splenomegaly, swollen or shrunken, pitted kidneys, lymphadenopathy, and hepatomegaly. Gross lesions alone are not diagnostic. Microscopic lesions include lymphocytic meningitis, chronic glomerulonephropathy, widespread vasculitis, and marked lymphocytic infiltration of the viscera.

**Diagnosis:** Diagnosis is based partly upon the lymphocytic infiltration of the meninges, choroids plexuses, and of submeningeal and subchoroid perivascular spaces. ELISA tests are used to detect serum antibodies to LCM. PCR of fresh hamster tissue or transplantable cells/fluids can be used to diagnose persistent or acute infections. Injection of hamster blood or tissues into LCM-free mice will produce clinical signs and antibody titers in 2 weeks.

**Who is at risk?** Individuals who come into contact with urine, feces, saliva, or blood of the house mouse are potentially at risk for infection. Laboratory workers who handle infected animals are also at risk. This risk can be minimized by utilizing animals from sources that regularly test for the virus, wearing proper protective laboratory gear, and following appropriate safety precautions. Owners of pet mice or hamsters may be at risk for infection if these animals originate from colonies with circulating LCM virus or if the animals become infected from other wild mice.

**Prevention and Control:** LCM virus infection can be prevented by avoiding or minimizing direct physical contact with rodents or exposure to their excreta. Gloves should be worn when disinfecting and cleaning up rodent excreta. All hamsters at risk for infection from horizontal and vertical transmission should be euthanatized and evaluated for diagnostic examinations. Their cages and equipment should be immediately, thoroughly cleaned and disinfected. The wild rodent population should be controlled. The control of human cases of LCM is intimately related to sanitary conditions in homes.

**Public Health Significance:** People are susceptible to LCM virus. They may experience flu-like symptoms and occasional nonsuppurative meningitis. Past reports of zoonosis have linked human infections to exposure to infected pet hamsters.

See also

[The Rhode Island Department of Health \(HEALTH\)](http://www.health.ri.gov/topics/lcmv.php) <<http://www.health.ri.gov/topics/lcmv.php>>  
and

[The Centers for Disease Control \(CDC\)](http://www.cdc.gov/healthypets/lcmv_rodents.htm) <[http://www.cdc.gov/healthypets/lcmv\\_rodents.htm](http://www.cdc.gov/healthypets/lcmv_rodents.htm)>