

Lymphocytic Choriomeningitis Virus

Host species

- natural host: laboratory and wild mice, pet and laboratory hamsters, wild rats, humans
- guinea pig, rats and baboons can be infected experimentally
- some continuous cell lines are virus carrier, e.g. mouse neuroblastoma (N18), baby hamster kidney cells (BHK-21) and transplantable tumor cells of infected animals

Organotropism

- kidney
- salivary gland
- lymphohemopoietic cells
- other organs

Clinical disease

- clinical signs vary with strain of infected animals, route of inoculation and strain of virus
- cerebral form in mice follows artificial intracerebral inoculation
- visceral form in mice shows asymptomatic conjunctivitis, ascites, somnolence after peripheral inoculation
- wasting disease in hamsters (GENOVESI, E.V. 1987)
- febrile illness, gripe-like symptoms in humans (MEATZ, H.M. 1976)
- sensorineural deafness and labyrinth damage, meningeal involvement in humans (HIRSCH, E. 1976)
- autoimmune haemolytic anaemia in different mice strains (COUTELIER, J.P. 1994)

Pathology

- nonsuppurative leptomeningitis, choroiditis
- inflammatory lesions in many organs
- murine hepatitis (GOSSMANN, J. 1995; LOHLER, J. 1994)

Morbidity and mortality

- LCMV strain ARM is avirulent for different hamster strains and guinea pig (GENOVESI, E.V. 1987; GENOVESI, E.V. 1989)
- LCMV strain WE causes 100% mortality in guinea pigs (RIVIERE, Y. 1985) and high morbidity of inbred Syrian golden hamsters
- Prevalence of different hamster inbred strains is known (GENOVESI, E.V. 1987)

Zoonotic potential

- congenital lymphocytic choriomeningitis virus syndrome in humans (EL KARIMANY, R.M. 1991; WRIGHT, R. et al 1997)
- LCMV is the causative agent for hamster associated lymphocytic choriomeningitis infection of humans (LEHMANN-GRUBE, F. 1979; GARMAN, R.H. 1977; METZ, H.M. 1976; ACKERMANN, R. 1977)
- Hamster transmit the virus to humans
- Virus is shed in saliva, nasal secretions and urine of infected animals
- wild mice and rats are a natural reservoir of infection (ACKERMANN, R. 1964; SMITH, A.L. 1993)

Interference with research

Immunology

- LCMV causes a long lasting immunodepression with decrease of proliferation capacity of splenic T-lymphocytes (SARON, M.F. 1991; SARON, M.F. 1990; THOMSON, A.R. 1982; COLLE, J.H. 1993)
- LCMV induces polyclonal cytotoxic T-lymphocyte stimulation (YANG, H.Y. 1989)
- neonatally or congenitally infected mice have a lifelong chronic lymphocytic choriomeningitis virus infection (JAMIESON, B.D. 1987)
- enhances the interleukin 12-mediated immunotoxicities (ORANGE, J.S. 1995; ORANGE, J.S. 1994)
- LCMV induced different expression of alpha/beta interferons (SANDBERG, K. 1994)

Oncology

- may influence experimental oncology, enhances the frequency of lymphoma after treatment with carcinogen (GARMAN, R.H. 1977)
- enhances the susceptibility for transplantable tumor cell lines (KOHLENER, M. 1990)

Physiology

- growth hormone deficiency can occur (OLDSTONE, M.B. 1985)

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