



CALLITRICHID HEPATITIS (Lymphocytic Choriomeningitis Virus)

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Callitrichidae Callimiconinae, Rodents, Man	Horizontal (Ingestion of feral mice)	In marmosets: dyspnoe, anorexia, lethargy, jaundice	Yes	None	<i>In houses</i> Rodent control <i>in zoos</i> rodent control

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Susceptible animal groups Callitrichidae, <i>Callimico goeldii</i> , man (principal hosts : mice and hamsters).	
Causative organism Lymphocytic Choriomeningitis (LCM) Virus (Arenaviridae).	
Zoonotic potential Yes.	
Distribution USA, Europe.	
Transmission Horizontal through ingestion of feral mice (pinkies) or contaminated food or water (virus shed in urine and other body excretions).	
Incubation period 1 – 3 weeks.	
Clinical symptoms In marmosets: dyspnoe, anorexia, lethargy, jaundice, haemorrhages, elevated liver enzymes; in man: rash, meningitis, in infants blindness, deafness, mental retardation, paresis.	
Post mortem findings In marmosets: hepatitis, multifocal hepatocyte necrosis, acidophilic inclusion bodies resembling Councilman bodies, lymphadenopathy, pulmonary edema; in man: hydrocephalus, chorioretinitis, meningitis.	
Diagnosis Serology: ELISA, Western blotting, PCR. Virus isolation, histopathology, immunohistochemistry, in situ hybridization	
Material required for laboratory analysis Paraffin embedded tissues, serum	
Relevant diagnostic laboratories The Simian Diagnostic Laboratory at Virus Reference Laboratories Inc. 7540 Louis Pasteur Road SAN ANTONIO / Texas 78229 Tel.: (210) 614 – 7350 Fax: (210) 614 -- 7355	
Treatment	
Prevention and control in zoos Rodent control,	
Suggested disinfectant for housing facilities	



Notification
Guarantees required under EU Legislation
Guarantees required by EAZA Zoos
Measures required under the Animal Disease Surveillance Plan
Measures required for introducing animals from non-approved sources
Measures to be taken in case of disease outbreak or positive laboratory findings
Conditions for restoring disease-free status after an outbreak
Experts who may be consulted
References <ol style="list-style-type: none">1. Asper, M., P. Hofmann, C. Osmann, J. Funk, C. Metzger, M. Bruns, F.-J. Kaup, H. Schmitz, and S. Günther. 2001. First outbreak of callitrichid hepatitis in Germany: Genetic characterization of the causative lymphocytic choriomeningitis virus strain. <i>Virology</i> 284: 203 – 213.2. Barton, L. L., and B. Mets. 1999. Lymphocytic choriomeningitis virus. <i>Pediatric pathogen and fetal teratogen. Pediatr. Infect. Dis. J.</i> 18: 540 – 541.3. Besselsen, D. G., A. M. Wagner, and J. K. Loganbill. 2003. Detection of lymphocytic choriomeningitis virus by use of fluorogenic nuclease reverse transcriptase – polymerase chain reaction analysis. <i>Comp. Med.</i> 53: 65 – 69.4. Lucke, V. M., and A. M. Bennett. 1982. An outbreak of hepatitis in marmosets in a zoological collection. <i>Lab. Anim.</i> 16: 73 – 77.5. Montali, R. J., B. M. Connolly, D. L. Armstrong, C. A. Scanga, and K. V. Holmes. 1995. Pathology and immunohistochemistry of callitrichid hepatitis, an emerging disease of captive New World primates caused by lymphocytic choriomeningitis virus. <i>Am. J. Pathol.</i> 147: 1441 – 1449.6. Montali, R. J., E. C. Ramsay, C. B. Stephensen, M. Worley, J. A. Davis, and K. Holmes. 1989. A new transmissible viral hepatitis of marmosets and tamarins. <i>J Infect. Dis.</i> 169: 759 – 765.7. Montali, R. J., C. A. Scanga, D. Pernikoff, D. R. Wessner, R. Ward, and K. V. Holmes. 1993. A common – source outbreak of callitrichid hepatitis in captive tamarins and marmosets. <i>J. Infect. Dis.</i> 167: 946 – 950.8. Phillips, L. G. 1982. Suspected viral hepatitis in golden lion tamarins – Case report. <i>Proc. Annu. Meet. Am. Assoc. Zoo Vet.</i> 1982: 34 – 35.9. Ramsay, C. E., R. J. Montali, M. Worley, C. B. Stephensen, and K. V. Holmes. 1989. Callitrichid hepatitis: Epizootiology of a fatal hepatitis in zoo tamarins and marmosets. <i>J. Zoo Wildl. Med.</i> 20: 178 – 183.10. Scanga, C. AS., K. V. Holmes, and R. J. Montali. 1993. Serologic evidence of infection with lymphocytic choriomeningitis virus, the agent of callitrichid hepatitis, in primates in zoos, primate research centers, and a natural reserve. <i>J. Zoo Wildl. Med.</i> 24: 469 – 474.11. Scott, R. A. W., K. V. Holmes, C. A. Scanga, and R. E. Montali. 1990. An update on the epidemiology of callitrichid hepatitis. <i>Proc. Annu. Meet. Am. Assoc. Zoo Vet.</i> 1990: 261 – 262.12. Schanen, A., G. Gallou, J. – M. Hincky, and M. – F. Saron. 1998. A rash, circulating anticoagulant, then meningitis. <i>Lancet</i> 351: 1856.13. Stephensen, C. B., J. R. Jacob, R. J. Montali, K. V. Holmes, E. Muchmore, R. W. Compans, E. D. Arms, M. J. Buchmeier, and R. E. Lanford. 1991. Isolation of an arenavirus from a marmoset with callitrichid hepatitis and its serologic association with disease. <i>J. Virol.</i> 65: 3995 – 4000.14. Stephensen, C. B., J. Y. Park, and S. R. Blount. 1995. cDNA sequence analysis confirms that the etiologic agent of callitrichid hepatitis is lymphocytic choriomeningitis virus. <i>J. Virol.</i> 69: 1349 – 1352.