

HEPATITIS A VIRUS

ANIMAL GROUP AFFECTED	TRANSMISSION	CLINICAL SIGNS	FATAL DISEASE ?	TREATMENT	PREVENTION & CONTROL
Pongidae, Cercopitheci- dae	Feco-oral (direct, contaminated food or water)	Usually none, occasionally influenza-like illness, elevation of liver enzymes and bilirubin	Rarely	Immunoglobu- lins	<i>In houses</i> Vaccination <i>in zoos</i> vaccination

Fact sheet compiled by Manfred Brack, formerly German Primate Center, Göttingen/Germany.	Last update November 2003
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Susceptible animal groups <i>Pongo pygmaeus</i> , <i>Pan troglodytes</i> , <i>Hylobates lar</i> , <i>Cercopithecus aethiops</i> , <i>Macaca</i> spp., <i>Nasalis larvatus</i> , <i>Mandrillus sphinx</i> , <i>Ateles</i> spp., <i>Aotus trivirgatus</i> .	
Causative organism Hepatitis A-Virus; Family Picornaviridae; Genus Hepatovirus, 7 genotypes.	
Zoonotic potential Yes.	
Distribution Highly endemic in Central and Southeast Asia, Africa, Central- and Southern America, less frequently in temperate climates.	
Transmission Viremia and excretion already during the incubation period and early clinical phase, transmission feco –orally by direct route or through contaminated food (e.g. raw or undercooked shellfish), water or in rare cases, contaminated commercial factor VIII.	
Incubation period 25 – 30 days.	
Clinical symptoms Nonspecific mild respiratory or gastro-intestinal disease, elevated transaminases and bilirubin-levels.	
Post mortem findings Hepatocyte-necrosis, becoming apparent when both the virus and the antibodies against it are present, rarely yellow liver atrophy. Occasionally acidophilic inclusion bodies, Kupffercell- hyperplasia, portal inflammatory infiltrates.	
Diagnosis Enzyme immunoassays, radioimmunoassays, C1q and conglutinine assays for circulating anti-HAV-immunocomplexes.	
Material required for laboratory analysis Faecal material (useful only early in the infection), serum.	
Relevant diagnostic laboratories 1. Konsiliarlaboratorium für HAV und HEV Institut für Medizinische Mikrobiologie und Hygiene der Universität Regensburg. Franz-Josef-Strauß-Allee 11 93053 REGENSBURG Tel.: 0941 944-6408 Fax: 0941 944-6402 e-mail: wolfgang.jilg@klinik.uni-regensburg.de 2. Local medical laboratories. 3. The Simian Diagnostic Laboratory at Virus Reference Laboratories, Inc. 7540 Louis Pasteur Road	



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Treatment

In man: immunoglobulins

Prevention and control in zoos**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**

Dr. W. Jilg, Konsiliarlaboratorium Regensburg.

References

1. Balayan, M. S., Y. Y. Kusov, A. G. Andjaparidze, S. A. Tsarev, E. D. Sverdlov, V. E. Chizhikov, V. M. Blinov, and S. K. Vasilenko. 1989. Variations in genome fragments coding for RNA polymerase in human and simian hepatitis A viruses. *FEBS Letters* 247: 425 – 428.
2. Brack, M. 1987. *Agents Transmissible from Simians to Man* Springer, Berlin, pp. 83 - 90.
3. Emerson, S. U., S. A. Tsarev, S. Govindarajan, M. Shapiro, and R. H. Purcell. 1996. A simian strain of hepatitis A virus, AGM-27, functions as an attenuated vaccine for chimpanzees. *J. Infect. Dis.* 173: 592 – 597.
4. Emerson, S. U., S. A. Tsarev, and R. H. Purcell. 1991. Biological and molecular comparisons of human (HM-175) and simian (AGM-27) hepatitis viruses. *J. Hepatol.* 13 (Suppl.4): S 144 – S 145.
5. Nainan, O. V., H. S. Margolis, B. H. Robertson, M. Balayan, and M. A. Brinton. 1991. Sequence analysis of a new hepatitis A virus naturally infecting cynomolgus macaques (*Macaca fascicularis*). *J. Gen. Virol.* 72: 1685 – 1689.
6. Purcell, R. H. 1994. Hepatitis viruses: Changing patterns of human disease. *Proc. Natl. Acad. Sci USA* 91: 2401 – 2406.
7. Rietschel, W. und S. Hornung. 1993. Erste Ergebnisse der Untersuchung zur Epidemiologie der Hepatitis A in Zoologischen Gärten. *Verh.ber. Arb. Tag. Zootierärzte Dtsch. sprach. Raum.* 13: 33 – 36.
8. Schiller, W. –G. und A. Ochs. 1993. Hepatitis A nach berufsbedingtem Kontakt zu Primaten. *Arbeitsmed. Sozialmed. Umweltmed.* 28: 530 – 531.
9. Shevtsova, Z. V., B. A. Lapin, N. V. Doroshenko, R. I. Krilova, L. I. Korzaja, I. B. Lomovskaja, Z. N. Dzelieva, G. K. Zairov., V. M. Stakhanova, E. G. Belova. and L. A. Sazhchenko. 1988. Spontaneous and experimental hepatitis A in Old World monkeys. *J. Med. Primatol.* 17: 177 – 194.
10. Tsai, J. – F., H. S. Margolis, J. - E. Jeng, M. – S. Ho, W. – Y. Chang, M. – Y. Hsieh, Z. – Y. Lin, and J – H. Tsai. Increased IgM class circulating immune complexes in acute hepatitis A virus infection. *Clin. Immunol. Immunopathol.* 78: 291 – 295.
11. Warren, K. S., H. Niphuis, Heriyanto, E. J. Verschoor, R. A. Swan, and J. L. Heeney. 1998. Seroprevalence of specific viral infections in confiscated orangutans (*Pongo pygmaeus*). *J. Med. Primatol.* 27: 33 – 37.