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VIRAL HEMORRHAGIC DISEASE OF RABBITS

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Viral Hemorrhagic Disease of rabbits, also known as Rabbit Hemorrhagic Disease (RHD) or Rabbit Calicivirus Disease (RCD) is caused by a calicivirus in the genus Lagovirus. RHD was first reported in captive domestic rabbits (Oryctolagus cuniculus) in China in 1984, and subsequently spread throughout Asia, Africa, and Europe. Although primarily reported in captive rabbits, it has also occurred in wild rabbits in Europe and feral rabbits in Australia and New Zealand. RHD was first documented in the Western Hemisphere in Mexico in 1988, where the infection was introduced by importation of infected frozen rabbit carcasses from China. There have been several reported outbreaks in the United States, the first in Iowa in April 2000, second in Utah in August 2001 (with shipment of rabbits from the Utah facility to Illinois resulting in cases in that state), and most recently in New York City in 2001. The origins of infection in the US outbreaks were not determined.

The disease is not zoonotic. The only species that develops disease is the domestic and wild European rabbit (Oryctolagus cuniculus). Native North American cottontail rabbits (Sylvilagus floridanus), black-tailed jackrabbits (Lepus californicus), and volcano rabbits (Romerolagus diazi) are not susceptible. Transmission is by direct contact with contaminated feces, secretions, fomites (i.e. cages, clothing that have been in contact with contaminated rabbits), or by aerosol transmission. The disease causes high mortality with death shortly after infection. Animals of all ages are susceptible to infection, however serious disease resulting in death generally affects animals older than 5-7 weeks of age. Sudden death with no premonitory clinical signs is often the case. Clinical signs in acute cases are generally non-specific but can include anorexia, depression, constipation, and diarrhea. CNS signs such as paddling, ataxia, convulsions or opisthotonos may be seen and are due to cerebral microinfarctions. Gross necropsy lesions may be subtle but usually include hepatic necrosis, splenomegaly, pulmonary congestion, tracheal serous to blood-tinged transudate and sometimes a catarrhal enteritis. The most marked histologic lesion is diffuse, acute, peripheral lobular hepatic necrosis and occasional visceral microthrombi and infarction, particularly in the kidneys. Hepatic intranuclear inclusion bodies may be observed. Rabbits that survive infection may shed virus for 4 or more weeks post infection.

The United States Department of Agriculture (USDA) classifies RHD as a foreign animal disease. If RHD infection is suspected, the state veterinarian and the USDA should be notified to arrange for samples to be sent to the Foreign Animal Disease Diagnostic Laboratory (FADDL), Plum Island, New York. Confirmation of the diagnosis results in a USDA mandated quarantine and depopulation of the remaining rabbits in contact with the affected rabbit(s). Enclosure decontamination per USDA guidelines also needs to be conducted.

Areas where affected rabbits had been housed, in contact, or transported, as well as potentially contaminated objects, need to be cleaned with one of the following: a 0.5 % sodium hypochlorite solution (10 % solution of household bleach), a 2 % phenolic disinfectant (1 Stroke Environ, Calgon Vestal Laboratories, Inc., St. Louis, MO 63110 USA), or steam sterilization. Decontamination needs to be conducted twice, at a 24-hour interval, under USDA supervision. Bedding may be disposed of by incineration and materials used for euthanasia disposed of by standard biomedical waste procedures. It is recommended that staff cleaning potentially contaminated areas wear disposable coveralls that are also destroyed. The USDA investigates each outbreak in an attempt to identify the origin of RHD. This generally involves tracking of rabbit acquisitions and movements, and assessment of the exposure to frozen rabbit carcasses. A carrier contact rabbit, an infected frozen rabbit carcass that results in cross contamination or fomite transmission, or a person serving as a fomite may introduce infection to a pet rabbit or rabbit colony. There is no commercially available RHD diagnostic test and no licensed RHD vaccine available in the United States. Although RHD is considered exotic to the United States, it may be under diagnosed. Suspected cases should be reported to state and federal animal health authorities.

REFERENCES