Louping-ill

Etiology
Louping-ill results from infection by a single-stranded RNA virus (family Flaviviridae, genus Flavivirus).

Species affected
Louping-ill is most prevalent in sheep. It can also affect cattle, goats, horses, pigs, dogs, deer, red grouse and ptarmigan (a bird in the grouse family). The virus also infects a number of small mammals including shrews, wood mice, voles and hares. Louping-ill is a zoonotic disease.

Geographic distribution
Louping-ill can be found throughout the upland areas of Scotland, Northern Ireland, Cornwall, Wales, and Norway. None of the known tick vectors of louping-ill virus are found in the United States.

Transmission
Several species of ticks can transmit louping-ill, however, Ixodes ricinus (European Sheep tick, Castor Bean tick) is thought to be the natural vector of this disease. Louping-ill virus is also shed in the milk of sheep and goats and may be passed to nursing young (oral). The virus can also be transmitted to various host species after exposure to infective aerosols. Spread on fomites has been documented.

Incubation period
The incubation period for louping-ill is 6 to 18 days.

Clinical signs
Dogs: Many infections may be subclinical. Dogs that develop clinical disease display signs associated with cerebellar dysfunction. This includes mild paresis, ataxia and tremors. The signs may progress to severe incoordination, lateral recumbency, tetraplegia, opisthotonos and death. Surviving animals may have temperamental and physical changes.
Sheep: The early clinical signs are fever, depression, anorexia, and sometimes constipation. A second fever spike occurs about five days after the signs first appear; at this time, the virus can either enter the central nervous system (CNS) or the animal recovers without further signs. Early signs of CNS involvement include muscle tremors, ataxia, excessive salivation and development of a characteristic hopping or “louping” gait. Death is common. Surviving animals may have residual CNS deficits.
Cattle, horses, and pigs: Similar to disease in sheep although louping-ill is rare in horses and most cases appear to be subclinical.

Zoonotic potential
Humans appear to be an accidental host. Humans can be infected by the louping-ill virus after aerosol exposure, contamination of skin wounds (direct contact), or tick bites (vector). Ingesting (oral) milk from infected sheep or goats may result in exposure. Humans with louping-ill can develop an illness that resembles influenza or polio, biphasic encephalitis or a hemorrhagic fever.

Diagnosis
Before collecting or sending any samples from animals with a suspected foreign animal disease, the proper authorities should be contacted. Samples should only be sent under secure conditions and to authorized laboratories to prevent the spread of disease.

Prevention and control
Vaccination is the most important means of controlling the disease in endemic areas. Use of acaricides on sheep, and if appropriate on cattle, during the peak time of tick activity will help reduce the vector and transmission of the virus. The appropriate use of tick prevention products for dogs will decrease their risk of disease transmission. When outside, people should wear long sleeved shirts and tuck them into pants. Tuck pant legs into socks or boots. This will help keep ticks on the outside of clothing. Use insect repellent with DEET (N, N diethyl-m-toluamide) on clothing and skin to prevent tick bites (make sure to follow all product label directions). Inspect your clothing and skin immediately and remove ticks.

Notification of authorities
Suspected cases of louping-ill should be reported to state or federal authorities immediately.

Federal: Area Veterinarian in Charge (AVIC)
http://www.aphis.usda.gov/vs/area_offices.htm

State Animal Health Official

For more information
- Center for Food Security and Public Health, (CF-SPH), Iowa State University
http://www.csfph.iastate.edu/DiseaseInfo/
- USAHA Foreign Animal Diseases Book
- World Organization for Animal Health (OIE)
http://www.oie.int

This information was developed by staff veterinarians at the CFSH for use as training materials for the USDA APHIS National Veterinary Accreditation Program.