

EQUINE ARBOVIRUSES:

A Threat from the Sky

DEFINITION:

Eastern Equine Encephalitis (EEE), West Nile Virus (WNV), Western Equine Encephalitis (WEE), Venezuelan (VEE) are all arboviruses transmitted by mosquitoes or other biting insects. Birds act as reservoirs for the virus; mosquitoes and other biting insects then carry the pathogen from infected birds and transmit it to horses. Horses affected arboviruses not contagious and pose no risk to other horses, humans or birds. All arboviruses cause inflammation of the brain and nervous system.

FREQUENCY:

These diseases occur most commonly during mosquito season and in environments that favor mosquito breeding including most environments with free standing water. During the summer months they most often occur in the eastern US but are present throughout the United States and Canada.

CLINICAL SIGNS AND SYMPTOMS:

All these diseases affect the nervous system (encephalitis) causing depression and lack of appetite early in the disease. The severity varies with EEE causing the most severe signs but all showing a variety of neurologic signs. A moderate to high fever 102.5-104.5°F (39.17-40.28°C) is consistently present. Lethargy and drowsiness are common but severely affected horses can have sudden and progressive neurologic signs. Periods of hyperexcitability, fine tremors and fasciculations of the face and neck muscles, convulsions, facial paralysis and weakness of the tongue are very common. Other signs include head tilt, droopy lip, muzzle deviation, weakness, incoordination (ataxia and dysmetria) in one or all limbs, complete paralysis with recumbency, colic and death.

DIAGNOSES:

A diagnosis is made by measuring titers in serum (a component of whole blood) or using an ELISA (enzyme-linked immunosorbent assay). EEE is a reportable disease in all states and is reported to many state health departments and the USDA. Keeping track of these diseases on the Equine Disease Communication Center website can help owners and veterinarians learn when the virus is present in their region.



TREATMENT:

Because the virus causes inflammation in the brain and nervous system there is no cure for arbovirus infection. Supportive care including maintaining hydration, lowering of the fever and protection against injury should be provided for horses which show clinical signs. Horses that survive the clinical effects of EEE and WNV often have some residual neurologic deficits (as high as 66% of EEE cases and 40-50% of WNV).

PROGNOSIS:

Mortality varies with each virus. Horses infected with EEE do not often survive with a mortality rate of 75-95% and death usually occurring within 2-3 days of onset of signs. Similarly, the VEE mortality rate is reported from 40-90%. The WEE and WNV mortality is 20-50%. Vaccination provides good but not absolute protection. In some cases, clinical signs are still present but the vaccine can prevent severe illness or death.

PREVENTION:

The best protection is to keep all horses up to date on vaccinations. Initial vaccination is followed in 4 to 6 weeks with a booster and subsequent yearly revaccination. More frequent boosters (i.e., twice or three times yearly) may be recommended in areas with year-round mosquito seasons and in endemic areas. Owners should get a recommendation from their veterinarian.

Controlling mosquitos using the following recommendations benefits horses and humans.

- Use insect repellents frequently; re-apply after rain.
- When possible keep horses in at night and apply insect repellent.
- Eliminate or minimize standing water.
- Stock tanks or ponds with mosquito-feeding fish.
- Eliminate brush piles, gutters, old tires and litter.
- Remove all equipment in which standing water can collect.

The EDCC has the information you need to protect your horse from deadly infectious diseases. Support the EDCC's efforts at equinediseasecc.org/support-us.