Worries of WNV

Take all precautions to protect your horse from the sometimes deadly West Nile Virus, which spread rapidly throughout the Southeast last year.

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Last year, officials recorded 14,717 equine cases of WNV nationally, and 497 of those cases were detected in Florida. At that same time, 11,680 birds were found dead in the Sunshine State with 445 testing positive for the WNV in 47 counties. The number of infected birds historically coincides with both human and equine cases where outbreaks occur. Fortunately, as of June 2003, only one equine WNV case had been identified in Florida, but we're certainly not out of the woods just yet.

WNV, which causes encephalitis in horses, has moved rapidly to Florida and throughout the United States. The concern regarding this disease was heightened due to the large number of reported cases and the unexpected speed in which the virus was spreading. In 2001, 492 cases of WNV were detected in Florida, which left horse owners, veterinarians and vaccine manufacturers scrambling to protect the large horse population throughout the Southeast.

Fortunately, a WNV vaccine was made available through Fort Dodge Animal Health, and most horse owners have protected their horse against this potentially deadly disease. Vaccinations are recommended every three to six months in the Southeast. Consult your veterinarian on quarterly vaccination of horses – especially horses older than 16 years, as they appear to have a higher mortality rate.

WNV Origins

WNV was first identified in the West Nile district of Uganda in 1937, and has since been found in the United States, Africa, Eastern Europe, West Asia and the Middle East. The strain of virus found in the U.S. most closely resembles that found in the Mediterranean and Middle East. WNV is a flavivirus that causes encephalitis or inflammation of the brain. Blood-feeding insects such as mosquitoes transmit arboviruses, including WNV. In areas where mosquitoes carry the virus, less than 1 percent of mosquitoes are actually infected. Less than 1 percent of people bitten and infected by those mosquitoes become severely ill. The risk of becoming ill from a single mosquito bite is extremely low.

Most infections with WNV have been identified in wild birds, but the virus can also infect humans, horses, dogs, cats, alligators, llamas, alpacas, harbor seals, bats, chipmunks, skunks, gray squirrels, domestic rabbits and domestic birds. Studies have shown that mules and donkeys, like

horses, can become infected with the disease. Wild birds infected with WNV are most often found dead, so descriptions of clinical signs are not available. Alligators exhibit neurological symptoms including circling, head tilting and wobbling. When necropsied, the alligators showed inflammation of the brain, spinal cord, heart, liver and spleen. These findings are very similar to what necropsies of infected birds have shown.

WNV rarely affects dogs or cats. One 2002 Illinois report exists of death from WNV in an elderly dog. There is a concern that this dog might have had a poor immune system, as dogs do have a natural high exposure rate. One case has been reported in a wolf. WNV has been isolated from a sick, stray kitten in New Jersey in 1999 and two cats in New York in 2000; all three cats were severely ill and died. Because WNV in pets is rare, dogs and cats with neurological disease should be first evaluated for other likely causes of illness, including rabies. In human infections, symptoms are usually mild with flu-like symptoms including fever, headache and body aches. Skin rashes and swollen lymph glands are reported in some cases. Signs of more severe infections include high fever, stiff neck, weakness, convulsions and paralysis. Fatality rates associated with severe infections are highest among the elderly and range from 3-15 percent. The virus is very difficult to detect in human blood.

Transmittal

Mosquitoes feeding on infected birds transmit WNV. In both EEE and WNV, only birds appear to develop a significant level of virus in their blood and then can transmit the disease. The level of viremia, or amount of virus in the blood, in other animals is too low to infect mosquitoes. Infected mosquitoes then transmit the virus to animals and humans through bites where it develops. An infected WNV or EEE horse is not infectious and poses no risk to other horses, humans or birds. This is in comparison to VEE or Venezuelan EE that can be infectious to others, but it not been a problem in Florida. Once introduced into the bloodstream, the virus then crosses the blood-brain barrier and infects the brain and spinal cord, resulting in neurological symptoms. Ticks infected with the virus have been found in Asia and Africa but there are no reports of ticks spreading the virus, and their role in transmitting the virus, if any, has not been determined. There is no documented evidence of animal-to-animal or animal-to-person transmission of the WNV. However, suspect cases of human-to-human transmission through organ transplantation or blood transfusions have recently been reported.

Diagnosis

Diagnosis of WNV is made by history of exposure, clinical signs and diagnostic blood tests. The IgM capture enzyme-linked immunosorbent assay (MAC) is the test of choice for confirmation of acute infection in both

WNV and EEE. Horses develop an antibody called IgM early in the course of the disease and a titer of 1:400 indicates exposure within 30 days. There is no interference of diagnostic blood tests regarding WNV vaccinated horses vs. unvaccinated horses. All horses can be tested at any time.

Horses that become infected with the WNV, show a variety of clinical signs and are somewhat unpredictable. The most common sign is weakness, usually in the hindquarters. Fever and depression may or may not be present but are common. Weakness may be noted by Triple Estumbling, a wide stance, leaning, toe dragging and perceived lameness. Muscle fasciculations and fine tremors of the head and neck are common. About one-third of the WNV cases experience an increase of severity of clinical signs within the first seven to 10 days. After three to five days, horses recovering or stable can have a sudden recurrence of clinical signs. This might be only a short duration then improve or could worsen. Treatments for WNV infections are all supportive because there is no specific antiviral treatment. Commonly used medications are Banamine (flunixin meglumine), DMSO (dimethyl sulfoxide), and dexamethasone. New therapies under development include plasma therapy, interferon and immunostimulant antivirals.

Low Fatalities

The good news is, with most horses that recover, improvement is rapid over three to five days. In one study of surviving horses, 82 percent were considered fully recovered. Decreased stamina was the most common residual sign, followed by weight loss and loss of conditioning. A fatality rate of 33 percent has been reported, and proper vaccination was a major factor in the development and severity of the disease. In more severe cases, symptoms worsen and paralysis can follow. With horses that become recumbent and are unable to rise, the fatality rate is over 65 percent.

Remarkable Resiliency

Considering exposure rates, 90 percent of all horses exposed to WNV have no signs of clinical disease. The attack rate, or rate at which a localized area gets infected, is 10 percent. That means that a barn with a single case of equine WNV has a one in 10 chance of any other horses coming down with the disease.

There is no way to tell for certain how many cases of WNV and EEE we will see in Florida and the Southeast this year. But one thing is for sure: these encephalitic diseases are endemic and will be a constant concern for all horses and owners in the southeast.