WEST NILE VIRUS IN HORSES

FACT SHEET

OVERVIEW

West Nile virus (WNV) causes a potentially fatal encephalomyelitis (inflammation of the brain and spinal cord) in a variety of animals such as birds, horses and humans. While long recognized in Africa, Eastern Europe, West Asia and elsewhere, WNV was first diagnosed in North America in 1999. Since then, the disease has spread rapidly throughout the continent. West Nile virus is sustained in the wild bird population and is spread between birds by mosquitoes. Humans and horses become infected after being bitten by many different mosquito species infected with WNV that have fed on infected birds. According to the American Association of Equine Practitioners (AAEP), horses represent 96.9% of all reported non-human cases of WNV in mammals.

The virus enters a horse's bloodstream and spreads to the spinal cord and brain, causing wide-spread inflammation. Clinical signs of WNV typically present within three to 15 days of exposure. Horses and humans are considered dead-end hosts of the virus and do not contribute to the transmission cycle. The virus is not directly contagious from horse to horse, nor from horse to human. Indirect transmission via mosquitoes from infected horses is highly unlikely because horses have insignificant amounts of virus circulating in their blood. Mechanical transmission of the virus, such as through a blood transfusion, is possible. For more information on disease transmission, see the New Mexico State University Cooperative Extension publication on West Nile Virus in Horses.

CLINICAL SIGNS

Classic clinical signs of horses infected with WNV include:

- Fever
- Ataxia (incoordination)
- Stumbling
- Hind limb weakness
- Depression
- Anorexia
- Recumbency with the inability to rise
- Muscle tremors
- Teeth grinding
- Dysphagia (inability to swallow)
- Head pressing
- Signs of colic
- Limp paralysis of the lower lip
- Aimless wandering
- Excessive sweating
- Behavior changes
- Convulsions or even coma

While all horses are susceptible to WNV disease, many horses infected with WNV may not show clinical symptoms, and some horses can die without showing signs of disease prior to death.

DIAGNOSIS

If your horse is showing abnormal behavior or any neurological signs (such as ataxia), call your veterinarian immediately. It is very important to rule out other neurological diseases, such as rabies, equine protozoal myeloencephalitis (EPM), viral encephalitides (e.g. western equine encephalitis), the neurologic form of equine herpesvirus-1 (EHV1), botulism, or wobbler syndrome (cervical vertebral myelopathy), among others.

There are several tests available to help diagnose WNV in horses showing clinical signs of disease. These include identifying the virus, viral antigens, viral genetic material or antibodies produced by the horse in response to WNV infection. Examples include virus isolation, hemagglutination inhibition, complement fixation, immunohistochemistry, and polymerase chain reaction (PCR). One of the most useful tests is the IgM-capture ELISA, which measures IgM antibodies produced by the horse in response to the virus. The WNV IgM antibodies are elevated for approximately four to six weeks post-infection. When interpreting test results, it is important to consider the vaccination status of the horse, as some tests are incapable of distinguishing between infected and vaccinated horses. Good recordkeeping regarding vaccine history is recommended.

TREATMENT

There is no specific treatment or cure for infected horses. Veterinary care includes administration of anti-inflammatory drugs and intravenous fluids (if necessary). Supportive care is exceedingly important for infected horses to ensure adequate food and water intake, protect the safety of the horse (to prevent injuries in ataxic horses), and to prevent pressure sores in recumbent horses. Some veterinarians have attempted to treat horses with antiviral drugs such as interferon and passive antibody products for WNV, but published clinical trials demonstrating efficacy or safety of this approach are lacking at present.

PROGNOSIS

The mortality rate for infected horses is estimated to be approximately 33-35%. That means almost two-thirds of infected horses recover. Horses that are recumbent are at higher risk of dying than infected horses that remain standing during the course of disease. Older horses have been reported to have a higher fatality rate. Many infected horses will recover completely; however, some horses (approximately 40%) might experience residual clinical signs. Caution must be used around horses that continue to exhibit neurological deficits after recovering from West Nile virus.

PREVENTION

Since there is no cure for WNV, prevention is key to minimizing the chances of horses becoming infected with the virus. Current preventative measures include vaccination, management strategies and ensuring your horse is in optimal health. The American Association of Equine Practitioners (AAEP) recommends vaccinating all horses against WNV. Unvaccinated adult horses should be vaccinated twice, four to six weeks apart. Thereafter, horses can be re-vaccinated based on risk of exposure, up to once every four months. In the southern U.S., where mosquito populations are present year-round, horses can be vaccinated biannually or more. Horses less than five years of age appear to be more susceptible than adult horses that have likely been vaccinated and/or had subclinical exposure. Horses greater than 15 years of age have higher susceptibility to West Nile virus. Therefore, the AAEP recommends more frequent vaccination of these classes of horses. For information on the USDA-licensed vaccines that are currently available, as well as vaccination guidelines, visit the AAEP website.

In addition to vaccination, it is important to minimize mosquito populations near your horses by eliminating breeding and resting areas and keeping mosquitoes away from horses. For example, reduce or eliminate sources of stagnant or standing water, remove muck from areas near horses, stable your horses during peak mosquito periods (i.e., dawn and dusk), use equine-approved mosquito repellants, place fans inside barns or stalls to maintain air movement (mosquitoes don't fly well in wind) and avoid using incandescent bulbs inside stables at night. Instead, place incandescent bulbs away from stables. This will attract mosquitoes to areas outside the stables. Discourage wild birds from roosting near or in your stables.

The New Mexico Livestock Board works to protect New Mexico livestock, keeping them free of disease and safe from theft. To carry out this work, the agency's 60 full-time inspectors and another 60 full- and part-time deputies continuously patrol and perform inspections around the state to help. The agency also houses the Office of the State Veterinarian, whose team collaborates with various government and private-sector partners to ensure that New Mexico remains free of animal disease.

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