Equine Herpesvirus-1

The neurologic form of this highly contagious infection is considered an emerging disease

Overview

Equine herpesvirus-1 (EHV-1, rhinopneumonitis, “rhino”) is one of the most common herpesviruses capable of infecting horses.

EHV-1 causes respiratory disease in weanlings and young horses, abortion in pregnant mares, and (rarely) neurologic disease in adult horses. This herpesvirus is highly infectious and is widespread in the equine population. Like other herpesviruses, such as the virus that causes chicken pox in humans, EHV-1 remains latent (dormant) in horses exposed to the virus and can “resurge” during times of stress, such as transport.

Respiratory disease caused by EHV-1 is most often seen in young horses (<2 years old) exposed to the virus by direct horse-to-horse contact (exposure via saliva and nasal secretions containing EHV-1) or contacting virus from abortion products. EHV-1 can (under the right conditions) survive in the environment for several days and spread via buckets, brushes, clothing, tack, and other items used around the barn.

Increasing attention has been paid to the neurologic form of EHV-1, called equine herpesvirus myeloencephalopathy (EHM). More virulent strains of EHV-1 have been associated with the development of EHM. These strains of EHV-1 virus damage blood vessels in the brain and spinal cord, causing tissue damage, necrosis (tissue death), and loss of neurologic function.

Clinical Signs of EHV-1

Fever, cough, decreased appetite, depression, and a nasal discharge are the most common signs of EHV-1 infection in young horses. Pregnant mares typically show no signs of infection before they abort, and abortions usually occur late in gestation (around 8 months), but can be earlier. Abortions can occur anywhere from 2 weeks to several months following infection with EHV-1. In many horses, fever is the only sign of EHV-1 infection, which can go undetected.

Signs of EHM are variable, depending on where in the brain and spinal cord the virus has damaged the blood vessels. Horses with EHM usually have a fever at the onset of the disease, and may have signs of a respiratory tract infection. A few days later, neurologic signs such as ataxia (incoordination), bladder atony (urine retention, dribbling), loss of tail tone, and recumbency (inability to rise) develop. Surprisingly, horses with EHM usually remain bright and will continue to eat and drink.

Diagnosis

Veterinarians can tentatively diagnose EHV-1 in horses based on historical data and signs of respiratory disease. To help make a definitive diagnoses of EHV-1 in a horse that has a fever, your veterinarian needs to perform a nasal swab and collect a blood sample, which are subsequently analyzed by polymerase chain reaction (PCR). This test will identify any viral DNA in the horse’s nasal secretion or in his bloodstream. This test also can help veterinarians differentiate between the neuropathogenic strain and the alternate strain.

PCR can also be used to help diagnose EHM. If any horse on your farm shows signs of neurologic disease, call your veterinarian immediately. Your veterinarian will need to distinguish EHM from other neurologic diseases, including equine protozoal myeloencephalopathy (EPM), cervical vertebral instability, trauma, rabies, botulism, and West Nile virus. Usually, if a horse shows signs consistent with EHM; has a recent history of fever, respiratory disease, or abortion in the herd; and if multiple horses are affected in one herd, a veterinarian can make a tentative diagnosis of EHM, assuming other neurologic diseases have been ruled out. A cerebrospinal fluid sample, blood sample, or nasal secretion can be tested for EHV-1. Its presence in blood and nasal secretions should confirm the diagnosis.

Treatment

Most horses with the respiratory form of the disease require no specific treatment; however, strict biosecurity protocols should be instituted to minimize the spread of disease. For horses diagnosed with EHM, treatment includes providing supportive care to protect ataxic horses from hurting themselves, meeting nutritional requirements, maintaining hydration, decreasing inflammation in the brain and spinal cord by administering anti-inflammatory drugs (e.g., corticosteroids, non-steroidal anti-inflammatories, dimethylsulfoxide), and placing a temporary urinary catheter to allow bladder drainage.

Researchers are studying the efficacy of antiviral drugs such as valacyclovir for treating EHM. EHM is a reportable disease in most states and quarantine will be instituted on the horse facility experiencing the outbreak until all horses have stopped shedding EHV-1.

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Prognosis
The mortality rate for EHM is between 0.5% and 40%. Infected horses that remain standing have a much better chance of survival than do recumbent horses. If a horse is going to recover, he usually shows improvement within a few days; however, it can take several weeks to one year before neurologic signs resolve completely. Neuropathic defects such as ataxia and urinary incontinence might not disappear entirely.

Usually, if a horse goes down and stays down for more than 24 hours, his chances of survival are low. These horses are usually euthanized due to complications associated with EHM. That said, with intensive care, which often requires the use of a slinging device, horses have completely recovered after being recumbent for up to three weeks.

Prevention
EHV-1 prevention is difficult because it often lies dormant in a horse’s body and can resurge at times of stress, usually without the horse showing signs of infection. Latently infected horses therefore serve as a reservoir for the virus, which explains how outbreaks of EHV-1-related disease can occur in closed horse populations. Current licensed EHV-1 vaccines are not labeled for EHM prevention. Vaccines are primarily indicated to minimize abortion in pregnant mares and reduce disease severity, as well as prevent spread of the respiratory form in young horses at high risk of virus exposure. Vaccination only protects horses for about six months, so vets recommend frequent revaccination of at-risk horses. In the face of an outbreak, vaccinating all nonexposed horses in the herd might minimize disease spread.

Standard biosecurity measures play a key role in minimizing EHV-1 spread during an outbreak. These include:
- Instituting good hygiene and disinfecting any area an affected horse has been to
- Not allowing nose-to-nose contact between horses or sharing of equipment;
- Monitoring horses’ temperatures daily;
- Isolating affected/suspected horses;
- Dedicating specific people to care for affected horses and instituting barriers such as footbaths, gloves, and gowns;
- Isolating/monitoring in-contact horses for 21-28 days after disease resolution;
- Separating resident from visiting horses and show horses from breeding stock;
- Controlling human traffic on the farm.

Not only are these biosecurity measures important during an outbreak, they also help avoid introducing or disseminating EHV-1 or other respiratory diseases.

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