

EHV-1 Equine Infection

There have been within our immediate area, many recent outbreaks of the paralysis causing neurological form of equine herpes virus type 1 virus (EHV-1). EHV-1 is most commonly an associated viral cause of respiratory disease in younger horses. We refer to this form of EHV-1 as rhinopneumonitis or just “rhino” for short. It is in the respiratory form that EHV-1 probably has its greatest economic impact resulting in lost training time, lost revenues, veterinary bills and the like. In addition to the paralysis causing neurological EHV-1, and the respiratory EHV-1, this same EHV-1 virus is a major cause of abortion-disease in the pregnant mare with fetal loss occurring between 7 months and term. Not to lessen the significance of respiratory EHV-1 or abortifacient EHV-1, but it is paralysis causing, neurological form of EHV-1 I want to highlight in this article.

The neurological form of equine herpes virus type-1 has been positively diagnosed in outbreaks in five states this January and February. These five reporting states include Delaware, Maryland, and Pennsylvania. Michigan and Georgia round out the total five states where neurological EHV-1 has been positively diagnosed to date in 2006. Early in January of 2006, horses at Pimlico Race Course in Baltimore started demonstrating paralysis signs consistent with a neurological EHV-1 diagnosis. Clinical suspicions were later conformed by laboratory EHV-1 confirmation. The Pimlico outbreak resulted in the necessity for several of the affected horses to be euthanized. Advanced neurological paralysis rendered no hope for recovery.

The neurological form of EHV-1 causes paralytic disease in horses by infecting the horse’s central nervous system. Signs occur about 6 to 10 days after infection by the intranasal route. Neurological signs are generally of rapid onset and may or may not follow clinical respiratory disease. Horses may have mild to complete paralysis, stumble when walking, or may be down and unable to stand. A frequent sign is the inability to pass urine. Some horses will progress to coma and death, be euthanized because of secondary complications, or stabilize and recover. Knowing that neurological EHV-1 virus is in our area, what are some preventive measures we might take to protect our horses from this deadly paralysis virus?

The first and possibly most important fact we need to understand about EHV-1 infections is that once infected, horses more often than not will become life-long hosts for the virus. This does not mean that this horse will be a life-long shedder of EHV-1 virus, but it does appear the EHV-1 will make this horse its home for years and years. We estimate that between 50-80% of horses infected with EHV-1 become latent carriers. In order for the latent infected carrier horse to once again become a virus source for other horses, the virus must first become reactivated within the

host horse. We frequently refer to this virus reactivation process as EHV-1 virus recrudescence. That is to say, the virus wakes up from its concealed sleep state or latent state to once again have the capacity to cause disease and spread to other horses.

Secondly, virus isolates of EHV-1 recovered from neurological outbreaks appear to share a very distinct, genetic mutation. On the surface, it would appear the EHV-1 virus that causes deadly neurological signs is a changed virus (mutated virus) from the EHV-1 that causes respiratory and abortion disease in horses.

Additionally we have the laboratory capabilities to isolate and characterize the mutation unique to the neurological EHV-1. However, in the real world of preventing EHV-1 infections, if you have an outbreak of neurological EHV-1, or an abortion storm, or upper respiratory herpes, you must follow the same strict rules of prevention, management, and biosecurity. Let me repeat what I just said with the hope of making it clearer. In our management practices to prevent our horses from getting neurological EHV-1, we must prevent and protect our horses against the respiratory and the abortive EHV-1 virus strains as well as isolating our horses away from and attempting to enhance our horse's resistance towards the neurologist EHV-1 mutant strain.

Let's get to the heart of the matter: how can we prevent our horses from falling prey to paralytic neurological EHV-1. Effectively preventing neurological EHV-1 emphasizes a three step approach: First – isolation of horses from EHV-1 infection source. Secondly, enhancing the horses immune system in the event they do contact neurological EHV-1, and thirdly, preventing stress to the horse.

Preventing stress has two beneficial effects in avoiding neurological EHV-1. A non-stressed horse has a much more capable immune system. Additionally, stress appears to be very important in that virus reactivation or recrudescence from latent infection process I spoke of earlier. Transportation of horses, especially transportation long distances is very stressful on horses. Activities such as racing, training, shows, or illness can also be stressful to horses. A well balanced diet, plenty of turnout and exercise, social contact, and fresh air are stress relievers for horses.

It is obvious, if I keep my horse isolated from all other horses [a sound biosecurity measure] I will certainly and dramatically reduce my horse's chances of becoming infected with neurologic herpes virus. This is most difficult in the horse community however, as the very heart of the equine industry is interactive. If you have a horse with EHV-1 or you are aware of a positive EHV-1 horse, a three week quarantine is the absolute minimum. Three weeks may be understating an appropriate quarantine for EHV-1 as the virus has been shown to live free in the environment for more than two weeks and to live on the horse hair coat for 42 days. Horse owners may be able to reduce the risk of transmitting EHV-1 between horses by not sharing equipment such as brushes, water buckets, bits, halters, and lead shanks.

With regard to preventing EHV-1 infection, specifically neurological EHV-1 infection, I think the use of vaccinations can still be strongly recommended, although to date no vaccines are labeled to prevent neurological EHV-1. Vaccination to specifically prevent neurological EHV-1 has been disappointing thus far, but continues to hold promise. Workers at Cornell University

have provided adequate data (albeit from limited studies) for us to recommend the use of modified live vaccines to enhance our horse's immune system against neurological EHV-1 in our horses especially for our healthy horses about to be shipped or exposed to unknown horses. Because neurological prevention is not specially written on the vaccine label, its use is what is referred to as an "extra label use" Therefore, I am not free to make specific vaccination recommendations. Horse owners should discuss vaccination and booster schedules with their veterinarian to determine a program that best suits each horse.

It is most important that we as horse owners take sound and determined steps to prevent EHV-1 infection in our horses. Once horses contact EHV-1 disease, other than supportive therapies to reduce symptoms such as fever and management of patient comfort and secondary infections, there is no effective treatment.

As a concluding note to Delaware horse owners and folks intending to transport horses into Delaware for racing or showing: As of February 3, 2006, Dr. Edwin Odor, Delaware State Veterinarian has mandated all horses entering Delaware are required to present a "Certificate of Vaccination" for Equine Influenza and Rhinopneumonitis (EHV-1) within the past ninety days.