Neurologic Equine Herpes Virus (EHV-1)

What is EHV-1?

EHV-1 (equine herpesvirus-1) is one of a large group of DNA viruses that causes potentially serious disease in horses and other species, largely llamas and alpacas. EHV-1 has two forms: one that causes abortion in mares and one that causes respiratory infection and neurological symptoms. The most recent outbreaks have involved the EHV-1 respiratory/neurological form of the virus causing a condition known as Equine Herpes Myeloencephalopathy (EHM).

EHV-1 is contagious and is spread by direct horse-to-horse contact, by contaminated hands, equipment and tack, and, for a short time, through aerosolization of the virus within the environment of the stall and stable.

What are the signs and symptoms of EHV-1?

The initial clinical signs of the infection may be nonspecific and include fever of 102°F or higher. Fever may be the only abnormality observed. Other signs may be combinations of fever and respiratory symptoms of nasal discharge and cough. Some horses have reddish mucous membranes.

Horses with neurological disease caused by EHV-1 infection can soon become uncoordinated, weak, and have trouble standing. Difficulty urinating and defecating may also occur. Often the rear limbs are more severely affected than the front. Signs of brain dysfunction may occur as well, including extreme lethargy and a coma-like state.

The incubation period of EHV-1 infection is highly variable, meaning that the incubation period can differ among groups of horses, stables, location, etc. Incubation period depends on the host, on the virulence of the virus, and on environmental and other factors such as stress. The average incubation period is 4 to 7 days, with the majority of cases being 3 to 8 days, with some taking up to 14 days. When neurological disease occurs, it is typically 8 to 12 days after the primary infection involving fever. In most cases, horses exposed to EHV-1 will develop a fever and possibly nasal discharge and then go on to recover.
Protection and Prevention

Vaccination

There are two types of vaccines available for use in the horse for prevention of the disease, but their use remains controversial. Vaccination may reduce the severity and duration of disease, but will not totally prevent the disease. Your equine veterinarian should be consulted regarding the most appropriate use of vaccination in your particular circumstance. Since latent infection is still a problem, vaccination must go hand-in-hand with the use of best management practices.

There are both modified live virus and killed virus vaccines available. The modified live virus vaccine contains virus that has been altered to make it unlikely to cause disease but is still able to reproduce in the body cells and stimulate immunity. The killed vaccine contains virus that has been inactivated or killed using either heat or chemicals. The modified live vaccine is administered intranasally and offers quicker protection. There is no scientific basis to indicate that the modified live vaccine will cause disease. The killed vaccine is given intramuscularly.

Commercially available vaccines for EHV-1 include two single-component inactivated vaccines (Pneumabort K and Prodigy) marketed for the prevention of abortion in pregnant mares; several multicomponent inactivated vaccines (Prestige, Calvenza, Innovator); and one MLV vaccine (Rhinomune) for the prevention of respiratory disease induced by EHV-1 and EHV-4.

Currently available vaccines make no claim to prevent EHM, Equine Herpesvirus Myeloencephalopathy, which is the cause of neurological symptoms from EHV-1.

Vaccine usage in light of the recent outbreaks of neurological EHV-1 is currently being re-evaluated. Consult your veterinarian for recommendations.

How to Handle a Sick Horse

Isolation of sick horses and early determination of the cause of their symptoms is extremely important. It is critical to determine if the horse has been around horses that may have been in a place where EHV-1 has been documented to occur. Infections other than EHV-1 can also spread by horse-to-horse contact, so keeping a horse with a fever isolated is a very good practice in any case.

If your horse develops fever, respiratory signs or neurological signs, immediately notify your veterinarian and do not move the horse or horses in the immediate area. Alert those who have horses in the adjacent area to cease all movement of horses in and out of the facility until a diagnosis is confirmed by testing. If horses are exposed and then travel to a new stable or show, the infection can spread to other horses at that new location.
Biosecurity

In order to prevent an outbreak, horses arriving on a farm from other locations should be isolated for 3-4 weeks before being introduced into the resident horse population. Reduce management-related stressors that may increase the possibility of stress-induced reactivation of latent EHV-1 in carrier horses. Keep horses separated by physiological state or group, especially with regards to pregnant mares, who should be kept away from weanlings, yearlings, and performance horses that frequently travel.

In the case of an outbreak, infected horses should be isolated from other horses. The stable should be quarantined for at least three weeks after signs of clinical disease in the last case subside. All stable equipment should be disinfected. People handling the infected horses should be sure to wash their hands after handling each horse, dip their shoes in a disinfecting foot bath, and change clothes before working with healthy horses.

Some sources suggest that bedding be removed and burned. Barn stalls, aisles, trailers and other surfaces and equipment should be cleaned and disinfected as well. Although this virus can last for several weeks in the environment, it is readily killed by most common disinfectants; phenol based disinfectants are commonly used. A solution of 1 part chlorine bleach to 10 parts water is effective for decontaminating equipment and environment.

Ultimately, enforcement of strict biosecurity measures and hygiene practices are likely to be more effective than widespread vaccination in reducing the risk of acquiring EHV-1 infection.