

Equine Herpesvirus Myeloencephalopathy (EHM) is a neurologic condition that develops as a result of infection with Equine Herpesvirus type 1 (EHV-1). EHV-1 is prevalent around the U.S. and the world, and primarily affects the respiratory tract but can also cause abortion and neonatal death. EHM can develop in outbreaks of EHV-1 and may be seen in anywhere from 10-50% of infected horses; in some cases, the percentage may be greater. Research is still being conducted as to why and how EHV-1 infection can lead to EHM. At this time, studies have shown that there are a multitude of factors such as the level of infection (amount of virus in the blood), the horse's own immune response to the infection, and the possible affects of genetic variation in the herpesvirus itself.

With an infection of EHV-1, the virus travels from the respiratory tract, through the lymph nodes, and into the bloodstream. Viremia (virus particles in the blood) is established and allows the virus to travel to the spinal cord where the clinical signs of EHM can develop due to inflammation and inadequate circulation. This is manifested as weakness, ataxia (swaying, weaving, crossing limbs over, pivoting on inside limb when circling), dysmetria/incoordination (abnormal gait seen either as hypermetria with an exaggerated range of motion and excessive joint movement or hypometria with limb stiffness and decreased joint flexion). Clinical signs may also include nasal discharge, difficulty urinating (dribbling urine, inability to produce normal stream), decreased anal and tail tone, circling, head pressing, head tilt, and in severe cases, recumbency (inability to stand). EHM can develop anywhere from 5-12 days after a horse becomes infected with EHV-1.

When a horse becomes infected with EHV-1, there is a 1-2 day incubation period before clinical signs (nasal discharge and respiratory signs) are seen and during this time, nasal shedding of the virus peaks. Typically the horse will then develop a fever (temperature greater than 101.5 ° F.) which will peak initially and then return to normal over an approximately 10 day period. It is generally during a second fever spike (febrile state) that if EHM has developed, neurologic signs are seen.

If a horse is suspected to have EHV-1 or EHM, it should immediately be quarantined from other horses on the premises. In many cases, referral to a veterinary hospital may be necessary for treatment if the horse is showing significant neurologic signs. Additionally, if a horse is known to have come in contact with an infected horse, it too should be immediately quarantined. This should ideally include separation to a different stable/barn/housing unit on the farm or transport to a veterinary hospital where isolation protocol can be instituted. If this is not possible, separation to a stall far away from other horses in the barn (at least 35 feet) with strict isolation protocols should be enacted. Disposable gloves should be worn with every horse with hand sanitizer used between horses. Protective clothing is also recommended to prevent carrying the virus from horse to horse. Due to the high level of nasal shedding in neurologic horses and febrile horses, buckets, brushes, clothing, etc should not be shared. Separation into different facilities is also important due to shared airspace being a viable route for disease transmission.

If a horse on the property has been confirmed or is suspected to have EHV-1 and EHM, there should be no movement of horses on or off the property for at least 21 days from the resolution of clinical signs in all horses on the property. If there are no other confirmed or suspected infected horses during the quarantine period, every horse on the

property should be tested prior to ending the quarantine which entails submitting nasal swabs for PCR testing. If this is not financially feasible, then the quarantine period should be 28 days from the resolution of all clinical signs from all horses on the property. The rectal temperatures should be taken twice daily during the quarantine as well. It is also important that the horses on the property are not treated with Bute or Banamine (or other non-steroidal anti-inflammatory medications) as this can mask fever.

Treatment of EHM entails supportive care (intravenous fluids to maintain hydration, bladder catheterization if necessary and manual removal of manure if the bladder and anus are affected). There has been some success with the use of antiviral drugs such as Acyclovir, Valacyclovir, and Ganciclovir; however, treatment may be cost prohibitive. Non-steroidal anti-inflammatory medications are beneficial in treatment of cases of EHM (when requiring intensive care treatment). Anti-oxidants such as Vitamin E are neurosupportive, and are recommended as well. L-lysine supplementation may also be beneficial in treatment as it is a competitive inhibitor of L-arginine which is an amino acid required for herpesvirus replication. In the case of a recumbent horse due to EHM, prognosis is poor despite aggressive treatment.

Horses can be vaccinated for EHV-1 and EHV-4; however, the vaccine does not protect against EHM. There is some research that suggests vaccination in the face of an outbreak may help reduce viral shedding. Horses unaffected by EHM would be the ones to vaccinate.

Currently, there are reported cases of EHV-1 and EHM in the U.S. Appropriate measures are being taken to prevent further spread. It is important to consider in all instances of transporting horses from events, new stables, etc. that the stress of the event and/or transport may put horses at risk of developing EHM. Quarantining new horses and monitoring attitude and temperatures are valuable tools in preventing outbreaks.

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Sources:

- Current Therapy in Equine Medicine 6. Robinson & Sprayberry. pp 177-181
- Equine Neurology. Furr & Reed. pp181-183
- "Recommendations for Horses Exposed to EHV-1 or EHM". May 16, 2011.
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