

What is Equine Protozoal Myeloencephalitis (EPM)?

EPM is a disease of the central nervous system (brain and/or spinal cord) that is caused by the protozoal organism *Sarcocystis neurona*. The main host for this organism is the opossum and horses that are exposed to opossum feces with infective sporocysts can develop neurologic disease. Other hosts of *S. neurona* include armadillos, skunks, and domestic cats; however, these animals cannot directly transmit the disease to horses.

What are the clinical signs of EPM?

Since *S. neurona* can be located anywhere in the central nervous system, a range of clinical signs may exist. To complicate matters, many of these signs mimic those found in other neurologic disease or may occur in a waxing/waning fashion. Potential clinical signs include:

- Ataxia (incoordination), spasticity (stiff, stilted movements), abnormal gait or lameness.
- Incoordination and weakness which worsens when going up or down slopes or when the head is elevated.
- Muscle atrophy, most noticeable along the topline or in the large muscles of the hindquarters, but can sometimes involve the muscles of the face or front limbs.
- Paralysis of muscles of the eyes, face or mouth, evident by drooping eyes, ears or lips.
- Difficulty swallowing.
- Seizures or collapse.
- Abnormal sweating.
- Loss of sensation along the face, neck or body.
- Head tilt with poor balance; horse may assume a splay-footed stance or lean against stall walls for support.

How do you diagnose EPM?

There are three tests currently available to test for EPM. Each of them has pros and cons that should be taken into consideration when deciding on which to perform.

- *Serum Antibody Test*

This test is run on a sample of blood and detects circulating antibodies to *S. neurona*. If the result comes back negative, the horse does not have the disease. However, if the result comes back positive, it does not mean that the horse is currently infected, only that it has been exposed to *S. neurona* at some point in its life. Since about 50-60% of the equine population has been exposed to *S. neurona*, but only about 0.14% actually develops the disease, this means that many horses may be treated unnecessarily.

- *Cerebral Spinal Fluid (CSF) Western Blot*

This test is run on CSF obtained from a spinal tap. The test is more invasive than the serum test, but is more accurate at detecting active infection because the fluid should not have antibodies in it unless the organism is actually in the brain or spinal cord. However, blood contamination of the CSF sample can result in false positive tests.

- *IgM Capture ELISA*

This recently developed test is run on a blood sample and looks for an immunoglobulin (antibody) specifically found during an active *S. neurona* infection. This test shows great promise, but has not been widely used yet in the general equine population. It is run only at the University of California-Davis, so samples must be shipped. The test currently costs around \$65 and results are usually back within a week.

How do you treat EPM?

There are two treatment options for EPM. The traditional treatment protocol is a six-month course of trimethoprim-sulfonamide (an antibiotic) and pyrimethamine (an antiprotozoal agent). However, a newer drug, ponazuril (an antiprotozoal), is the only FDA-approved treatment for EPM and is labeled for a 28-day course of therapy. In some cases, a second round of ponazuril is necessary. Ponazuril is marketed as an oral paste under the trade name Marquis®. General supportive therapy may also be indicated based on the condition of the horse at the time of diagnosis.

What is the prognosis for a horse with EPM?

About 60-70% of horses with EPM that are treated will improve, and 15-25% will recover completely. A better outcome seems to be associated with starting treatment early, and the most significant improvement is generally seen within the first four weeks. Eighty percent of horses will remain positive on CSF Western Blot tests despite treatment (even if they appear clinically normal), and relapses are seen within two years in about 10-20% of these horses.

How can I help to prevent EPM in my horse?

Horses are infected with EPM when they ingest food or water contaminated with opossum feces. Keeping grain in covered bins and controlling the opossum population around your barn are the most practical methods of reducing the risk of infection.

Other Resources:

www.MyHorseMatters.com

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<http://www.extension.umn.edu/horse>