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Encephalitis Update



So far this year there have been 86 cases of Eastern Encephalitis in Florida. A majority of those cases have occurred just south of Alachua in Marion County. There have been 2 cases of West Nile Virus as of last month. However, West Nile season is just getting started, so expect the numbers to increase.

Eastern Encephalitis (EE) and West Nile Virus (WNV) are part of a group of diseases called the arboviral encephalomyelitides. This is a big word indicating that the virus affects the brain and spinal cord and uses an insect vector to infect other animals. Both EE and WNV are maintained in the wild through cycles between certain local animals (called reservoir hosts) and species of birds and mosquitoes. An outbreak occurs when the cycle spreads beyond its usual location or species. During an outbreak the virus rapidly reproduces to very high levels within the infected bird. A mosquito feeds off the bird, picking up these same high levels of virus. If this mosquito then bites a horse or human, they become infected. When either of the viruses infects humans or horses they do not reproduce rapidly enough to be able to re-infect mosquitoes. This means humans and horses are "dead-end" hosts, and cannot propagate the infection to other animals. While many animals can become infected with both EE and WNV, horses and humans seem to be the only two which consistently show signs.

Upon entering a dead-end host, the virus travels through the bloodstream to the brain and spinal cord. Once there, it attempts to enter a cell and begin reproducing. However, the immune system recognizes it as foreign and attempts to destroy the cell that the virus inhabits. This is what causes the neurologic symptoms seen in affected horses and humans. With EE the horse has an initial mild fever about 48 hours after infection. Three to four days later a very high fever begins, along with rapidly progressing neurologic signs. Neurologic symptoms include behavior changes (lethargy or excitability), stumbling, circling in one direction, or an inability to stand. Horses infected with EE often start out "a little off" and are in big trouble 6-8 hours later.

Diagnosis requires a small sample of blood which is tested for antibodies to the

Eastern Encephalitis virus. This test usually takes 2-3 weeks for results.

Aggressive treatment with anti-inflammatories, steroids, and DMSO are the mainstays of encephalitis therapy. Despite these treatments, approximately 95% of horses with EE in Florida will die within 48 hours of the appearance of symptoms.

Our best defense against EE is a good offense. Regular vaccination at least every 6 months has been shown to be very effective in preventing EE. If there are numerous cases of EE in the area or if mosquito populations are high, vaccination every 4 months is recommended. This vaccine is available as a combination with Western Encephalitis (rare in the eastern U.S.), Tetanus and West Nile Virus (called an EWT/West Nile vaccine).

West Nile Virus generally presents with mild to moderate neurologic symptoms that progress much more slowly than EE. Often the first sign is muscle twitching, particularly around the muzzle and face, progressing to more generalized neurologic signs. A low-grade fever (< 103°F) may be found in very early stages. A small percentage of horses will become very severely affected rapidly.

Treatment for West Nile is similar to that for EE. Aggressive anti-inflammatory and steroid therapy are used along with West Nile specific plasma and interferon- α . The plasma and interferon help the immune system directly battle the West Nile Virus. Since West Nile is a less aggressive disease, we are able to save 60-70% of these cases. Early recognition and treatment is very important!!

Much like EE, West Nile requires a good offense. A similar vaccination schedule of at least every six months is appropriate. We have not seen an outbreak since 2001. West Nile will most likely be an occasional problem much like EE has become. This means vaccination is very important since we don't know which year will be the "bad one."

We are here to help answer any questions you may have about these and other diseases your horse may encounter. If you would like help assessing your vaccination

schedule and mosquito elimination plan feel free
to call us anytime.