

Little Known Factors May Play Important Role in Equine Diarrhea Diagnosis

Recent research conducted by IDEXX Laboratories along with the McGee Medical and Critical Care Center (Hagyard Equine Medical Institute) indicates that several factors may deserve more attention in the diagnosis of equine diarrhea and more study by equine researchers: coinfecting pathogens, the use of human diagnostic tests that may miss equine isolates, and the presence of equine coronavirus. The results are from research currently being conducted to validate the new IDEXX RealPCR* Equine Diarrhea Panel.

Coinfection Is an Underappreciated Factor in Equine Diarrhea

The validation studies for the new equine PCR panel suggest coinfection may be an emerging cause of equine diarrhea.

Dr. Christian Leutenegger, Director of the IDEXX Molecular Diagnostic Laboratory, points out that practitioners have always been aware of possible coinfections, but coinfection has been difficult to diagnose without a panel, because clinical signs become mixed together when multiple pathogens are present.

Dr. Leutenegger worked with Dr. Nathan Slovis, Director of the McGee Medical and Critical Care Center, to test 100 foals using the new panel. They discovered foals with multiple coinfections. According to Dr. Slovis, “We found several foals infected with three pathogens: coronavirus, rotavirus and cryptosporidium. This study is showing that it’s not uncommon for a sick foal to have several different organisms affecting them. The role of coinfection has been underappreciated.”

Drs. Leutenegger and Slovis are not yet sure how the coinfections contribute to the severity of disease. “The presence of one pathogen may make the animal susceptible to the others,” says Dr. Slovis, “and it may be that the additional pathogens are making an animal severely sick, when a single pathogen would make the horse only mildly ill. We need to do more studies to determine the effects of multiple pathogens in causing disease.”

Using Human Tests for Equine Samples May Lead to Missed Positives

Some ELISAs commonly used for equine samples are actually human tests. Dr. Slovis points to the rotavirus ELISA as a human test that has given good results for horses because the human and equine forms of the virus are similar. However, in the IDEXX validation studies, 11% of horses that tested negative on the rotavirus ELISA tested positive for rotavirus on the equine-specific PCR panel. Dr. Leutenegger noted that the PCR panel also detected cryptosporidium at levels below the limit of detection for the cryptosporidium ELISA, another human test used for equine diagnosis.

Coronavirus May Be a Factor in Equine Diarrhea

Equine coronavirus has often been overlooked as a possible cause of equine diarrhea, according to Dr. Leutenegger, largely because there is no conventional diagnostic test for the equine strain and because the equine strain is a relatively recent discovery. “People

assume coronavirus causes illness in humans, dogs, cats and many other species, but not in horses,” he says. However equine coronavirus was found to be present in 12% of horses tested in the validation study for the new equine diarrhea PCR panel, which includes an equine-specific coronavirus real-time PCR test. The new panel may demonstrate that coronavirus is much more common than previously thought.

Benefits of Using a Panel

Dr. Leutenegger expects the new IDEXX RealPCR* Equine Diarrhea Panel to take much of the guesswork out of diagnosing equine diarrhea. The panel includes tests for ten pathogens, including equine coronavirus, and also includes cultures for Salmonella and *Rhodococcus equi*.

“That’s a massive amount of equine-specific medical information coming back from a single fecal sample,” says Dr. Leutenegger.

Dr. Slovis agrees, “It’s quick and easy. It’s a broad range assay that helps us look at different organisms that may be working together to cause disease.”

If you have questions, please contact Hagyard Equine Medical Institute.

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