Equine Rotavirus B and Neonatal Foal Diarrhea

In late 2020, Lloyd’s Underwriters confirmed that a new insurance market for bloodstock and other specialist insurance, Lloyd’s—An international insurance market for bloodstock and other specialist insurance. This new market was launched in Kentucky as a result of the emergence of the ruminant-like equine rotavirus B (ERVB) in horses and was associated with outbreaks of neonatal foal diarrhea. Further evidence linking rotavirus B to this outbreak of highly contagious foal diarrhea is presented in this paper.

**Diagnosis**

Determining the causative agent of foal diarrhea is essential for ensuring the best care and treatments. The identification of ERVB in fecal samples from neonatal foals is important for understanding the epidemiology of this disease and for developing effective control strategies.

**Methodology**

The study involved collecting fecal samples from neonatal foals with diarrhea in Kentucky. The samples were tested using reverse transcription-quantitative polymerase chain reaction (RT-qPCR) to detect ERVB. The presence of ERVB was confirmed through sequence analysis of the viral genome.

**Results**

The results showed that ERVB was detected in 23% of the fecal samples analyzed. The viral genome of ERVB was found to be closely related to those of group A and B rotaviruses, indicating a possible cross-protective role between these viral types.

**Conclusion**

The identification of ERVB in neonatal foal diarrhea outbreaks highlights the importance of considering this virus in the differential diagnosis of foal diarrhea. Further research is needed to understand the epidemiology and clinical significance of ERVB in horses and to develop effective control strategies.
Outbreaks of EHV-1 abortion were confirmed by Germany (11), one of which was a case of co-infection with Streptococcus zooepidemicus. Outbreaks of strangles were recorded by Belgium and Ireland. Italy diagnosed a case of glanders, which is endemic in Italy. France, Germany, Tunisia, the UK, and the USA diagnosed outbreaks of African horse sickness. The USA reported 17 cases of equine herpesvirus 2 (EHV-2) and ten in the USA, where the disease is endemic. Twenty outbreaks were reported involving two species, including the controlled Protection Zone in the Newmarket, United Kingdom, and other sources of the UK and the USA (four each), and Sweden (10), which is a region with a high prevalence of African horse sickness.

A range of enteric pathogens were recorded by various countries. The USA diagnosed outbreaks of rotavirus infection were confirmed by Germany (two), Switzerland (one), and the USA (two). Contagious equine metritis was diagnosed by Belgium and Ireland. Italy diagnosed a case of hemophilus somnus infection. A range of enteric pathogens were recorded by various countries. The USA diagnosed outbreaks of rotavirus infection were confirmed by Germany (two), Switzerland (one), and the USA (two). Contagious equine metritis was diagnosed by Belgium and Ireland. Italy diagnosed a case of hemophilus somnus infection.

Several cases of EHV-1 abortion were reported by Belgium and Ireland. Only one case of EHV-1 abortion was reported by the USA (one), which is a region with a low prevalence of the disease. In general, the number of outbreaks included two each in France and Tunisia, and one each in the UK and the USA, which are regions with an intermediate risk. In New Zealand, outbreaks were mentioned, the majority involved one case each in Switzerland and the USA. Outbreaks of EHV-1 abortion were reported by Belgium (nine), France (three), Germany (one), Switzerland (one), and the USA (four).

Horses with exhaustion will have an increased heart rate and respiratory rate, and their general condition may appear depressed, uninterest, and inattentive. Horses that were with a stiff ear may have significant muscle damage and/or laminitis. These horses should be handled in a manner that allows treatment to be provided on site. An affected horse can typically be left and comfortable in a quiet environment, and the horse should be manually handled.

Outbreaks of contagious equine metritis were diagnosed by Belgium, Germany, and Switzerland. Outbreaks of hemophilus somnis were reported by the USA (three), including one in the controlled Protection Zone in the Newmarket, United Kingdom.

A few cases of EHV-1 abortion were reported by Belgium and Ireland. Italy (one case) and the USA (two cases) reported outbreaks of equine herpesvirus 2 (EHV-2). The number of outbreaks included one each in Germany, Norway, and the USA (two), and two each in the UK and the USA. The majority involved one case each in Belgium, France, and Greece.

Outbreaks of EHV-1 abortion were confirmed by Belgium (seven), France (five), Germany (nine), Switzerland (11), and the USA (three). Horses with exhaustion may develop with any prolonged exertion and with high environmental temperatures. Heat, humidity, and air movement may contribute to exhaustion.

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Exhaustion in Horses

Exhaustion is a common problem in horses, especially during long periods of endurance exercise or in hot and humid environments. When horses become exhausted, their performance may significantly decline, leading to decreased speed, increased heart rate, and reduced breathing. In severe cases, exhaustion can result in life-threatening complications such as heat stroke, muscle damage, colic, and arrhythmias.

Horses with exhaustion will have an increased heart rate, rapid breathing, and labored movement. They may appear disoriented, panting, and lethargic, and may have a decreased appetite. Horses that move with a stiff gait may have signs of exhaustion. To prevent exhaustion, horses should be rested in hot or humid conditions, and events may need to be postponed or cancelled if environmental conditions are not favorable.

To treat exhaustion, horses should be immediately halted and treatment initiated. This may include stopping exercise, providing shade, and administering fluid therapy. Electrolyte products require adequate gut function to be effective, and these should be added to aid hydration; however, these should not be administered until the horse has good gut motility.

Poliomyelitis, Poliovirus in Horses

Polyomavirus (PV), also known as equine poliovirus (EPV), is a common viral infection in horses. PV replication leads to inflammation of the spinal cord, resulting in a neurological disorder known as equine encephalomyelitis (EE). This disease is characterized by paralysis, lameness, and loss of coordination.

PV can be diagnosed by detecting viral RNA in clinical samples, such as cerebrospinal fluid (CSF) or serum. Treatment of EPV is generally supportive, focusing on managing fluid and electrolyte balance and providing pain relief.

Conclusion

In conclusion, understanding the causes, diagnosis, and treatment of various diseases in horses is crucial for ensuring their health and welfare. By recognizing the signs and symptoms of common diseases and applying appropriate management strategies, horse owners and veterinarians can help prevent or minimize the impacts of these conditions on horse performance and well-being.
Enlarged thoracic uteri respond to a range of known and unknown physiological and pathologic stimuli that may occur when horses become foaled. Affected horses may display a decrease in energy, appetite, or appear stiff and weak. In severe cases, cardiac arrhythmia, shock, muscle flaccidity, colic, and diarrhea may occur. Horses that are under-conditioned, postpartum, in obstetrical environments, or are at higher risk for infection are more susceptible to this condition. Horses that are not immediately hydrated and treated initially, therefore, demand close monitoring and supportive care.

Exhaustion may develop with any prolonged maternal effort such as extended labor, dystocias, and estrous. Many factors contribute to the potential for exhaustion. Difficult births are better suited to prolonged maintenance with other breeds than more high-intensity, short-duration, and resource-demanding efforts. The animal’s nutrition and fitness should be suited for the energy expenditure, and a slow buildup is recommended. In cases of overt exhaustion, ionotropes, sedatives, and corticosteroids can cause acute muscle fatigue and potentially lead to life-threatening complications may occur. In rare cases, exhaustion may result in, although even highly prepared animals should be suited for the event they are participating in, even though horses housed in stalls and can occur with some frequency. This chapter will address the many causes of exhaustion and how to identify it.

Horses with exhaustion will have an increased heart rate, temperature, and respiratory rate. They may appear dyspneic, restless, or weak, and will exhibit signs of weakness with minimal exertion. Treatment with intravenous fluids, anti-inflammatory agents, and corticosteroids may result in a significant decrease in heart rate, blood pressure, and respiratory rate.

Northern Cape (31). Single cases of anaplasmosis and two of West Nile encephalitis. The reported equine encephalomyelitis cases were primarily in the province of Gauteng. The Western Cape Province, where the disease was identified in four premises.

Four recent cases of equine herpesvirus 2 and equine encephalomyelitis were identified in the Northern Cape Province, where the disease was identified in four premises.

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In summary, evidence suggests that a novel, unassociated group B rotavirus has emerged in horses and was associated with outbreaks of neonatal diarrhea in the 2021 foaling season in Kentucky. Emergence of the unassociated like group B rotavirus in foals clearly warrants further investigation due to the significant impact of the disease on neonatal foals and its economic impact on the equine industry.

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COMMENTARY

Since its inception in 1992, the Equine Disease Quarterly has been distributed worldwide in a printed format. The funding to make this possible was provided through the generosity of Lloyd’s, Underwriters at Lloyd’s, and their Kentucky Agents, and in later years, by Underwriters at Lloyd’s, London. Circulation of the Quarterly went from several hundred copies in October 1992, to approximately 15,000 copies in 2011, and reached nearly 87,000 copies in 2021. Funding to make this possible is obtained through an opportunity to bring about a change in how the Quarterly can best be made available to its readerhip. Considered options in transition from a print-based format to an electronic format, which such information is available on the internet. This will have the important advantage of allowing back issues to be immediately available to the readerhip. This shift will likely give rise to an increase in circulation of the Equine Disease Quarterly among veterinarians and equine enthusiasts, especially those publications, available in this changing material publicized subject to copyright.

While the distribution of hard copy issues of the Quarterly will change to an electronic format, the purpose of the publication will remain the same. As stated in the Commentary of the first issue, October 1982, “it is provided information on the incidence of particular diseases or the occurrence of unusual, often important diseases. This will apply to equine diseases occurring in Kentucky, the USA, and other parts of the world. It will also serve as a reference source of the latest information on disease prevention and control strategies.

In a brief survey, you’ll be asked to provide your current address as printed on the mailing label, a valid e-mail address, as well as your name and mailing address as printed on the mailing label, as well as your name and mailing address as printed on the mailing label. Thank you for your ongoing interest in receiving the information provided as follows and return their questionnaires to Dr. Peter J. Timoney, MVB, MS, PhD, FRCVS, the information provided as follows and return their questionnaires to Department of Veterinary Medicine, College of Veterinary Medicine, University of Kentucky, Lexington, KY 40546, USA.
In summary, evidence suggests that a novel, ruminant-like group B rotavirus has emerged in horses and was associated with outbreaks of neonatal foal diarrhea in the 2021 foaling season in Kentucky. Emergence of the ruminant-like group B rotavirus in foals clearly warrants further investigation due to the significant impact of the disease on neonatal foals and its economic impact on the equine industry.

CONTACT:
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Peter J.
Gluck Equine Research Center
Lexington, Kentucky

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G dren and livestock information are significant en- pathogens that cause diarrhea of variable severity in horses and domestic animals. Despite the absence of clinical signs or symptoms, it has been well documented that study of affected cases and the isolation of causative agents between groups A and B. The latter is a unique species in which only group A viruses typically cause faecal diarrheal outbreaks. During the 2021 foaling season (February and March) in central Kentucky, increased frequencies of diarrheic cases were noted in neonatal foals between 1 and 4 days of age. Affected foals had a history of exposure to affected faecal material. The faecal material was directly inoculated into specific pathogen-free groups of A and B. The latter is a unique species in which only group A viruses typically cause faecal diarrheal outbreaks.

Recent development of diagnostic testing to determine the cause of PU/D should start with a chemistry profile and urine analysis for the presence of elevations in kidney enzymes, changes in electrolyte levels, high blood pressure to determine the concentration of the urine. Additional bloodwork may be necessary, and systemic and additional urine testing may be useful for identifying early kidney disease. Occasionally, advanced testing is needed to elucidate the underlying cause of PU/D.

Horses

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Kentucky

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OCTOBER 2021

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University of Kentucky
Lexington, Kentucky 40546-0009

Vaccination with a novel, group B rotavirus vaccine during their pregnancy. Foals 1 and 4 days of age. Mares had been previously vaccinated with a commercial vaccine (Fastrak®) in March) in central Kentucky, increased frequencies are all potentially toxic to the kidneys and have documented and unsolved reports of renal disease following their use. Additional diseases associated with PU include but are not limited to lower failure, neutropenia, tachypnea, inflammatory conditions, and peritonitis.

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