Equine Influenza Virus and Horse Racing

Introduction

Equine Influenza Virus (EIV) is a highly contagious respiratory disease among horses that has had an impact on the world’s horseracing industry. The virus is “characterized by rapidly spreading signs that include pyrexia, depression, and anorexia, a harsh dry cough, a nasal discharge, and secondary bacterial respiratory infections” (Newton, Daly, Spencer, & Mumford, 2006, p. 185). The virus has spread around the world in the equine population, with new strains of the virus appearing in different places. The horse racing industry has been especially affected by EIV because racehorses travel a lot more than the regular horse and are in close proximity to a large number of other horses.

Researchers have been examining past outbreaks of the virus to learn more about the clinical signs, how fast the virus spreads, and how vaccinations are combating the virus. There has also been more research into finding vaccines that will work against the different strains of EIV to properly protect horses.

The virus was first isolated in 1956 (Satou & Nishiura, 2006). It had mainly been a problem in Eastern Europe and the United States, whereas places like Australia, New Zealand, and Japan had strict quarantine measures so they were not as affected.

The purpose of this research brief is to describe EIV, explain what is being done to properly vaccinate against the virus, and to describe the affect EIV has had on the horse racing industry.

How Contagious is the Virus?

The clinical signs of EIV appear rather quickly, sometimes after only one to five days after being introduced to the virus (Toulemonde et al., 2005). Research has shown that EIV spreads quickly through the barns where racehorses are stabled, because there are a lot of horses in a small area and there are always horses moving around to different tracks, not just in the same country but around the world. Figure 1 shows that over a few days at race facilities in Japan, the number of new positive cases had increased greatly.

“Japan experienced a large-scale outbreak of this disease in 1971, in which identification of the exact origin of infection was not possible” (Satou & Nishiura, 2006, p. 310). Satou and Nishiura calculated that more than 80% of racehorses stabled in eight locations were infected. With a high percentage of racehorses infected with the disease, it will also mean that more local horses can become infected with EIV, so the entire horse industry can be impacted, not just the racing industry.

More than 1,300 racehorses in the United Kingdom were affected by the virus between March and May 2003, many of which had been vaccinated in the previous three months (Newton et al., 2006). A similar occurrence happened in Japan in 2007 when vaccinated racehorses became infected with the disease (Yamanaka, Niwa, Tsujimura, Kondo, & Matsumura, 2008). Even though vaccinated horses can get EIV, they still need to be vaccinated for the virus about a week before they go to a place where they could be introduced to virus.
Even though vaccinated horses have been able to contract the virus, the horses still need to be vaccinated because the virus can be a lot worse for horses who have never been introduced to EIV.

Vaccination

“The more widespread use of vaccination has made the diagnosis of influenza infection less straightforward because the clinical signs are less severe, and acute blood samples already have moderate levels of serum antibody” (Newton et al., 2006, p. 191).

There are many different brands of vaccines available on the market today. Holmes et al. (2006) found that for EIV, the vaccine by Boehringer was more impressive than that of Intervet. Holmes et al. (2006) also suggested that a three dose primary vaccine could be more beneficial. Toulemonde et al. (2005) found that the vaccine ProteqFlu worked well to protect naïve Welsh mountain ponies from the virus. “ProteqFlu is a live vectored vaccine and belongs to this group of second-generation influenza vaccines, which are thought likely to stimulate both humoral and cell-mediated immunity and have greater efficacy than conventional killed vaccines” (Toulemonde et al., p. 370). Toulemonde et al. found that five of the ponies vaccinated were completely protected from the virus and five others showed only mild signs, whereas the unvaccinated ponies showed severe coughing and had to be treated with antibiotics after eight days to elevate the ponies’ suffering.
Impact on Racing Industry

Racing continued at Newmarket in the United Kingdom during the outbreak in 2003. The virus did not spread much outside of the racecourse; a possible reason for it not spreading was only healthy horses were brought in to race; those with coughs were left behind (Newton et al., 2006). However, an outbreak did occur at a racetrack in Rome, Italy in May 2003 as a result of horses from a Newmarket sale being transported to Italy.

Positive results for influenza in Japan 2007 lead to a ban in the movement of horses between August 15 and September 4, which only partially resumed in the following months with strict restrictions (Yamanaka et al., 2008). “This viral infection has lead to severe economic loss to the horse industries, for example, in Hong Kong in 1992 and in South Africa in 1986, horseracing was obliged to be cancelled for several months” (Yamanaka et al., 2008, p. 623). The ban of moving horses and canceling of racing has happened around the world when the virus breaks out, causing the world racing industry to be affected, not just the racing industry in the specific country with the virus. The world industry is affected because more racehorses are traveling overseas for racing and breeding.

Conclusion

Equine Influenza Virus is highly contagious and can affect horses who have been vaccinated for the virus. According to Dynon, Black, Ficorilli, Hartley, and Studdert (2007) approximately half of all calls that veterinarians make to racehorses are for respiratory disease. There are other respiratory diseases that affect horses and the racing industry, but EIV has had a large impact. The symptoms of EIV occur very quickly after being introduced to the virus, so proper care needs to be given immediately to horses that show any signs of having contracted the virus. More research is being done to determine which vaccines work the best and whether the vaccines need to be given more than the normal practice of two doses. Holmes et al. (2006) said the brand Boehringer worked the best and the vaccine should be given over three doses instead of the usual two, while Toulemonde et al. (2005) found ProteqFlu worked the best in the study of Welsh mountain ponies. The more research that is done to properly vaccinate horses from EIV is beneficial to all horses around the world, not just racehorses and the racing industry. The virus is highly contagious, so EIV not only affects the health of horses but the transportation of horses as well because the virus has to be contained and stopped from spreading.

The horse racing industry has been greatly affected by the disease because the horses are constantly moving around the world. The disease has been allowed to spread around the world and vaccinations may not be able to work on the different strains arriving into the areas. Even places like Japan and Australia, which are normally protected from outside diseases because of their strict quarantine measures and their island locations, have been affected by the virus.

The horse industry has been working to solve the problem of EIV and limit the spread of this virus, so horse, in the racing industry and any other industries, will be able to travel and perform around the world.

Audience

All people involved in the equine industry should be aware of the problems of EIV, not just those in the racing business. Veterinarians and agriculture agencies need to be aware of the risk of EIV, so they know the signs of the virus and realize how contagious the virus is so it can be contained. All horse owners should have
enough knowledge about EIV that the owners can understand what the virus is and recognize the signs of it, so the owner’s horse can immediately be treated for the virus and limit the spread to other horses.

References


