GAVIN PUBLISHERS

Journal of Agronomy and Agricultural Aspects

Hoopes KH, J Agr Agri Aspect 2016: JAAA-110.

Mini-Review

Equine Infectious Anemia

Karl H Hoopes, *DVM USU Equine Extension Specialist

Animal, Dairy and Veterinary Sciences Department (ADVS), College of Agriculture and Applied Sciences, Utah State University, USA.

***Corresponding author:** Karl H. Hoopes, DVM USU Equine Extension Specialist, Animal, Dairy and Veterinary Sciences Department (ADVS), College of Agriculture and Applied Sciences, Utah State University, 3580 S Hwy 89 Wellsville, UT 84339, USA. Tel: (435) 535-5140; E-mail: Karl.hoopes@usu.edu.

Citation: Hoopes KH (2017) Equine Infectious Anemia. J AgrAgri Aspect 2017: JAAA-110.

Received Date: 20 December, 2016; **Accepted Date:** 13 January, 2017; **Published Date:** 20 January, 2017

Equine Infectious Anemia

Equine infectious anemia (EIA) is blood-borne infectious viral disease of horses, donkeys, and mules. [1] Often referred to as "swamp fever" in horses, the disease was first tentatively diagnosed in the United States in 1888. Equine Infectious Anemia's prevalence in the United States began to rise in the 1930s and reached its peak in the 1960s and 1970s with over 10,000 horses testing positive in 1975. [2] Today, with proper surveillance and screening procedures, the incidence of EIA is minimal. No vaccine or treatment exists for the disease. The virus causing Equine Infectious Anemia is categorized as a retrovirus that can mutate quickly, allowing the virus to escape the immune system of the horse. It is often difficult to differentiate from other fever-producing diseases, including influenza and equine encephalitis [3].

Transmission

Under natural conditions EIA is spread by the transfer of virus infected blood from one horse to another by biting flies. A fly begins feeding on an infected horse, gets interrupted, and goes to another horse to complete its meal, spreading the virus infected blood to a new uninfected horse. One–fifth of a teaspoon of blood from a horse with acute EIA contains enough virus to infect 1 million horses [3]. Although the disease is considered blood borne, all tissues and bodily secretions are considered infectious, especially during the acute phase of the disease. The disease spread is purely mechanical; the virus does not replicate in the flies. Horseflies, deerflies, and stable flies are known to be vectors. Insect transmission of EIA is dependent on the number of insects, the housing density of the horses, the amount of blood transferred, and the amount of virus in the infected blood.

People are also known to spread EIA iatrogenically. This is done by using blood-contaminated syringes, needles, or surgical equipment.

Clinical Disease

Equine Infectious Anemia can present itself in a wide range of clinical signs depending on the virus strain, dose, and immune state of the infected horse. The incubation period can last between 15-45 days. Equine Infectious Anemia classically presents through three phases. The acute phase lasts 1-3 days with fever and depression. This phase is followed by a second prolonged chronic period of recurring fever, petechial hemorrhage, anemia, weakness, edema, and loss of body condition. The time between the episodes can be days to months. A horse in the chronic phase can be referred to as classic "swamper" who has lost condition, is lethargic and anorexic, has a low hematocrit, and demonstrates a persistent decrease in the number of blood platelets. The chronic phase generally subsides after one year and the horse enters the inapparent phase as a carrier and reservoir of the EIA virus.

The severity of the disease can range from the horse showing no overt clinical signs to death in the acute and chronic phases. By far the majority of infected horses pass through the acute and chronic phases and enter the inapparent carrier phase without ever showing any outward signs of the disease. All horse infected with the EIA virus are considered carriers for life. The inapparent form of the disease can become acute or chronic due to severe stress, hard work, or the presence of other diseases [2].

Diagnosis and Control

In 1970 a scientist named Leroy Coggins developed a test that identified antibodies for EIA in the blood of infected horses. Since then, the classic test to screen for EIA is referred to as a "Coggins Test". This test, in conjunction with other disease control procedures, has been very successful in greatly reducing the amount of infected horses in the United States. However, we still see small pools of infected horses popping up across the nation every year. The spread of the disease has been attributed to both natural conditions and iatrogenic transmission.

Currently, testing of horses has to be performed by an accredited veterinarian. The veterinarian identifies the horse being tested by picture, name, and description. Then a blood sample is taken and sent to an accredited laboratory for testing. When

a blood sample tests positive, it is sent to a national laboratory for a confirmatory test. If both tests come back positive, national and state officials are notified and quarantines are put into place as mandatory testing occurs in other animals to determine the extent of the spread of EIA. Positive horses must also be removed by euthanasia, slaughter, or lifelong quarantine at the ranch of origin. The quarantine area must provide at least 200 yards of separation from other horses. Horses testing positive must be permanently identified using hot brand, chemical brand, freezemark, or lip tattoo. Because infected horses may not test positive in the first 45 days of infection, horses in quarantine areas are retested every 30-60 days. The quarantine stays in place until there are no positive cases for at least 60 days.1

To ensure the disease is not spread, all horses shipped across state lines in the Unites States are required to be tested negative for EIA before transport. Utah requires the test to be performed within the twelve months prior to shipment. It is also required that all horses changing ownership or entering an auction must have been tested negative for EIA within the past twelve months.[2]It is recommended that horse owners implement testing each horse annually as part of a routine health plan. Before introducing a new horse into a herd an owner should ensure that the new horse tests negative for EIA.

Some recent outbreaks of EIA in the United States have been attributed to transmission by man, especially where needles and syringes have been reused. Good hygiene and disinfection principles should be maintained to prevent this iatrogenic spread. Needles, syringes, and equipment should be properly disinfected between uses.

References

1. Merck Veterinary Manual: Overview of Equine Infectious Anemia.
2. American Association of Equine Practitioners: Horse Health Equine Infections Anemia.
3. USDA APHIS 2008, Fact Sheet – *Equine Infectious Anemia*.