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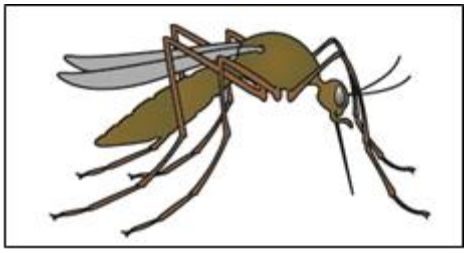
EQUINE INFECTIOUS ANEMIA

What is EIA?

Equine Infectious Anemia (EIA), sometimes called 'swamp fever' is an infectious disease which causes acute, chronic or symptomless illness, characterized by fever, anemia, swelling and weight loss in horses, ponies, mules and donkeys. The cause is a Lentivirus (a family of virus which includes the human immunodeficiency virus [HIV]), which is typically transmitted by biting insects in low-lying swampy areas.



Although the disease has been recorded from all over the world, the incidence varies markedly from country to country. Early in the twentieth century serious outbreaks occurred in France, Japan and America. During the 1980s, the disease was reported in many parts of America, Asia, Europe and Australia.

What is the incubation period?

The incubation period is normally 1–3 weeks, but appears to be highly variable and may be as long as 3 months. Antibodies usually develop in infected horse blood 7-14 days after infection and last for life.

What are the clinical signs?

The disease is characterized by recurrent febrile episodes, anemia, thrombocytopenia (low blood platelet count), loss of appetite, depression, rapid loss of weight and edema of the lower parts of the body, and sometimes incoordination. Early in the disease the membranes of the mouth nostrils and eyes may be swollen and reddened but as the disease becomes chronic, yellow discoloration (jaundice) of the mucous membranes will develop with small hemorrhages sometimes scattered over their surfaces. Some cases become recumbent and die after the initial stage of the disease. In most, however, there is a period of apparent recovery which may last for two or three weeks, but symptoms then reappear and again every few weeks to months. Recurrently affected horses become progressively weaker, emaciated and jaundiced. Swelling of the limbs, abdomen and sheath develops. Some pregnant mares may abort. In many cases the heart and kidneys become irreparably damaged and the horse dies. Approximately 50% of all affected animals die. In others, apparent recovery occurs although the virus is never cleared from the body. Some infected horses remain symptomless, although remaining potential sources of infection for uninfected horses.

How is the infection transmitted?

Transmission occurs by transfer of blood from an infected to an uninfected horse. This is usually achieved naturally via bloodsucking horseflies or mosquitoes. The virus does not multiply in the insect but is passed from one horse to another mechanically as the insect feeds. The disease is mostly seen in the warmer months and in areas where insect populations are high. This includes wooded areas and areas near marshes and streams

Foal sucking colostrum

Infected blood can also be transmitted by veterinary procedures, such as using contaminated hypodermic needles, stomach tubes, dental and tattooing equipment, or rectal sleeves.

Infection can spread from a mare to her foal either before birth or via her milk after birth. Foals born to infected mares but who were not infected *in utero* may be resistant to infection when very young due to the presence of antibodies ingested in colostrum from the mare. Such foals may then be infected by their mothers' infected milk when colostral antibody levels fall at 3-4 months of age.

Infected horses, whether showing symptoms or not, remain chronically infected with EIA virus and their blood remains infectious to other horses for the remainder of their lives. This means that the horse is a persistent viremic carrier and can potentially transmit the infection to other horses. The virus titer (blood antibody level) is higher in horses with clinical signs and the risk of transmission is higher from these animals than from carriers with a lower virus titer.

How is the diagnosis confirmed?

The diagnosis is initially based on clinical signs of recurrent fever, anemia, jaundice and swelling. It is then confirmed by the demonstration of antibodies to the virus in blood samples. The internationally-recognized blood test is called the Coggins test, after Dr. Leroy Coggins, the virologist who first developed it. This test detects antibodies produced by the horse after infection with the EIA virus. A positive result indicates current infection with the EIA virus. An exception (false Coggins positive) occurs where a young foal has been born uninfected but acquires antibodies from its infected mother via her colostrum. These foals (if not subsequently infected by infected milk) will usually become 'Coggins negative' by six months of age. A false negative result can occur if an infected horse is tested too soon after first infection (before the horse has had time to react immunologically and produce antibodies to the virus.)

An alternative to the Coggins test is the Elisa test. There is also a test for virus particles in infected tissue and gives very rapid results, but is not as widely acceptied as the Coggins Test.

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What treatment or control measures are used for EIA?

There is no specific treatment available for EIA nor is there a vaccine approved in the United States. Symptomatic and supportive treatments for fever, anemia and weight loss are applied on welfare grounds, at least until a positive diagnosis and the decision for euthanasia are made. Control is based on blood testing to detect infected horses and carriers and euthanasia or strict isolation of these individuals in insect-secure stables for life. Preventative measures for high-risk situations include the use of insect repellents and insect-secure stabling during times of the day when insects are most active.

The virus can survive in blood and dried feces and tissues so all of this organic matter should be cleaned away before disinfection either by boiling (for at least 15 minutes) or the use of chemicals such as hypochlorite, iodine compounds, chlorhexidine and ethanol.

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