



June 1, 2011

Hot Literature: Safe to vaccinate? The scoop on vaccinating mares for equine viral arteritis during pregnancy

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Outbreaks of equine viral arteritis (EVA) can be devastating to the equine industry. Infection results in influenza-like clinical signs, abortions, and interstitial pneumonia in neonatal foals. Even though the virus can be controlled with common disinfectants, a persistent carrier state in stallions poses a risk to unsuspecting breeding facilities.

EVA is transmitted either through respiratory or venereal routes, and outbreaks have occurred when mares are bred using infective semen. The virus can then spread via the respiratory route throughout a facility. This virus is found worldwide, but the seroprevalence varies widely within countries and within horse populations and breeds. Recent outbreaks in the United States in 1984 and again in 2007 emphasize the need to protect horses that are at high risk for infection.

Currently, a modified-live virus vaccine is the only vaccine available within the United States, but it has undergone some improvements since it first became available in 1985. This vaccine still carries a manufacturer's recommendation against vaccinating pregnant mares, yet this population often requires the most protection in the face of natural exposure to avoid large economic loss. To determine the safety of vaccinating pregnant and postpartum mares, researchers at Oklahoma State University conducted a 30-day study to look at the efficacy and safety of vaccinating this high-risk group of horses.

Seventy-three EVA seronegative pregnant mares were divided into three groups. One group was vaccinated midgestation (83 to 143 days before foaling), another during late gestation (two to 68 days before foaling), and a third group within three days after foaling. A control group was handled and housed similarly to the others but was not vaccinated. All of the horses were monitored for overall health, foaling outcomes were recorded, and serum, blood, milk and nasopharyngeal samples were collected and tested for evidence of EVA antibodies or for virus isolation. Foals were also similarly evaluated for seroconversion or signs of EVA infection.

All of the mares vaccinated after foaling seroconverted after vaccination, and no adverse effects were seen in their foals. Their foals were born seronegative and remained so, with just two exceptions that were likely exposed through some unknown route likely associated with close contact while the mares were briefly shedding vaccine virus.

For the mares vaccinated midgestation, the vaccine was safe and effective. All of these mares foaled without incident and had protective EVA antibody titers at the time of foaling. Additionally, their colostrum contained EVA antibodies, and all of their foals, born seronegative, were seropositive at 12 hours and remained so at 30 days after birth.

In contrast, while most of the mares (13 of 15) in the late-gestation vaccination group also seroconverted at the time of foaling, three aborted, and several foals in this group were born with titers against EVA suggestive of in utero fetal infection with vaccine virus. Examination of the aborted fetuses or fetal membranes indicated that the vaccine-related EVA infection was a contributing factor.


Because of this study's findings, and given the risk of abortion and virus transmission associated with EVA infection, vaccinating mares up to three months before foaling can be done with minimal risk to mare and fetus and can provide a benefit to the neonatal foal as well. Additionally, while not protective to foals, vaccinating mares postpartum does not

appear to be associated with any adverse effects. On the contrary, vaccinating during late gestation does increase the risk of abortion. On the other hand, this risk is less than that associated with EVA infection but should be carefully weighed before proceeding with vaccination during late gestation.

Broaddus CC, Balasuriya UBR, White JLR, et al. Evaluation of the safety of vaccinating mares against equine viral arteritis during mid or late gestation or during the immediate postpartum period. *J Am Vet Med Assoc* 2011;238(6):741-750.

Link to abstract: <http://avmajournals.avma.org/doi/abs/10.2460/javma.238.6.741>



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