Serum Amyloid A in Broodmares and Pregnancy

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FEB 2021

SAA should remain normal during pregnancy

With normal conception and pregnancy, SAA level in broodmares is comparable to that in other healthy horses. That includes the time of ovulation through early pregnancy[1] and throughout the final trimester up to parturition[2,3]. Artificial insemination may induce negligible SAA production, but levels stay within normal physiological limits.[4]

Although the majority of SAA is produced by the liver, local production by the endometrium likely contributes to systemic SAA elevation in pathological states.[5] Elevation early in pregnancy may indicate an increased risk of early embryonic death (EED), whereas any spike in mid-to-late-term should raise concern for ascending placentitis and abortion risk. In clinical application, other potential causes of increased SAA must of course also be considered, as elevation can occur due to other infections or pathological conditions.[2,6] However, SAA should remain normal in an otherwise healthy pregnant mare.

Test SAA at ovulation and 7-14 days later to assess risk of EED

Elevated SAA at the time of ovulation reflects a greater risk of experiencing EED, possibly due to some degree of subclinical endometritis. EED may occur in these individuals despite the continued presence of an intact corpus luteum and maintenance of normal progesterone levels.[1]

Incidence of Early Embryonic Death (EED)[7]

up to **80%** of older mares

up to **18%** in young, fertile mares

In other mares with EED, SAA may be normal at ovulation but increase as early as 3 days post-ovulation. These cases are generally associated with excessive PGF2 and subsequent lysis of the corpus luteum, leading to EED. SAA typically remains elevated for at least 2 weeks, and sometimes up to 2 months.[1]

For greatest utility in early pregnancy, SAA should be evaluated around the time of ovulation and then rechecked at 7-14 days. At either of these timepoints, even mild elevations of SAA (20-100 µg/mL) should be considered significant and warrant closer evaluation and monitoring.

Incidence of Placentitis[8]

causes more than **33%** of mid-to-late-term pregnancy loss

SAA can help identify mares at higher risk of abortion from ascending placentitis

Monitoring SAA in mares with a history of high-risk pregnancy can provide valuable information, as it increases rapidly with ascending placentitis. This is in contrast to fibrinogen or white blood cell count, which do not appear to be useful markers for this condition.[3]

Following a diagnosis of placentitis, tracking SAA can help monitor risk of impending abortion.[2,3] It increases on average 2-6 days prior to abortion from ascending placentitis and continues to rise until abortion occurs.[2,3] Treatment should lead to a decrease in SAA if the pregnancy is effectively preserved, and persistent elevation indicates a high likelihood of impending abortion.[2]

SAA should return to normal within 2-3 days after foaling

Normal parturition is an acute inflammatory event, and as such may increase SAA to a mild degree (<100 µg/mL). However, after normal foaling it should return to normal within 2-3 days.[2] More drastic or persistent elevation may indicate a medical issue requiring further investigation and care.

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