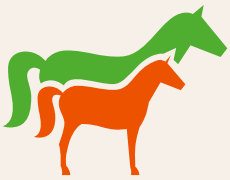
Incorporate Stablelab Into Your Daily Reproductive Practice To Detect, Monitor, and Screen Your Patients

stablelab

Stablelab measures serum amyloid A (SAA), a biomarker produced in response to infection. SAA was shown to be 30 times more sensitive than a thermometer[1] and more dependable for detecting infection, monitoring disease progression and return to health versus traditional lab tests.[2] Let's look at some conditions where SAA has been shown to be helpful.



Newborn Foal

- Differentiate noninfectious versus infectious causes of disease
- Allow abnormalities to be identified quickly[3-5]
- Levels > 50μg/ml are abnormal and should be re-tested in 12-24 hours
- Levels of >100μg/ml are highly suggestive of infection in young foals.[4]

NEW FOAL EXAMINATION

Measure SAA during your physical examination in addition to IgG/CBC to identify subclinical issues. Levels of >100μg/ml could be used to differentiate infectious from noninfectious cases.[4]

WEAKNESS AND/OR FEVER

Two common non-specific presenting complaints are weakness and fever. Use SAA in conjunction with other diagnostic tests to improve diagnostic accuracy.[3-5]

SEPTICEMIA

The inclusion of SAA as part of overall workup may improve diagnosis of neonatal sepsis and the chance of successful treatment, which has a major influence on outcome.[4,6]

RHODOCOCCUS EQUI

Utilize SAA in conjunction with thoracic ultrasound and WBC to reduce overtreatment of subclinical animals without significantly increasing the risk of clinical *R. equi* pneumonia and to monitor the response to treatment.[3,7]

OMPHALITIS

Measurement of SAA, in addition to other imaging modalities, may be helpful in the diagnosis of focal infection in neonatal foals. In contrast, umbilical abscess cases may have SAA concentrations in the normal range, because they are walled off and thus, not stimulating SAA production by the liver.[4]

DIARRHEA

SAA may help in determining which foals have an infectious cause of diarrhea and could aid in monitoring the success of treatment.[3,8]

PRE/POST TRANSPORTATION OR OTHER STRESSFUL EVENTS (LIKE WEANING)

Measurement of SAA is particularly helpful in cases that are at an elevated risk of respiratory or other acute infections.

REFERENCES

1 Oertly. et al. The accuracy of Serum Amyloid A in determining early inflammation in horses following long-distance transportation by air. AAEP Proceedings, 2017 460-461.

2 Belgrave RL, Dickey MM, Arheart KL, Cray C. Assessment of Serum Amyloid A testing of horses and its clinical application in a specialized equine practice. Journal of the American Veterinary Medical Association. 2013. 243(1) 113-119.

3 Hulten C, Demmers S. Serum Amyloid A (SAA) as an Aid in the Management of Infectious Disease in the Foal: Comparison with Total Leucocyte Count, Neutrophil Count and Fibrinogen. Equine Veterinary Journal. 2002. 34(7); 693-698.

4 Stoneham, SJ, Palmer L, Cash R, Rossdale PD. Measurement of Serum Amyloid A in the Neonatal Foal Using Latex Agglutination Immunoturbidimetric Assay: Determination of the Normal Range, Variation with Age and Response to Disease. Equine Veterinary Journal. 2001. 33(6); 599-603.

5 Nolen-Walston, R. How to interpret Serum Amyloid A concentrations. AAEP Proceedings 2015 130-137.

6 Borba LA, Curcio BR, Canisso IF et al. Serum Amyloid A Concentrations and Correclations with Sepsis Scores in Newborn Folas Born from Mares with Experimentally Induced Placentitis. Clinical Theriogenology. September 2017. 9(3); 410.

7 McCracken JL. Evaluation of the Use of White Blood Cell Count, Fibrinogen, Serum Amyloid A and Ultrasonographic Grade to Refine A Thoracic Rhodococcus equi Screeing Program. In Proceedings. American Association of Equine Practitioners. 2019. 65; 522-530.

8 Nunokawa Y, Funjinaga, Taira T, Okumura M, Yamashita k, Tsunoda N, Hagio M. Evaluation of Serum Amyloid A Protein as an Acute-Phase Reactive Protein in Horses. Journal of Veterinary Medical Science. 1993. 55(6); 1011-101.

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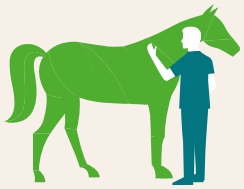

Broodmare

Most instances of infectious disease show SAA levels >50μg/ml.[5] Measuring a single SAA value in a patient may only reflect an early SAA increase, or a falling value as the infection is resolving. This emphasizes the importance of serially monitoring SAA throughout a patient's illness in order to track rising and falling concentrations.[4]

HERD HEALTH AND FEVER OF UNKNOWN ORIGIN

SAA measurements may be used to monitor spread of infection through a farm; SAA is undetectable in horses who do not contract disease. Especially important with EHV-1 infection and useful when setting up quarantines.[9]

PRE-FOALING

Ascending Placentitis — Experimental studies have shown SAA can be used as a diagnostic marker and prognostic indicator in cases of placentitis in the mare (in contrast to WBC/Fibrinogen).[10,11]

Abortion — In experimental studies mares with high SAA are more likely to abort compared with mares where SAA remained within the reference range.[11] SAA values increase steadily until abortion and then decrease rapidly.[10]

POST-FOALING

Healthy pregnant mares — SAA significantly increases within 12-36 hours post-partum and returns to baseline values by 60h (2.5d) post-partum.[11] This is likely due to tissue damage and subsequent subclinical infection from environmental factors during the foaling process.[12]

Colic — While SAA alone has not been shown to be able to differentiate surgical from non-surgical colic causes, elevated SAA values have been shown to be useful in identifying causes of colic such as enteritis, colitis, peritonitis, abdominal abscesses or other infectious causes. SAA results in the hundreds should prompt a search for an infectious etiology.[5,13]

Cesarean section — This is an invasive, intra-abdominal surgery. Thus, daily measurement of SAA could be useful in predicting the development of postoperative infections earlier and with more accuracy than other methods.[5,14]

Fetal post-abortion examination — Determination of fetal heart blood SAA concentrations, in addition to a detailed post-mortem examination and other diagnostic assays, can provide valuable information in understanding the causes of abortion. SAA concentrations have been shown to be significantly elevated in cases where an infectious disease agent was identified in aborted tissues.[15]

RE-BREEDING

Early Embryonic Death (EED) — An increase in SAA in early pregnancy has been associated with EED, which may suggest that EED was caused by developing subclinical endometritis.[16]

Post-breeding Endometritis — Induced endometritis has been shown to lead to production and release of pro-inflammatory cytokines, increased production of acute phase proteins in the liver, and increased expression of SAA in the endometrium.[17]

REFENCES CONTINUED

[9] Pepys MB, Baltz ML, Tennent GA. Serum Amyloid A Protein (SAA) in horses: Objective measurement of the Acute Phase Response. Equine Veterinary Journal. 1989. 21(2); 106-109.

[10] Canisso IF, Ball BA, Cray C, Squires EL, Troedsson MH. Use of Qualitative Horse-Side Test to Measure Serum Amyloid A in Mares with Experimentally Induced Ascending Placentitis. Journal of Equine Veterinary Science. 2015. 35; 54-59.

[11] Coutinho da Silva MA, Canisso IF, MacPherson ML, Johnson AEM, Divers TJ. Serum Amyloid A Concentration in Healthy Periparturient Mares and Mares with Ascending Placentitis. Equine Veterinary Journal. 2013. 45; 619-624.

[12] Jacobsen, Stine. Review of equine Acute-Phase proteins. AAEP Proceedings vol 53 2007. Pages 230 - 235.

[13] Pihl TH, Scheepers E, Sanz M, Goddard A, Page P, Toft N, Anderson PH, Jacobsen S. Influence of Disease Process and Duration on Acute Phase Proteins in Serum and Peritoneal Fluid of Horses with Colic. J Vet Intern Med 2015. 29;651-65.

[14] De Cozar M, Sherlock C, Knowles E et al. Serum Amyloid A and Plasma Fibrinogen Concentrations in Horses Following Emergency Exploratory Celiotomy. Equine Veterinary Journal. 2020. 52; 59-66.

[15] Erol E, Jackson C, Horohov D, Locke S, Smith J, Carter C. Elevated serum amyloid A levels in cases of aborted equine fetuses due to fetal and placental infections. Theriogenology 86 (2016) 971-975.

[16] Krakowski L, Krawczyk CH, Kostro K, Stefaniak T, Novonty F, Obara J. Serum levels of acute phase proteins: SAA, Hp and Progesterone (P4) in Mares with Early Embryonic Death. Reprod Dom Anim 46 (2011) 624-629.

[17] Mette C, Dooleweerdt BC, Stine J, Miki BA, Roenn PM, Henrik LJ. Evaluation of the systemic acute phase response and endometrial gene expression of serum amyloid A and pro- and anti-inflammatory cytokines in mares with experimentally induced endometritis. Veterinary Immunology and Immunopathology 138 (2010) 95-105.

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