

EQUICHEK™-SAA AND FOAL HEALTH

SEPSIS

One of the most challenging problems faced by horse breeders is the detection and management of sepsis in foals. Often linked to a failure of passive transfer (FPT), mortality is high because sepsis involves a rapidly escalating, systemic inflammatory response to infection. In the absence of prompt treatment sepsis can progress to a septic shock quickly followed by death.

In the early days of life, colostrum from a mare's first milk supports development of her foal's immunity to protect it from perinatal infections. Insufficient transfer of antibodies from the mare renders a foal more susceptible to infection and sepsis.

DETECTION

The early, outward symptoms of sepsis in a foal are both subtle and non-specific. Sepsis may arise as a complication of other conditions but if early diagnosis and intervention can be achieved, the outcome can be significantly improved.

Blood cultures are the definitive test but these are prone to false negatives, require specialist equipment and interpretations and take a long time to get a definitive result. The traditional early markers of infection and inflammation, white blood cells (WBC) and fibrinogen also require specialist equipment, laboratory facilities and expert interpretation.

SERUM AMYLOID A

The early signs of infection can be detected using biomarkers of inflammation associated with the innate immune system (a rapidly acting, non-specific response giving rise to fever and inflammation among other effects). In the acute phase (which is also responsible for changes to WBC and fibrinogen) serum amyloid A (SAA) levels in the blood rise rapidly

(within about 6 hours) up to 1000 fold above the normal level.

SAA has been shown to be a very effective biomarker of acute and systemic inflammatory conditions, including infection. Specific studies on foals have shown that SAA increases significantly in infection, with levels above 100ug/ml (Ref. 1). In some new born foals, weakly elevated SAA levels can result from birth stresses or from a transfer in colostrum. Such raised SAA levels (which are much lower than those expected in a systemic infection or sepsis) are natural and fall to normal levels within days.

There have been conflicting reports regarding SAA levels during R.equi infection (probably associated with different detection methodology, but in a study involving 14 foals EquiChek™-SAA showed elevated SAA levels in R.Equi infected foals which correlated with elevated Fibrinogen and ultrasound scans.

EQUICHEK™-SAA

EquiChek™-SAA is a rapid test that provides immediate results on the inflammatory status of a foal. The result is semi-quantitative, foals with a significant inflammatory condition can be easily identified using just a drop of blood applied directly to the test device. Results are available in minutes, beside the foal. In conjunction with other clinical information, the SAA result is an aid to assessing the health status of the foal and can be used to help guide therapeutic intervention.



1. Stoneham et al Equine Vet J. 2001 Nov; 33(6):599-603