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Purpose of the study: Pulmonary hypertension due hypoxia can be expected to occur in some foals with severe pneumonia. Echocardiography has been used to identify pulmonary hypertension in other species and in adult horses. It has a potential application in foals in this setting. Our objectives were [1] use an experimental model of hypoxia to determine which, if any, Doppler and two-dimensional echocardiographic [2DE] variables could predict pulmonary hypertension and [2] in a clinical study, to compare the most promising in foals with naturally occurring pneumonia of varying severity.

Methods: Hypoxia was induced in 6 foals, aged 12-93 days, breathing 12% oxygen for 30 min. Pulmonary artery pressure [Ppa] was measured continuously and echocardiographic examinations were performed at 10 min intervals. The right pulmonary artery diameter from the right parasternal long-axis image of the left ventricular outflow tract, PARLOT4R, and other 2DE variables including the aortic diameter [AOR4L] were compared in 26 foals with pneumonia. Pneumonia severity groups were assigned based on thoracic ultrasonographic findings and the echocardiographic data from mild, moderate and severe groups were compared.

Results: The most accurate experimental model estimating Ppa included both PARLOT4R and ejection time, corrected for RR interval, measured from Doppler spectra from the right parasternal long-axis image of the right ventricular outflow tract. 26 foals, aged 5 – 178 days with pneumonia, often but not exclusively due to *Rhodococcus equi* infection, were included in the clinical study. The ratio PARLOT4R: AOR4L was significantly different when foals with severe pneumonia were compared to with mild or moderate cases.

Conclusions: Together these experimental and clinical studies demonstrate that a specific echocardiographic measure of pulmonary artery diameter increases in response to hypoxia and with severe pneumonia. This echocardiographic technique provides additional diagnostic information in foal pneumonia and is readily available to equine veterinarians.

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L11

THE EFFECT OF INSECT BLANKETS ON THE FEEDING RATE OF CULICOIDES SPECIES IN HORSES IN THE NETHERLANDS. P de Jong¹, MJ Wessels¹, RMGLI Stoop¹, F Jacobs², G Nodelijk³, Marianne M Sloet van Oldruitenborgh-Oosterbaan¹. ¹Department of Equine Sciences, Faculty of Veterinary Medicine, Utrecht University, ²Laboratory of Entomology, Wageningen University, The Netherlands, ³Central Veterinary Institute, Wageningen University, The Netherlands

Purpose of the study: Insect blankets are empirically a valuable tool in protecting horses against the bites of Culicoides midges and in preventing clinical signs of insect bite hypersensitivity. African Horse Sickness (AHS) is a vector-borne disease spread by Culicoides species mainly *C. imicola*, but *C. obsoletus* may be also a possible vector (Mellor et al. 1990). The purpose of this study was to determine the average insect feeding rate of Culicoides species in horses with and without an insect blanket including neck and hood to evaluate whether these insect blankets limit the feeding of Culicoides species on horses.

Methods: On three different farms two horses per farm (a total of six tests) were placed in an individual mosquito trap tent as described by van der Rijt et al (2008); one with and one without an insect blanket covering the whole horse except the limbs (Ivanhoe® Horse Products, Westenhoven, the Netherlands). After 1h the horses were removed from the tents and all the insects were collected from each tent and placed in 70% alcohol. In a

second test on the same farm the other horse was wearing an individually fitted insect blanket (cross-over study). At the same time as the horses were in the tents an Onderstepoort black light trap was placed near the horses to collect midges to determine the average feeding rate of Culicoides in the area. The species of each Culicoides midge collected was determined by light microscopy and each midge was examined to see if it had blood-fed or not.

Results: The total number of Culicoides caught varied widely per test from 5 to 328 in the tents and from 10 to 1302 in the black light trap.

In the immediate surrounding of horses wearing insect blankets the average feeding rate of all Culicoides midges and of *C. obsoletus* was comparable with that of midges caught in the black-light trap (Table 1). In the immediate surrounding of horses without a blanket the average feeding rate was increased.

Table 1. *Culicoides* midges caught in tent traps on 3 farms with 2 horses per farm during 6 tests and in a black light trap

| | Total Culicoides | Culicoides blood-fed | Total <i>C. obsoletus</i> | <i>C. obsoletus</i> blood-fed |
|------------------------|------------------|----------------------|---------------------------|-------------------------------|
| Horses with blanket | 402 | 130 (= 32%) | 295 | 88 (= 30%) |
| Horses without blanket | 464 | 260 (= 56%) | 318 | 185 (= 58%) |
| Black light trap | 1465 | 492 (= 34%) | 1316 | 433 (= 33%) |

Conclusions: Insect blankets with neck and hood limit the feeding rate of Culicoides on horses. This finding supports the empirical success of these blankets in horses with insect bite hypersensitivity and will be helpful to protect horses from bites of AHS-infected Culicoides in case of an AHS outbreak.

References: Mellor PS et al (1990) *Epidemiology and Infection* 105 447-454; Van der Rijt R et al (2008) *The Veterinary Journal* 178 91-97.

L12

CLINICOPATHOLOGICAL FEATURES OF *TRYPANOSOMA BRUCEI* CENTRAL NERVOUS SYSTEM INFECTION IN WORKING EQUIDAE IN THE GAMBIA. David GM Sutton, PJ Pollock, LJ Morrison¹, C Hahn², PE Johnston, KL Hulme-Moir, S Sharpe, J Rodgers¹, M Murray¹. School of Veterinary Medicine, College of Medical, Veterinary and Life Sciences, University of Glasgow, 464 Bearsden Road, Glasgow G61 1QH, ¹Wellcome Centre for Molecular Parasitology, Glasgow Biomedical Research Centre, University of Glasgow, 464 Bearsden Road, Glasgow G61 1QH, ²Royal (Dick) School of Veterinary Studies, University of Edinburgh, Easter Bush, Midlothian EH25 9RG

Purpose of the study: The major aim of this study was to investigate the clinicopathological features of a new fatal neurological syndrome of working equidae that had emerged in a region of The Gambia known to be hyperendemic for animal trypanosomiasis. This syndrome was reported to be of high prevalence, with significant detrimental consequences for animal welfare, agricultural development and economic advancement in this resource-poor region. Disseminated central nervous system trypanosome infection was a chief differential diagnosis and the further aim was to determine whether or not this was the causative agent of the neurological syndrome, so that treatment and management strategies could be developed.

Methods: Detailed historical, clinical and neurological evaluation of 16 working equidae presenting with characteristic neurological abnormalities was performed during 2010 in the Central River District of The Gambia by an experienced clinician. Facial venous plexus samples were used to make blood smears for trypanosome identification. Jugular samples were collected for PCV, TSP and white cell differential count; aliquots were placed