Highlights of recent clinically relevant papers

Treatment of summer eczema
R. Hallamaa and colleagues in Finland have reported the findings of their clinical study analysing the phospholipid content of autogenous serum preparations used to treat equine summer eczema.

Insect bite hypersensitivity (summer eczema) is a common cause of pruritus and skin lesions in horses; recently oral administration of diluted autologous serum has been advocated as a treatment option. The reason for this is the belief that affected horses overproduce lipids which form aggregate complexes and interrupt cell signalling, and by preparing autoserum with water and ethanol it is believed that these complexes are dissolved and the bioavailability of these lipids is therefore improved. This study assessed the phospholipid content of these autoserum preparations derived from both clinically affected and normal horses. Serum was collected from 16 horses, of which 10 were clinically affected by summer eczema and 6 were healthy controls. The duration of clinical signs varied from 2 months to 4 years and all horses had been withheld from treatment with corticosteroids or antihistamines for a minimum of 2 weeks prior to commencing the study. Autoserum was prepared as previously described and lipid analysis was performed using mass spectrometry, with subsequent quantitative analysis. Within the affected group there was a significantly greater concentration of phosphatidylcholine and sphingomyelin compared to the control group, which may be relevant in the observation that some horses with this disease respond favourably to autoserum therapy.

The authors concluded that horses with insect bite hypersensitivity have a higher concentration of some specific phospholipids than normal horses; further investigation is required to establish the role of autoserum therapy in the treatment of insect bite hypersensitivity.

Synovial sepsis following solar foot penetration
In this retrospective case series, J.A. Findley et al. report the outcome of 95 horses with synovial structure involvement following foot penetrations in 4 UK equine referral hospitals.

This study aimed to identify factors associated with outcome and prognostic indicators to allow clinicians to make evidence-based decisions for management of solar foot penetrations. A single synovial structure was involved in 46% of cases, with 50% involving 2 structures and the remainder sustaining injury to 3 structures. Survival to discharge was 56%, with 36% returning to their previous level of athletic function. The minimum time for follow-up was one year. Delayed presentation at the veterinary clinic, more than one surgery and prolonged hospitalisation were all associated with a negative outcome. Injuries that involved direct penetration of the frog and those involving the distal phalanx were also associated with a negative outcome. There was some evidence that performing intravenous regional perfusion (IVRP) at the time of surgery has a positive effect on outcome; however, no effect on outcome was detected when IVRP was performed post operatively. Draught or pony type breeds and ponies were more likely to return to athletic function than nondraught breeds, although this may reflect the level of athletic function required of these breeds.

Synovial sepsis following solar penetration is associated with a guarded prognosis for survival and a poor prognosis for return to previous levels of athletic activity. Rapid referral and hospitalisation may improve the outcome in cases where synovial sepsis is suspected.

Cleft palate treatment
S.J. Murray and colleagues in the USA have reported the findings of their study to determine survival rate and athletic ability after nonsurgical or surgical treatment of cleft palate in horses.

Medical records of 55 horses with cleft palate were reviewed for signalment, history, method of diagnosis, soft or hard palate involvement, type of surgical procedure performed, post operative complications, and survival to hospital discharge. Thirteen of the 55 horses died or were subjected to euthanasia without treatment and were not included in all analyses. Information on athletic ability was obtained from race records and follow-up conversations with owners, trainers or referring veterinarians.

The predominant reason for initial evaluation was milk or feed in the nostrils (60%). The diagnosis was confirmed by videendoscopy of the upper portion of the airway in all cases. Most cases involved the soft palate only (92.7%). Twenty-six of the 55 (47.3%) horses underwent surgical repair, and 12 of these had dehiscence at the caudal edge of the soft palate. Among potential racehorses, 14 of 33 had surgery, 12 of which survived to discharge and 2 raced; 10 of 33 were discharged without surgery and 2 of these raced. Among nonracehorses, 12 of 22 underwent surgery and 11 survived to discharge. All horses that were discharged and for which follow-up information was available survived to 2 years of age or older without ill thrift despite dehiscence at the caudal edge of the soft palate and continued mild nasal discharge.

The authors concluded that horses with cleft palate had a higher survival rate than previously reported.

Testosterone concentrations in cryptorchids
A. Claes and colleagues in the USA have recently evaluated the effect of season and age on serum testosterone concentrations in suspect cryptorchid stallions.

Cryptorchidism, characterised by inguinal and/or abdominal retention of one or both testes, is a common developmental defect in horses. Most cases present with stallion-like behaviour in males without palpable testes and questionable castration history. Evaluation of serum testosterone concentrations is commonly used to distinguish geldings from cryptorchid stallions without a scrotal testis, but results can be variable and difficult to interpret. Both season and age are known to have a major effect on testosterone concentrations in intact stallions, but little is known in cryptorchid stallions. It is also possible that serum testosterone concentrations in cryptorchid stallions are influenced by age as the cryptorchid testis is subjected to chronic elevated temperatures which could potentially adversely affect Leydig cell function.

Submission forms of equine serum samples submitted for analysis of testosterone were reviewed and data was
collected relating to history, age, month and season when the sample was received, and the measured testosterone concentration. Serum samples from 179 suspect cryptorchid stallions were included in the study.

The results of this study indicate that serum testosterone concentrations in suspect cryptorchid stallions are higher during the breeding season, and more particularly in spring. Conversely, baseline testosterone concentrations were lowest in November which may complicate accurate diagnosis of cryptorchidism at this time in the northern hemisphere. Concentrations of testosterone are significantly influenced by age with lower concentrations in cryptographic horses younger than 2 years of age, and older than 9 years of age.

**Pain scales for horses with acute colic**

G.A. Sutton and colleagues in Israel have recently published this study comparing 2 behaviour-based scales for evaluating abdominal pain in horses (Equine Acute Abdominal Pain Scales, EAAPS-1 and -2) and a numerical rating scale (NRS).

Forty-one equine veterinarians randomly assigned into 3 groups were each presented a different set of 28 moving picture films randomly chosen from 36 films of horses with colic and 4 controls. One randomly chosen film was embedded twice within each set. The 3 groups scored pain with either the EAAPS-1, EAAPS-2 or NRS. The intra-class correlations for EAAPS-1 and EAAPS-2 vs. NRS indicated superior inter-rater reliability for both EAAPS scales. The intra-rater reliability of the EAAPS-1 was superior to both the other scales. The convergent validity between both EAAPS scores and the NRS scores was substantial. Both EAAPS scales discriminated well between extreme groups to differentiate severe from mild pain, as judged by the NRS. Both EAAPS scales showed predictive validity comparable to NRS.

The authors concluded that the EAAPS-1 scale was the most reliable and proved to be more reliable than a global rating scale (NRS) while of comparable validity to it. Future studies are needed to demonstrate usefulness in the field.

**Cardioversion of atrial fibrillation**

A. Decloedt and colleagues at Ghent University, Belgium, have recently published the results of their study investigating the long-term follow-up of atrial function after cardioversion of atrial fibrillation in horses.

Atrial fibrillation (AF) causes atrial electrical and contractile remodelling in horses. The aim of this study was to quantify left atrial (LA) contractile function and its time course of recovery after cardioversion of naturally-occurring AF in horses. The study included 42 AF horses which were successfully treated using transvenous electrical cardioversion TVEC (n = 39) or quinidine sulfate (n = 3), with 37 healthy horses used as controls. Atrial fibrillation duration was estimated based on the history and previous examinations. Echocardiography was performed during general anaesthesia after TVEC (Day 0) and on Days 1, 2, 6 and then 7 weeks after cardioversion.

During follow-up after cardioversion, atrial contractile function measured by 2D echocardiography and TDI gradually improved. Seven weeks after cardioversion, TDI-based myocardial velocities returned to reference values. However, AF horses still showed significantly larger atrial dimensions, lower 2D ejection phase indices and prolonged TDI-based conduction time compared to the control group.

The authors concluded that AF-induced atrial contractile dysfunction gradually improves following cardioversion, but at 7 weeks post cardioversion, significant differences remain compared to healthy controls.

**Treatment of endotoxaemia in neonatal foals**

D.M. Wong and colleagues in the USA have recently evaluated the effect of intravenous administration of polymyxin B on clinical and serum biochemical variables in foals with experimental endotoxaemia.

Fifteen healthy neonatal foals were randomly assigned to a treatment or control group and were administered a single dose of lipopolysaccharide (0.5 μg/kg bwt) i.v. over 30 min. The treatment group received polymyxin B [6000 u/kg bwt, i.v.] immediately after completion of lipopolysaccharide infusion; the control group was administered an equal volume of saline solution. Subsequent doses of polymyxin B or saline solution were administered i.v. at 8 h and 16 h. Blood was collected at various time points, and outcome variables were measured. Urine was collected prior to and after experimentation to determine whether nephrotoxicosis was associated with treatment.

The treatment group had significantly lower blood lactate concentration and serum tumour necrosis factor-α and plasma thromboxane B2 concentrations and had higher blood glucose concentrations and better attitude scores, compared with the control group, at various time points during the study. No other significant differences and no evidence of overt nephrotoxicosis were detected. The authors concluded that administration of polymyxin B i.v. in healthy neonatal foals challenged with lipopolysaccharide attenuated some clinical and serum biochemical derangements associated with endotoxaemia.

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**References**


