

EquineReview

Introduction: This edition of the Equine Review looks at the use of basal adrenocorticotrophic hormone testing for pituitary pars intermedia dysfunction, rifampicin in the treatment of *Rhodococcus equi* and a new approach to managing persistent strangles carriers. <https://doi.org/10.12968/ukve.2022.6.5.212>

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Basal adrenocorticotrophic hormone testing for pituitary pars intermedia dysfunction

Basal adrenocorticotrophic hormone (ACTH) is widely used by practitioners in an attempt to diagnose pituitary pars intermedia dysfunction (PPID; equine Cushing's disease). To determine diagnostic test accuracy, Meyer et al (2021) undertook a systematic review and meta-analysis of the published literature. They then used disease prevalence data to evaluate its diagnostic value in horses with and without clinical signs of PPID.

The group identified 11 studies, but identified numerous areas of potential bias and lack of precision. While the overall sensitivity (true positive rate; 72%) and specificity (true negative rate; 88%) make the test look valuable in clinical practice, the population level data should give us a reason to rethink what cases we test. These showed that in horses without clinical signs of PPID, you would expect almost 10 times more false positives than true positives in horses under 10 years of age (127 and 13 horses per 1000 tested respectively), while in those older than 15, but without clinical signs, the false positive and true positive rate would be similar (104 and 132 horses per 1000 horses respectively). In horses with clinical signs of PPID, the false positive rate is negligible. However, the false negative rate is a cause for concern (306 horses per 1000).

The authors' conclusions are not novel – that basal ACTH testing is useful for confirming disease in animals where clinical signs already confirm your suspicions of disease – but even then, dynamic testing may be required to definitively confirm suspicions. What they also show is the magnitude of the risk of overdiagnosis of PPID in horses that do not have clinical signs and the potential for over treatment in those animals based on this apparently simple test. The study reinforces the need for dy-

namic thyrotropin-releasing hormone testing in asymptomatic cases.

Rifampicin in the treatment of *Rhodococcus equi*

The use of rifampicin for the treatment of *Rhodococcus equi* is problematic for the profession; macrolide and rifampicin resistance is emerging in foals, a pharmacological interaction that means rifampicin reduces intestinal absorption of macrolides and death rates from tuberculosis in humans continues to rise, a disease where rifampicin is considered critically important. The search for alternative treatment strategies is therefore essential for both animal and human health. There is considerable interest in the combination of macrolides with the oral tetracyclines but their role in the development of antibiotic resistance and in those resistant strains is unknown.

An in-vitro study of clarithromycin with doxycycline or minocycline by Erol et al (2022) provides early indications of the potential synergistic effects of these antibiotic combinations. These tetracyclines were as effective in reducing bacterial numbers as rifampicin and clarithromycin, whether used alone or in combination with clarithromycin. They also were effective even in those strains that were resistant to both rifampicin and clarithromycin.

This supports previous work that demonstrated that doxycycline alone may be effective in treating foals with *R. equi*. However, this latest work also demonstrates antibiotic synergism between the tetracyclines and macrolides, most importantly that combining doxycycline with clarithromycin reduces the opportunities for the development of resistance by lowering the mutant preventing concentrations (MPC) 64-fold. These are the concentrations needed to prevent all bacterial growth, such that mutation and thus bacterial resistance cannot develop. A lower MPC means that it is more likely that tis-

sue concentrations will exceed these concentrations, therefore preventing the development of resistance in-vivo. Therefore, while doxycycline may be currently effective in managing *R. equi* infections, combination with clarithromycin may help to prevent further resistance.

New approach for persistent strangles carriers

Management of clinical strangles is rarely problematic, but management of persistent asymptomatic carriers can sometime out-manoeuvre even the best medicines. A case series of 13 horses with guttural pouch empyema or chondroids by Koch et al (2022) suggests that surgical laser fenestration of the guttural pouch may be helpful in their management. This retrospective review identified horses that had undergone laser fenestration over a 3-year period. Under standing sedation, a triangular incision was made within the dorsal pharyngeal recess to provide direct access into either one or both pouches.

Of the 13 horses, 10 had received some form of prior medical treatment, although in only four did this include guttural pouch lavage and in only two were topical antibiotics instilled. In most cases, lavage of the pouch through the fenestration site was undertaken on only one occasion to avoid hospitalising contagious cases. Despite this limited management approach, clinical signs resolved in all 13 cases. The authors suggest that the improved drainage allows for natural clearance of infection.

This is a potentially valuable procedure, that can be useful in difficult and persistent cases. It is important to note that a positive outcome was defined as cessation of clinical signs and none of the horses underwent follow-up sampling to ensure that they were no longer *Streptococcus equi* carriers. As such, its true value in managing those difficult cases requires further study. **EQ**

References

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