Ocular Penetration of Intravenously Administered Enrofloxacin in the Horse

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Enrofloxacin treatment could be a useful treatment for Leptospira spp. infection of the equine eye. Authors’ addresses: Department of Clinical Sciences, Cornell University, College of Veterinary Medicine, Ithaca, NY 14853 (Divers, Irby); Department of Population Medicine and Diagnostic Sciences, Cornell University, College of Veterinary Medicine, Ithaca, NY 14853 (Mohammed); and Department of Molecular Medicine, Cornell University, College of Veterinary Medicine, Ithaca, NY 14853 (Schwark); e-mail: tjd8@cornell.edu. © 2007 AAEP.

1. Introduction
Persistent Leptospira spp. infection of the eye has recently been confirmed in some horses with equine recurrent uveitis (ERU). Based upon these reports it is possible that in some areas of North America and Europe, >50% of cases of ERU may be associated with persistent Leptospira infection of the eye. There is little information on ocular penetration of antimicrobial drugs in the horse. The purpose of this study was to determine aqueous concentrations of enrofloxacin in both normal and inflamed equine eyes after IV administration of the drug.

2. Materials and Methods
Six adult horses received 7.5 mg/kg of enrofloxacin IV every 24 h for four treatments. An aqueous specimen was collected from the left and right eyes using paracentesis 1 and 22 h after the third treatment. The specimens were used to determine the concentrations of enrofloxacin at those times in the normal eye. Aqueous paracentesis of the left eye was performed again 1 h after the fourth treatment to determine aqueous enrofloxacin concentrations in horses after disruption of the blood aqueous barrier (BAB). Aqueous protein was measured as a marker of inflammation.

3. Results
Enrofloxacin concentrations in aqueous 1 h after administration were above the minimal bactericidal concentration (MBC) for Leptospira Pomona (0.05–0.39 μg/ml) after disruption of the BAB.

4. Discussion and Significance
Enrofloxacin administration of 7.5 mg/kg IV to horses would likely result in ocular concentrations of the drug above the MBC for Leptospira spp. Therefore, this therapy may be a useful adjunct treatment for ERU associated with persistent Leptospira spp. infections.

*aBaytril 100, Bayer Health Care, LLC, Animal Health Division, Shawnee Mission, KS 66201.*