Pharmacokinetics and Clearance of Triamcinolone Acetonide After Intramuscular and Intra-Articular Administration to Exercised Thoroughbred Horses

Heather K. Knych, DVM, PhD, Diplomate ACVCP*; Martin A. Vidal, BVSc, PhD, Diplomate ACVS; Haley C. Casbeer, BS; and Dan S. McKemie, BS

The results of this study support an extended withdrawal time for triamcinolone acetonide given intramuscularly and suggest that plasma and urine concentrations are not a good indicator of synovial fluid concentrations. Authors' addresses: K.L. Maddy Equine Analytical Chemistry Laboratory (Knych, Casbeer, McKemie), Department of Surgery and Radiology (Vidal), School of Veterinary Medicine, University of California, Davis, CA 95616; e-mail: hkknych@ucdavis.edu.

*Corresponding and presenting author. © 2013 AAEP.

1. Introduction
Corticosteroids are potent anti-inflammatory agents used commonly in horses to treat performance-related injuries. Because of their potential to mask injuries that would otherwise prevent a horse from performing, regulation of corticosteroids is of the most importance. The goal of the present study was to describe plasma, urine, and synovial fluid concentrations of triamcinolone acetonide (TA) after intra-articular and intramuscular administration.

2. Materials and Methods
Twelve fit, racing adult Thoroughbred horses received a single intramuscular administration of TA (0.1 mg/kg). After an appropriate washout period, the same horses then received a single intra-articular TA administration (9 mg) into the right antebrachio-carpal joint. Blood, urine, and synovial fluid samples were collected before and at various times up to 60 days after drug administration and analyzed with the use of liquid chromatography–mass spectrometry. Plasma data were analyzed by means of non-compartmental analysis.

3. Results and Discussion
The plasma terminal elimination half-life was 11.4 ± 6.53 and 0.78 ± 1.00 days for intramuscular and intra-articular administration, respectively. After intramuscular administration, TA was below the limit of detection by days 52 and 60 in plasma and urine, respectively. After intra-articular administration, TA was undetectable by day 7 in plasma and day 8 in urine. TA was also undetectable in any of the joints sampled after intramuscular administration and remained above the limit of quantitation for 21 days after intra-articular administration.