Effects of Repeated Intra-Articular Administration of Amikacin on Serum Amyloid A, Total Protein, and Nucleated Cell Count in Synovial Fluid From Healthy Horses

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Synovial serum amyloid A may be more reliable than synovial total protein or cytological evaluation when considering sepsis in a joint previously sampled or treated with amikacin. Authors’ addresses: Department of Companion Animal Clinical Studies, Faculty of Veterinary Science, University of Pretoria, Private bag X04, Onderstepoort, 0110, Pretoria, South Africa (Sanchez Teran, Rubio-Martinez, Sanz); and Department of Microbiology, College of Veterinary Medicine, University of Tennessee, 2407 River Drive, A-205, Knoxville, TN 37996-4550 (Villarino); e-mail: luis.rubiomartinez@hotmail.com. *Corresponding author; †Presenting author. © 2012 AAEP.

1. Introduction
Serum amyloid A (SAA) in synovial fluid has recently been used as a marker for septic arthritis in horses. The aim of this study was to report the effect of repeated intra-articular administration of amikacin on SAA, total protein (TP), and nucleated cell count (NCC) in synovial fluid from healthy equine joints.

2. Materials and Methods
A prospective, 2-period, cross-over design was performed on 5 clinically healthy horses. Each intercarpal joint received one of two treatments every 48 hours for 5 consecutive times: arthrocentesis alone (CG) or arthrocentesis combined with intra-articular administration of 500 mg of amikacin (TG).

Serum SAA and synovial SAA, TP, and NCC were collected and measured over time and statistically compared. Significance level was set at $p < 0.05$.

3. Results
Horses remained healthy and non-lame throughout the study. All baseline values were not statistically different between groups. After the initial arthro-
centesis, mean NCC was significantly increased in both groups, and mean TP concentration was significantly increased in TG as compared with CG ($p < 0.05$). Synovial SAA concentrations remained below the lower limit of quantification in both groups throughout the study. Serum SAA remained within normal limits.

4. Discussion
Reiterated intra-articular administration of amikacin increased values of TP and NCC in synovial fluid, with some TP values within the range reported for septic arthritis. Synovial SAA concentrations did not increase in either group.