Evaluation of Topical Diclofenac Liposomal Cream for Treatment of Equine Osteoarthritis Using an Equine Experimental Model

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The use of topical diclofenac liposomal cream showed disease-modifying effects and performed significantly better than oral phenylbutazone in experimental osteoarthritis (OA). The results of this study support the use of diclofenac liposomal cream for joint OA. Authors’ address: Gail Holmes Equine Orthopaedic Research Center, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, 2503 Bay Farm Road, Fort Collins, CO 80523; e-mail: David.Frisbie@Colostate.edu. © 2007 AAEP.

1. Introduction
Given potential negative effects with systemic non-steroidal anti-inflammatory drugs, a novel topical agent was critically evaluated.

2. Materials and Methods
This was a double-blinded experimentally controlled randomized block design using 24 horses in an established model of osteoarthritis (OA). OA was induced in one carpal joint of three groups using each horse. Each group received placebo, 7.2 g of 1% diclofenac liposomal cream topically (q 12 h) over the OA joint, or 2 g phenylbutazone orally (q 24 h). Clinical, biochemical, gross, and histologic outcome parameters were objectively measured. Data were analyzed using a combination of analysis of variance matrices; p ≤ 0.05 was considered statistically significant.

3. Results
No adverse events were recorded. The percent change in lameness score indicated a significantly (p = 0.037) better response with diclofenac liposomal cream treatment compared with phenylbutazone. Similar results were noted with degree of radial carpal bone sclerosis measured using magnetic resonance. Articular cartilage showed a significantly (p = 0.01) better glycosaminoglycan content in diclofenac liposomal cream-treated joints compared with placebo and a trend (p = 0.06) for diclofenac liposomal cream to decrease histologic progression of OA measure by modified Mankin score compared with placebo treatment.

4. Discussion
Results of this study indicate that diclofenac liposomal cream applied to a joint with experimental OA pro-
vides a significantly better outcome than a similar joint treated with systemic phenylbutazone.

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**Footnote**

*Surpass, IDEXX Pharmaceuticals, Inc., Greensboro, NC 27410.*